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Social Security

Family medicine at the dawn of the 21st Century

Themes and arguments

Carmen García-Peña ■ Onofre Muñoz
Luis Durán ■ Felipe Vázquez

Editors



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Preface

The American Commission of Social Medicine has presented in the last four years a collection of works on the main health issues that social security confronts nowadays. The present book rather than isolating a vulnerable group or a disciplinary interest, seeks to review the responses that different countries in our region and outside of it have offered for the needs of the population at the primary level of health care.

As will be seen in the following chapters the issue is a complex one. The complexities start with the definition of the approaches, the actors and the organizational models followed in the different countries. However, we believe that at the center there is a convergence on what some called a family physician and his/her duty to integrate and coordinate the care that a group of health professionals provide to solve what accounts for the 80% of the motives for consultation in the health care system.

The goal of this book is to stir the discussion and exchange experiences of what have been the recent efforts and concerns of the different countries represented in this book to address the challenge of a more effective and efficient health care system. We are sure that this book is a step in that direction and we offer this to the community of the family physicians, general practitioners and primary health care providers as a reflection of the future that lies ahead.

Introduction

María del Carmen García Peña*

We are very proud to present a comprehensive evaluation and forecast of Family Medicine in the New Millennium. A world network of friends and colleagues, a committed group of international and Mexican authors have generously poured a rich variety of observations, reflections, research results and introspections in these pages to inform the discussion on the future of Family Medicine.

The book is organised in two parts; the first, describes the Improvement Process of Family Medicine developed at the Mexican Institute of Social Security, the second, is a collection of experiences on Family Medicine and Primary Care in diverse countries, to create a landscape of the complex ground of Family Medicine. Personal and Comments on perspectives are spread throughout the book.

To begin, Geoffrey Meads gives us an international perspective on the future of family medicine, he warns us about the effect of externalities on Family Medicine destiny –political alliances as an example– and how different forms of organisational development are shaping the practice of Family Medicine. Meads writes thoughtfully on the transformational nature of Family Medicine and on its need to get partnerships for its successful survival. While acknowledging that there is no pure organisational form in Family Medicine, his taxonomy of organisational developments in family medicine divided in Extended General Practice, Managed Care Enterprise, Reformed Polyclinic, District Health System, Community Development Agency and Franchised Outreach has an enormous heuristic value to understand contemporary health services organisation and development.

Blanca Ruiz Hernández *et al* give us a very useful description of the evolution of social security in Mexico since its appearance in 1943, the shortcomings and successes of the system, and how the demographic and epidemiological transitions challenged the assumptions of the first half of the 20th century. The evaluation of

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the Family Medicine System is described in terms of patient satisfaction, organisation, resources, management, clinical performance and workers satisfaction.

Dwelling on the evaluation written on the previous chapter, Hortensia Reyes *et al* wrote interesting insights about the conceptual design of the Family Medicine Improvement Process (PMMF, for its abbreviation in Spanish), looking to achieve primary care that is integral, continued, coordinated, culturally acceptable and covering the health needs of the population. Ricardo Perez-Cuevas *et al* described in a very comprehensive way the results of the intervention in its experimental phase, displaying the results obtained in the most common conditions in Family Medicine Units. The changes in structure, processes and results are given in detail to allow the reader to have a clear picture of the process.

The contribution of social services to the PMMF is the issue of José David Martínez Ramírez *et al* chapter. The organisational arrangements and purpose of this important component are analysed in the material. Francisco Michaus Romero *et al* give us an account of the challenges faced by the Social Security System in order to spread and generalise the interventions tested previously. They applied nicely the Diffusion of Innovations Theory and Health Policy Principles to clarify this nationwide enterprise.

Mauricio Derbez del Pino *et al*, made a valuable review of the history of clinical information systems applied to social security in Mexico. They analyse the technical limitations and the information that each system was able to provide. Family Medicine Information System (SIMF, for its abbreviation in Spanish) is an ambitious software that tries to provide the informational support to the principles of integral, continued and nationwide care based on individualised information repositories with networking, interconnectivity, compatibility and analytical properties. To have just a glimpse of the effort by the beginning of August 2005 there were more than five thousand doctor offices equipped with SIMF and 8.5 million rightful claimants with electronic records. To this day 28.6 million attentions have been provided with SIMF. The organisational and interinstitutional arrangements of this historical step in medical informatics in Latin America, including the fructiferous collaboration with the National University of Mexico (UNAM, for its abbreviation in Spanish) are part of the contents of this chapter.

As an essential component of the PMMF, Medical Education of Family Physicians at IMSS is the topic of Leonardo Viniegra *et al* well informed chapter. Since 1971 IMSS have educated Family Physicians, beginning with 30 in that year. Viniegra writes about the complex relationships between medical education and care, classroom and clinic, diverse education models and ideological perspectives. He adheres to a participative model of education where evaluation is centered on clinical aptitude and the appropriate analysis, critique and use of information.

Ricardo León Anzures Carro *et al* elaborate on education and organisational transformation working on an attractive concept: Andragogy. The word reminds us that adults need to know why they need to learn something, need to learn experientially, approach learning as problem-solving, and learn best when the topic is of immediate value. Applying these principles, Anzures describes professor visits, bibliographic sessions and review of clinical cases role on medical education applied in the PMMF.

An eluding concept is comprehensive or integral attention in Family Medicine, Francisco Michaus *et al* provide a useful framework for its analysis. Integrated Health Care Programs are the backbone of Prevenimms strategy, they are a series of targeted group preventive interventions analysed by Gonzalo Gutiérrez Trujillo *et al* in their innovative chapter. As the chronic disease appears, self-care support is needed.

Blanca Hernández Leyva *et al* have developed a grounded and practical group approach for the support of patients with overweight, obesity, hypertension and diabetes mellitus. The barriers and alternatives of this educational approach for patients are considered in this chapter.

Rehabilitation Services in Family Medicine Units are one of the structural contributions of PMMF to Family Medicine Services. Juan Manuel Guzmán González *et al* made a contribution on the development of these services from the integration of teamworks, description of professional activities, equipment, development of guidelines and services evaluation.

Angélica Castro Ríos *et al* provide a detailed account on the evaluation of the implantation of PMMF throughout the country. The evaluation includes medical training, computerisation of offices, rate of adoption of the system and medical outcomes with an economical perspective.

On chapter 15 Onofre Muñoz Hernández *et al* provide reflections on the perspectives of the future of Family Medicine in Mexico browsing through some of the ideals and goals available in the literature and following on the ideas interspersed in previous chapters.

The International Experiences section begins with Rubinstein's insightful narrative on the Family Medicine in Argentina. Health Institutions in Latin American countries struggle to reduce the burden of inequity in health services and to reduce the gap of the ratio between family physicians and the population numbers. The scarcity of family physicians seem to be related to a prevalent hospital based medical attention where preventive interventions need to acquire more relevance. He estimates that at the pace family physicians are now graduating, 50 years or so will be needed in Argentina to have a number of family physicians sufficient to provide services to the population by international standards.

Pablo González Blasco from Brazil, also makes relevant remarks on the paramount importance of universities for the health systems to be able to develop professionals with a variety of skills to practice Family Medicine as required. He emphasizes Family Medicine as an academic discipline. González Blasco points to the importance of adequate human resources formation and certification for the consolidation of the discipline. Academic excellence is the answer.

John Millar from Canada confronts brilliantly the problem experienced by Canadian Health System and elsewhere by the burden of chronic illnesses, he remarks the fact that a small proportion of the population (about 5%), who are patients with clusters of chronic disease consume 40-50% of health care resources in terms of hospitalizations, pharmaceuticals and physician visits. This group of patients requires a creative approach from the health care system. Chernichovsky provides a thoughtful analysis on the economic implications of primary care in Israel. Coster describes how General Practice in New Zealand is experiencing at the dawn of the 21st century the most significant reform that it has undergone in over 40 years. Coster covers superbly diverse issues of funding, organisation, population-based approaches, strategies for improving health services acces of Māori, people in a particularly interesting exercise of cultural sensitive approach to health services provision. He also makes important points regarding electronic health records, information systems, incentives and the framework for quality evaluation. In chapter 21 Campbell and Roland discuss cutting edge developments in quality improvement in the United Kingdom analysing the chances of success and failure of these initiatives. National guidelines and standards, clinical governance, monitoring and inspection are reviewed by these excellent reseachers and Primary Care scholars as components of strategies for improvement. A very informative work on accountability and dealing with poor performance is included in this chapter.

Gordon L Moore describes a valuable experience on providing services as a solo practitioner, he elaborates on his model of practice as a way to reduce physician burnout, overcome the barriers between patient and provider and minimize the administrative costs of providing care. Mukesh Jain *et al* take us to one of the fundamental transformational experiences in health services in the world, the Veterans Health Administration transformation. Many lessons are there to learn from. Among them is the recognition of the relevance of primary care services, with several components, the performance of the system has improved dramatically.

Last but not least Onofre Muñoz wraps up nicely with a comparative analysis of the international experiences in Family Medicine Services Organisation and Improvement to keep thinking and echoing on the multiple reactions and reflections that the vast and magnificent material that the authors have given us as an intellectual gift to travel into the Family Medicine today's world. Join us in this voyage into the future, it starts now!

Family medicine: Future issues and perspectives

Geoffrey Meads*

Organisational Context

The toughest truth for many practitioners of family medicine is that its future is not in their own hands. The principle of professional self-determination is no longer sufficient or even relevant in the expanding practice of modern primary care services. The investment and consequent accountabilities these require stretch far beyond the regulatory rights of Royal Colleges or other exclusive uni-disciplinary forms of protective professional association for family medicine. Autonomy has become a relational concept; earned in everyday practice by family doctors through effective collaboration with other practitioners, the public and their patients, as well as new partner agencies and policymakers. Personal trust and status for the General Medical Practitioner cannot be taken for granted. Family medicine itself as a clinical code of conduct may essentially, over time, stay the same but its organisational behaviour, even in the medium term, cannot but change with the emergent post-millennium political contexts. The future of family medicine is largely an external rather than an internal issue, and as such an international perspective provides a helpful position from which to appreciate its future prospects.

In global terms family medicine is now practised within six forms of organisational development. In this chapter we will look to explore the different and defining features of each of these, presenting them conceptually as 'ideal types' and empirically as aggregates of cited local examples across broad based, continental scale geographic areas. The impact of cultural conditioning will be clear, but so too will be the consistent and powerful political motif of modernisation. Family medicine cannot escape its transformational tendencies. However distinctive, for example, particular approaches to local resource management may be, universally

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the decentralisation of health systems requires family medicine to assume new executive and educational roles.¹ Its historic roots in poverty are undermined by new policies and professions that espouse the poor and promote public health as paths to their own preservation and progress. Not infrequently the family doctor is left virtually friendless by modern organisational developments in primary care. The paternal and sometimes paternalistic relationship with nurses is a thing of the past: they have often become graduates themselves, with their own prescribing rights and professional bodies. Personal administrators have been replaced by general management, and extended primary care means an emphasis on new community based specialisms, often as alternatives to family medicine. These are now bidding, sometimes successfully, to substitute for some of its former functions. And, moreover, they are doing so at a lower cost in new and alternative settings, frequently with other organisations of either their own or their 'stakeholders' design. For the latter they represent tomorrow's world.

As a result, family medicine is no longer a discrete enterprise. It flourishes most where it has effective political alliances. These sometimes, as in Moldova and Latvia for example, may be with international and charitable sponsors,² or as in Estonia through government subsidy;³ but they are rarely with other doctors; or with the wealthy. Growth in medical specialisms and popular prosperity both threaten the foundations of the family doctor, as can his or her own pursuit of affluence. Across the world there are examples of family medicine becoming too expensive: pricing itself out of primary care development, as for instance, has recently happened in both Croatia and South Africa.* Traditionally partnership has been an important value for family medicine. It has often meant close and even commercial relationships between General Practitioners (GPs). For the future of family medicine, and its maintenance, it will need to mean more outward facing and less self-interested relationships. In Australia the Commonwealth set out a series of critical stakeholders for the future in its review of 'General Practice changing the future through partnerships'.⁷ This new relational emphasis is apparent as we turn now to our classification of modern organisational developments in primary care.

* Much of the data and analysis in this Chapter is derived from the 2002-2005 International Primary Care Research Unit Programme supported by the Health Foundation, the University of Warwick and the Department of Health UK, and reported in references 4-6.

Organisational Developments

There are six models or ideal types which will be described in the following pages:

The Extended General Practice

Still dominant in much of Western Europe and, through past colonial influences, in other countries such as those of the Caribbean, where British (and Spanish) political and cultural structures, in particular, have been adopted, the extended general practice remains one of the two basic global reference points for the development and practice of family medicine. Its counterpart is the district health system, which we describe below, and each possesses in the World Health Organisation (WHO) and World Organisation of National Colleges and Academies of General Practice (WONCA) an overarching and powerful sponsor with widespread international influence.

Although the extended general practice has emerged from the individualistic and sometimes idiosyncratic practice of independent medical professionals, it is now firmly team based with a multi-professional profile. Nevertheless, family medicine is its pivotal and principal source of interventions. These interventions may include, increasingly, chronic disease management and some clinical prevention procedures, but they remain focused on diagnosing and treating the individual patient who is offered personal care with a named doctor through a registered list. Values of continuity, trust and reciprocity apply in what is an holistic approach to family medicine. In the modern extended general practice this approach legitimises the role of the family doctor as not just the referral point but also the gatekeeper for secondary and sometimes social care.

But the legitimacy now is only viable because it embraces others alongside the family doctor. Such are the contemporary and future pressures on scarce secondary and social care resources that an appeal simply to the traditional ethics and philosophies of general medical practice is never going to be enough. Family medicine needs new allies even within its most established stronghold of the GP surgery. Here its new partners are usually primary care nurses and managers, both growing in number and scope, plus several allied health professionals attracted by the ready prospect of increased resources, referrals, specialist roles and subsequent status. Counsellors, physiotherapists and dispensers are the most evident in this category and while the doctor remains not only the lead partner and team leader, the practice and ownership of family medicine in the extended general practice is increasingly shared. Primary care nurse-led triage, prescribing and screening

programmes are the most obvious examples of this change which also applies, although to a lesser extent, to others in the developing primary care teams. GP supervised (if only nominally) back pain programmes by practice based physiotherapists are one common illustration of the latter and there are many others emerging, especially as long stay institutional closures lead to a growing range of mental health issues for family medicine to address.

These issues have led in such countries as Sweden, Finland and England, where the extended general practice is in its most advanced form, to the transfer of major financial resource management responsibilities to representatives of family medicine from both local and national governments (eg NHS primary care trusts and practice based commissioning in England). Incorporated within these transfers is an extended pastoral role in relation to conditions previously beyond the defined limits of medicine, and to the consequent inclusion in the practice unit of social workers and social care assistants. In poorer countries, like Barbados or Estonia, where through the British or Scandinavian influence the extended general practice is also being promoted as the main source of comprehensive longitudinal health care, such new roles may be undertaken by paid volunteers or part-time personnel. They signal the new proactive character of family medicine within the extended general practice. Although still essentially site based and demand driven it does, in the twenty first century, recognise its patients collectively as well as individually. They in return perceive their family doctor not simply as a personal physician and independent practitioner but as the lead local health care professional whose growing team status is now very much *primus inter pares*.⁸

The Managed Care Enterprise

Where the extended general practice is still a small (but growing) business, often with strong family and historic roots, the managed care enterprise is a recent phenomenon and novel form of corporate organisation. As such it is a modern complex type of organisation in its collaborative structures and external stakeholder interactions, which eschews the simple hierarchic and peer partnership processes that have always applied in the past to general medical practice. For the family doctor in the managed care enterprise protocol, procedure and payment underpin clinical behaviour. While originally drawing on much of the GP gate keeping experience and prospectively looking to incorporate extended general practices within its parameters, the managed care enterprise is essentially a product with a premium where general management and the market rather than the individual profession or patient, set the strategic direction. The managed care enterprise, of

course, comes ultimately from the United States of America and the commercial insurance industry.

Although it remains a minority organisational unit for family medicine globally, the managed care enterprise is growing and it is now the most frequently cited development in the relevant contemporary research literature (see for example, Cabiedes and Guillen⁹ and Flood).¹⁰ Inevitably, by both design and default, the US influence is immensely powerful internationally, not least through its major donor charities and its leading financial and political contributions to the World Bank. As a result, the managed care enterprise is now turning up in unexpected locations. It is, perhaps, no surprise to see its establishment in the merged public-private Sickness Funds of Israel, Germany and the Netherlands, or in the care packages offered by the family health networks of Canada and Mexico, just across the borders from the United States. But it is a surprise, perhaps even a shock, to discover similar programmes emerging over the past decade in, for example, Sri Lanka (under strong World Bank influence), Northern Peru (with consultancy from Johns Hopkins University in Baltimore) and, almost incredibly given some of their past quasi-communist political positions, in articles reviewing developments in impoverished Zambia, Nigeria and Tanzania (each of which has been subject to International Monetary Fund conditions for mixed public-private service development in return for loan support and debt relief).¹¹⁻¹³

The managed care enterprise is centrally characterised by the purchasing of family medicine as cost and clinically effective supply side provision. When converted into a formal knowledge management process, through the systematic application of current information technology and scientifically sound evidence, this purchasing activity becomes commissioning. It moves from a relationship of supply and demand to one of defined needs and resources as currencies with both health and economic outputs as outcomes. The managed care enterprise is viewed by its architects as an integral part of a dynamic transactional market in which the general medical practitioner can occupy a series of roles as care manager, commodity broker and even payer. In this context the family doctor is less expensive than other specialisms of medicine. The role is also more malleable. It acquires as a result different nomenclatures in a diversity or choice of providers, as the managed care enterprise looks to constrain hospital costs, maximise the value of its own frontline services, and through regular market research, re-profile demand in the interests of its own income and areas of expertise. In this context, family doctors may be termed, for example, 'General Practitioners with Special Interest' (by English primary care trusts) or 'Community GP Specialists' (by German health insurance corporations) who work for instance in 'Point of Service Networks' (in New

Zealand's Independent Practice Associations), supplying 'Packages of Care' everywhere and usually within the terms of the US style 'Programme Budgets' originally drawn up by health maintenance organisations in California, Boston and Minneapolis.

Where the extended general practice is professionally oriented in its approach to family medicine, the managed care enterprise is firmly functional. The former will still lay claim to a normative commitment from its participants. In the managed care enterprise this commitment is unequivocally calculative. As such it is at least as much an economic as social development. In those countries that are its leading exponents issues surrounding the future of family medicine belong politically as much to Finance, Employment and Interior Ministries as they do to central Departments of Health. Recent attempts to privatise primary care in Portugal and extend family medicine coverage through government supported independent health insurance agencies (ISAPRES) in Chile are two ready illustrations.^{14,15} That neither was particularly effective indicates, contrary to what is often supposed, that the managed care enterprise may be growing internationally but this does not mean it will automatically become the prevalent framework globally for practitioners of family medicine.

The Reformed Polyclinic

Contrary also to a popular opinion the polyclinic does not seem destined merely for extinction. It has not disappeared with the demise of the old Soviet Union. Indeed it is alive and kicking, and in unexpected places; not just Eastern Europe; and with a fresh *raison d'être*.

This rationale is not simply as a vehicle for privatisation, although in such countries as the Czech Republic and Russia itself in the early 1990s polyclinic doctors were certainly in the vanguard of the shift to capitalism. Sometimes, in the absence of effective regulation, this was with disastrous consequences. By 1994, for example, the City Council of Riga, the capital of Latvia, found itself drastically downgrading medical fee scales during a period of consultancy by the author, as up to sixty specialists in a single polyclinic sought to expand both their roles and their remuneration by simply increasing referrals to each other of the same patients within the clinic. Payment was, in those days, based entirely on the number of consultations: each contact attracting a further fee for service.

Fortunately in Latvia, as elsewhere, matters have moved on. Russian medical schools had already pioneered the inclusion of public health as a thematic in the training of many specialist clinical disciplines, even in the early educational stages of pre-registration programmes. Cuba, in parallel, promoted multi-specialist

contributions to its *Consultorios Populares* which, while firmly family doctor based, sought even in the 1960s to incorporate elements of polyclinics effectively into the country's incipient Health For All policies and projects.

More recently, in Brazil, a similar approach has been central to post-1990 policies for a Unified Health System (SUS), with the 1993 Base Operating Rule (BOR) enshrining principles of universality, equity and integration through an approach to decentralisation based on the reformed polyclinic. In the Brazilian model this means integrating private sector specialists, including those from family medicine, usually on a sessional or daily basis into community clinics contracted to provide service specific universal health care programmes. In Brazil health care management is at the level of its 5,500 plus municipalities and the country is characterised by a scale of social and economic inequalities matched only by South Africa. In such a context the SUS core principle of participation has to mean the inclusion of private professionals just as much as it does that of community groups representing, for example, indigenous people's or women's rights. The BOR nationally determined capitation rates apply across the board: to the multispecialist polyclinic and to the generic health care practitioners of the community health care centre. Family medicine is a significant feature in both, supplied often from one small cubicle in the former, pervading the premises of the latter.

The reformed polyclinic in Brazil, as elsewhere, is often seen as a governmental response to growing middle class expectations for individualised treatments, but within an overall framework of public health policy and funding.¹⁶ This is, for example, evident in the hybrid health system of Greece. Here, particularly in the main cities of Athens and Thessalonica, family medicine is not so much the gatekeeper of as the conduit to specialist care. Since 2001 the independent national agency for 30 separate social insurance funds (IKA), operating as an independent association and registered charity, has been accrediting individual family doctors in their private premises with exclusive referral rights to their multi-specialist centre. In the capital itself these polyclinics may have up to 80 doctors, including further general medical practitioners. The IKA developments are explicitly based on the old Soviet Semashka system, but this time in the modern era, using polyclinics to guarantee nationally prescribed standards of care in the community, in this case for five million premium paying Greek employees under the auspices of the Ministry for Social Affairs.¹⁷

The IKA 'Hub and Spoke' model has its counterparts elsewhere, scattered across the globe from the nine-professions in the San Joaquin Family Health Centre of Santiago, Chile, piloted by the Ministry of Health with support from the main Catholic University, to the curious semi-State, semi-private Singhealth Clinic companies of Singapore. The main concentration of polyclinic developments

remains, of course, in and around Russia, but in its reformation its orientation as an organisational coalition of provider specialists, invariably including family medicine, is emphatically client based and consumerist. The reformed polyclinic places a commercial value on family medicine. It aligns with modernising pressures for partnership with the private sector and, as the above illustrations indicate, in the twenty first century it is an organisational form that, given the right culture and circumstances, can still effectively progress global principles of primary health care as well as national strategies for public health improvement. For family medicine the polyclinic is no dinosaur. Its future development offers the prospect of higher specialist status, private reward and partnerships, all within a new ethos of public trust and well being.

The District Health System

Alongside the extended general practice the district health system (DHS) is the other principal starting point for understanding primary care developments internationally and the future role of family medicine. In large part this is because of the central sponsorship of the World Health Organisation. The WHO has a long history in more than 30 countries of using DHS sites for trialling new clinical roles and epidemiological research in primary care across Asia, Southern America and, of course, much of Africa.¹⁸ Indeed the district health system was the operational framework for the introduction of barefoot doctors across China, as well as local health care technicians in parts of Latin America, 'Triple Trained' nurses in southern Africa and re-trained internists and paediatricians in the republics of central Asia.^{19,20}

As these indicate substitution for family medicine is a DHS defining feature of the district health system. In the parts of the world where DHS prevails as a frontline service, and sometimes even as a secondary point of referral, the family doctor is too expensive, to both train and maintain, and therefore, a scarce commodity. As a result, the role of the DHS family doctor is strategic and supervisory. In terms of physical location it may even be sited alongside specialist sources of clinical and planning expertise, in a university hospital, as in Pretoria, or at the level of the 100 plus bed local general hospital as in Kenya and Uganda. The role may not even be a native one, not just occupied by an overseas recruit - for example, a European general medical practitioner on a short term secondment, sabbatical or elective, but also created by external sponsorship.

For the DHS is popular with donors. It is a rational approach. It looks good on paper, not least because while it draws on Scandinavian style academic 'impact assessments' from health economics and environmental studies, it also recognises the requirement of responding to local priorities.^{21,22} Indeed in negotiating these

priorities the DHS approach allows for both the identification of both new needs and new resources. A multitude of micro finance schemes have been spawned by the DHS. Local insurance, extended risk pooling funeral charges, user fees and mutual benefit cooperatives are just the beginnings of a list which demonstrates the range of such schemes that are often supported by non-governmental organisations (NGOs). For the latter, whether as local or international charities, life assurance companies or churches, these schemes supply income in states where public expenditure on health is often limited largely to hospital settings and may well, in total, amount to well under half of that spent nationally on medical care. Accordingly family medicine in the district health system is part of a public health movement. The family doctor as District Medical Officer or equivalent oversees populations of up to a quarter of a million people. Nurse-led health centres operate within their remit for 20-30,000 population units and first aid outposts and stations sustained by subsistence level dispensers and volunteers located at the village or neighbourhood levels. In this management capacity, seeing relatively few patients in person themselves, the family doctors bring a focus on prevention and if, as is often necessary, palliative care with a concern for social issues and social capital development, and a holistic philosophy which respects not just the integrity of the individual but also that of the clan, the tribe and the customs of the indigenous way of life.

DHS and Sector-Wide Approach (SWAp) go together under the terms of global Modernisation. The SWAp is, and seems likely to continue to be, the prerequisite and precondition for donor support whether by governments or aid agencies.²³ Recipients must be able to demonstrate effective frameworks for public administration, with probity, partnership with NGOs and participation. Good governance and democratic government are mandatory aims and the district health system paves the way for both. In Uganda, for example, each level of the DHS has a different level of health care provision; each matches a local level of community with each tier of management being directly elected either by, for example, the county or village or by representatives of the subordinate tiers. The family doctor, at the fifth level, steers the primary care activity, interventions and profile of the whole system. The role of family medicine is that of sectoral direction and public leadership, intimately related to macro-policies for state revival and rehabilitation.²⁴ Accordingly for family medicine in a district health system, the orientation is bureaucratic with modern managerial values. Accountabilities are formal and prescribed with delineated lines of executive control and cross agency links. The agenda of the DHS family doctor influences and is influenced by counterpart professionals managing parallel district functions which cover, for example, the environment, employment, production and economic development. Horizontal

and, more particularly, vertical relationships can be drawn clearly and, if necessary to meet donor demands, diagrammatically. In systemic terms family medicine becomes part of the throughput process. Where in other organisational models for primary care it would clearly be seen as an important input, in the DHS the doctor is key to the conversion of other inputs. These are localised combinations of funds, traditions, gifts, data, drugs, volunteers and, significantly, all informal intelligence and information, converted into outputs for increased immunisation and screening, reduced mortality and, above all, popular compliance with modern medical practices and procedures. Family medicine admirably fulfils this role. Its professional status and clinical credibility qualifies it for formal management but, more important, in the district health system its pastoral values and liberal principles position it ideally to harness alternative informal sources of healing, herbal remedies, historic treatments and therapies. Moreover, because of these qualities, as the twenty first century gathers pace so does the district health system. No longer just the preserve of poorer countries its potential for social capital and inclusion means that family medicine as a strategic force is increasingly recognised by such powerful policy analysts and advocates as the Health Systems Trust (in South Africa),²⁵ Nuffield Institute (UK) and several International Development Ministries in western Europe. It has a political and global future.

The Community Development Agency

The other side of the coin to the district health system for family medicine, because it is grassroots rather than government and governance based, is the community development agency. This is at least as political as the DHS in its motivation, and both are pivotal elements in local and national regeneration programmes. As a location for family doctors the community development agency is overwhelmingly at its strongest within the global region encompassed by the powerful and independently constituted Pan American Health Organisation (PAHO). Throughout such countries as Colombia, Bolivia, Peru, Brazil and even parts of Canada (eg Quebec, Ontario), the community health centre or clinic is emerging as an engine driving forward participatory democracy. Fostered by egalitarian movements and the slogans of Citizenship and Civil Society local ownership and management of primary care and its new organisations are regarded, in Latin America at least, as being at the heart of human rights and the restoration of national identities, following periods of political unrest which have often meant military conflicts and even civil war.

In this context such professional disciplines as family medicine are being both revived and redefined. The terminology is different. Under strong Cuban

influence general practitioners in, for example, Venezuela and Nicaragua practise what is now called 'Integrated Social Medicine'. Social care and control is as significant here as clinical interventions with doctors working alongside local women's groups, volunteers, auxiliaries, seniors' representatives and, not infrequently, out posted students and researchers from socially conscientious universities as well. Management ostensibly is by the people, for the people. Indeed, often the origins of the community health committee in such places as Vietnam and Eritrea date back to nominated members of popular resistance movements or revolutions.^{26, 27}

Participation and empowerment are the watchwords. Family medicine signifies a popular entitlement with regular household health needs assessments undertaken to ensure that, especially in poorer areas and amongst ethnic minorities, there is full and continuous access to its facilities. The PAHO approach is mirrored by developments elsewhere in the world for aboriginal peoples with, for example, both New Zealand and Australia steadily transferring budgetary responsibilities to Maori and Torres Strait Islander community groups respectively for primary care provision and management over the past decade. Guinea, parts of Mexico and Indonesia, and southern Costa Rica where the Chirripo tribes live, are further illustrations of the growth of family medicine in recent years within the context of new community development agencies.

For family medicine this context contains risks as well as opportunities. Peru is a beacon site, in global terms, for public participation and its 2 000 plus community health committees (CLAS) have demonstrated real value for money in terms specific to patient satisfaction, prescribing and public health improvement.²⁸ Their standard seven person executive usually contains a family doctor as clinical director with three elected and three locally appointed lay representatives each charged with a communal responsibility for addressing an agreed local health priority. It sounds wonderful and sometimes it is, with women especially released into new roles and rights. But nationwide there remain considerable inequities; local management can be both inefficient and even corrupt and national priorities and government can be undermined. With religious groups to the fore the community development agency can strengthen some social structures but may diminish others with the result that family medicine is viewed as partisan or even marginal, associated only with the lower socio-economic classes and alienated from other doctors and health care professions. Even in Finland, by 2003, where the community development agency model for health and social care is firmly under municipal control, over half of local authorities had failed to achieve accreditation for their primary care management mechanisms. Colombia is another country where we found that the decentralisation programme has encountered similar difficulties.

In this model of primary care the orientation is communal. The organisational structure and process is that of a network. The community development agency is one of many with multiple relationships, often fluid and overlapping, held together by personal associations and ideological affiliations and operating for family medicine most effectively when a sense of common cause is evident. Such a cause will be expressed, as in Brazil or Venezuela, by large gatherings in the form of Regional and National Health Assemblies or local Citizens' Forums. Sometimes, as with Forosalud in Lima, these can all too readily be identified exclusively with (or even high jacked by) the political opposition and the threat of a coup and an alternative government. The advocacy role of the family doctor is subsumed within political activism and governments can feel compelled to respond authoritatively through restrictive laws and reduced funds. The emergent theoretical concepts of regulatory capture and resource dependency mean in practice that, for example in the Mexican provinces of Oaxaca²⁹ and Pachuca, the functions of family medicine are performed by poorly paid government workers each operating to standard Ministerial procedures and programmes. Many of the local *Casas de Salud* have been taken into the national insurance agency and family medicine is reduced to a one year live-in pre-qualifying experience for junior doctors undertaking a compulsory period of community service. Family medicine can easily become both champion and casualty in the community development agency.

The Franchised Outreach

This organisational type stands alone. It is primary health care in that family medicine is a frontline service, but it is not primary health care in its compliance with the principles of the classic WHO Alma Ata Declaration in 1978. Neither equity nor participation are formative factors in the franchising of services usually from and to hospitals, often as business developments in the marketplace. Specialist family medicine here belongs to the private professional entrepreneur and where, in the preceding examples, power has been devolved to communities or provider teams, in this case it is unequivocally and directly with the payers. Outreach family medicine under franchise is most evident across several countries of eastern Asia, and although it may be generous to regard it as an ideal type it is nevertheless an international phenomenon.

In Hong Kong two thirds of primary care is privately provided. The private sector also dominates the supply side in India. In Taiwan and Japan the plethora of private and public insurance companies pay by consultation rates, based almost exclusively on hospital activity and expenditure. Thailand's Contracting Units for Primary Care offer franchise options to both private professional consortia and

hospital corporations. China's cities are now dominated by fee for service facilities; and in their profile they look remarkably like many urban conurbations in such European countries as Germany and Greece. Recent research indicates many international parallel developments for family medicine in respect of this model.³⁰⁻³⁵

In all these locations family medicine is sourced from secondary care. It may well even be located in a clinic within a general hospital or, as in Crete, the family doctor may receive private referral rights and fees from public hospitals. Regulation of family medicine as a private practice is often relatively minimal with the title of General Practitioner detached from vocational education programmes or requirements and claimed by many. When the franchise from the insurer goes to a newly autonomous hospital organisation as a trust or foundation with public health management responsibilities then, as in Hong Kong and Singapore and prospectively in England and Scotland, family medicine becomes another outpatients clinic sifting demand and providing preventive health promotion programmes.

In ideal type mode the franchised outreach is quasi-institutional in its values and increasingly effective operationally as a modern virtual organisation. As such its features are strong selective corporate objectives, centralised strategic direction and support services, semi-autonomous delivery units, internally regulated mechanisms and several different types of service outlets as business or cost centres. In reality, family medicine is both fragmented and fragile in this model, dependent on a combination of public prosperity and confidence, hospital consultants' goodwill and favour, and corporate sponsors. Not surprisingly such a combination can often leave family medicine fending for itself. Turkey and the Philippines are two examples of countries where, for most people, family medicine is now no more than the small, individual private practice.

Issues and Perspectives

Defining the different organisational developments taking place in relation to family medicine is important because with a new century has come a new focus on the organisation rather than the person or the profession as the perceived unit of care. This perspective is essentially a political one. It recognises that virtually everywhere modern governments are looking to new organisational vehicles for the implementation of their policies as they seek to exercise national and local stewardship roles in public health. Organisational innovation offers the prospect of circumventing vested interests and professional or positional power in moving towards the goal which one WHO commentator has called the 'public choice' model of policymaking in primary care.³⁶

Describing the different organisational developments taking place in relation to family medicine as ‘ideal types’ is, of course, to acknowledge that none of the six models detailed above actually exists as described. This is not the purpose of ‘ideal types’. In practice they overlap, distort and merge. All have elements of each other. The most recent organisation, the managed care enterprise, for example, emulates both the gate keeping role of the extended general practice and the connections made in the district health system. There is no pure organisational form and no more is there a pecking order. Each model belongs to its particular space in time and context.

Nevertheless, as Table I below demonstrates, from a global perspective, a genuine typology of actual primary care organisations can be postulated.

This summary (above) indicates the role of ‘ideal types’ in providing both a framework for comparative international analysis³⁷ and the basis for future scenario planning in respect of family medicine. The six organisational developments are clearly different to the extent that, on some points, they seem diametrically opposed

Table I
Future family medicine

Organisational Type	Structure and Process	Value Base	Service Focus	Location (egs)	Endpoint
Extended General Practice	Simple, partnership	Normative	Registered patient list	Health centre	Patient
Managed Care Enterprise	Complex, stakeholder	Calculative	Target groups	Physicians group	User
Reformed Polyclinic	Coalition, divisional	Commercial	Medical conditions	Multi-specialist clinic	Client
District Health System	Hierarchic, administrative	Executive	Public health improvement	General hospital	Populations
Community Development Agency	Association, network	Affiliative	Local populations	Health stations	Citizen
Franchised Outreach	Quasi-institutional, virtual	Remunerative	Payers	Private, hospital premises	Customer

with family medicine oscillating, for example, from the poor to the prosperous in terms of its patronage. But there are too several shared features or issues. Family medicine everywhere is being practised in larger organisations. These organisations are more flexible and less fixed over time. Generally personal care is more at a premium and service recipients are increasingly of a collective identity. Monopolies are giving way to mixed economies of providers, and payers, with family doctors (and others) deeply engaged in the emergence and creation of both. As disease profiles and drugs regimes change family medicine everywhere is also more about maintenance, and less about cure, with educative and executive roles increasing in response to requirements for more effective prevention, health promotion and rehabilitation. As a result, family medicine in all its forms is essential community care, its particular denomination depending on local customs and conditions.

The different end point perspectives on family medicine and its future demonstrate the necessity of cultural fit. The extended general practice refers to 'patients'. The managed care enterprise has 'users' (or consumers) and the polyclinic receives 'clients'. The district health system is epidemiological in its population focus on named neighbourhoods, villages and townships while it is the 'citizen' whose cause is advanced by the community development agency. This leaves the franchised primary care outreach organisation with, at best, its 'customers' or rather more likely such colloquial alternatives as 'punters' and 'price tags'.

It is clear that family medicine has many futures and more than one set of directions. Primary care itself is a political discourse. Its organisational developments reflect changes in power, in policies, personalities and principles across societies where the status and significance of the family itself has become dynamic. Laws enshrine its sanctity in Bolivia and secularise its size in China: the generalist medical professional has to operate in very different worlds. Yet despite this spectrum of perspectives the relational issues may be seen to remain the same. The future role of the family doctor will be, as now and as before, to harness for the purposes of health all the positive relationships at the patient's disposal.

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Section I



The Mexican experience
on improving Family
Medicine

**A. Design and trial of a Family Medicine
Improvement Process at IMSS**

Family Medicine at the Mexican Institute of Social Security: Current strengths and weaknesses

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Introduction

Family medicine represents the point of entry to health care granted by the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) to its beneficiaries. In the first level of care, approximately 85% of services are provided, which represent 65 million consultations per year. IMSS, in collaboration with the National Union of Social Security Workers (SNTSS, for its abbreviation in Spanish), started in 2000 a joint effort to improve the family medicine performance. This effort included the careful revision of the current structure, organization, and functions of the first care level, as well as its consistency to respond to health demands and needs of the population. The careful analysis resulted in a conceptual proposal that made it possible to design and apply actions oriented to improve the institutional family medicine performance. All these actions are known as Family Medicine Improvement Process (FMIP).

The launch of this bilateral effort is based on the shared conviction of improving services quality and efficiency, creating, in turn, more satisfactory and encouraging working conditions for workers.

This chapter briefly describes the current characteristics of the population taken care of in family medicine, the organizational model, its main strengths and weaknesses, as well as the work methodology and the results of the baseline as-

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assessment conducted in eight family medicine units, considered for the design of the strategies that make up the FMIP.

The Mexican Institute of Social Security

The Social Security Law was enacted in 1943 based on the Political Constitution of the United Mexican States, on the existing social security theories in that time, and on the historic demands of the social struggle to improve the living conditions of Mexican workers. In this Law, the terms and conditions under which broad social security must be given to workers and their families were established.

These laws have been preserved and improved through various legal instruments that have evolved into the set of provisions and standards IMSS is currently comprised of to become the pillar of solidarian social security that is to be distributed among its beneficiaries. The worker and his/her family are entitled to different benefits granted by the Institute, including among others, health care. The social security objective is to guarantee the right to health, medical assistance, protection of the subsistence means, and the social services necessary to achieve individual and collective welfare, as well as to grant pensions which, if applicable, and after meeting the legal requirements, will be guaranteed by the Nation.

To fulfill the personality to guarantee the right to health, IMSS is organized into three levels of care. Besides, it provides complementary services, such as economic and social benefits. The medical care levels are directly related to the intervention complexity required by the patient: the greater the complexity, the higher the level. The first level of care (family medicine) provides outpatient attention; the second and third levels of care (family medicine) provide outpatient and hospital attention. In all these levels, the beneficiaries are entitled to receive medications, diagnostic studies, surgery, attention in emergency services, and rehabilitation services, among others. Within this context, health education, disease detection and prevention, curative attention, and rehabilitation services are also granted; in collaboration with the Direction of Economic and Social Benefits, socio-medical services are granted.

Demographic and epidemiological conditions of the population served in family medicine units

In recent years, a demand of the insured community, of the productive sectors, as well as of health professionals in terms of a substantial improvement in the care quality at IMSS has been evident. This can be understood because the institutional services have been significantly affected by strong limitations derived from eco-

conomic crises, less formal jobs, inflation and reduction of the employer-worker relations.

Besides this, the population insured by IMSS has shown constant growth rate and its health needs have diversified at the same rate as the demographic changes that have occurred in the Mexican society, as is evidenced in the population censuses. As is indicated in them, in Mexico people over 60 years of age –with regards to the total population– went from 6.13 % in 1990 to 6.9 % in 2000, representing moderate growth, particularly when the reduction in the crude birth rate is considered in these same years, which went from 28.0 to 21.1%.

Another important fact worth stressing is that as time passes by the population in pediatric and in reproductive ages has gone down, and the adult population has increased, particularly senior adults. The ENCOPREVENIMSS 2003 accurately reflects this situation when the demographic pyramids of the total population are compared with the demographic pyramid of the beneficiaries surveyed in the year 2003 (figure 1).

To this regard, health service demand and use by the beneficiaries has also suffered a gradual transformation. Most of the patients served by age group correspond to senior adults and women (figure 2).

Family medicine service use by senior adults has shown gradual growth within the last 20 years, which is also reflected in the reasons for care demand in family medicine. High prevalence of infectious diseases persists and a gradual increase in chronic diseases has been observed, particularly in diabetes mellitus and high blood pressure (table I). Therefore, the latter conditions represent practically 27.8 % of the total subsequent consultations granted in family medicine.

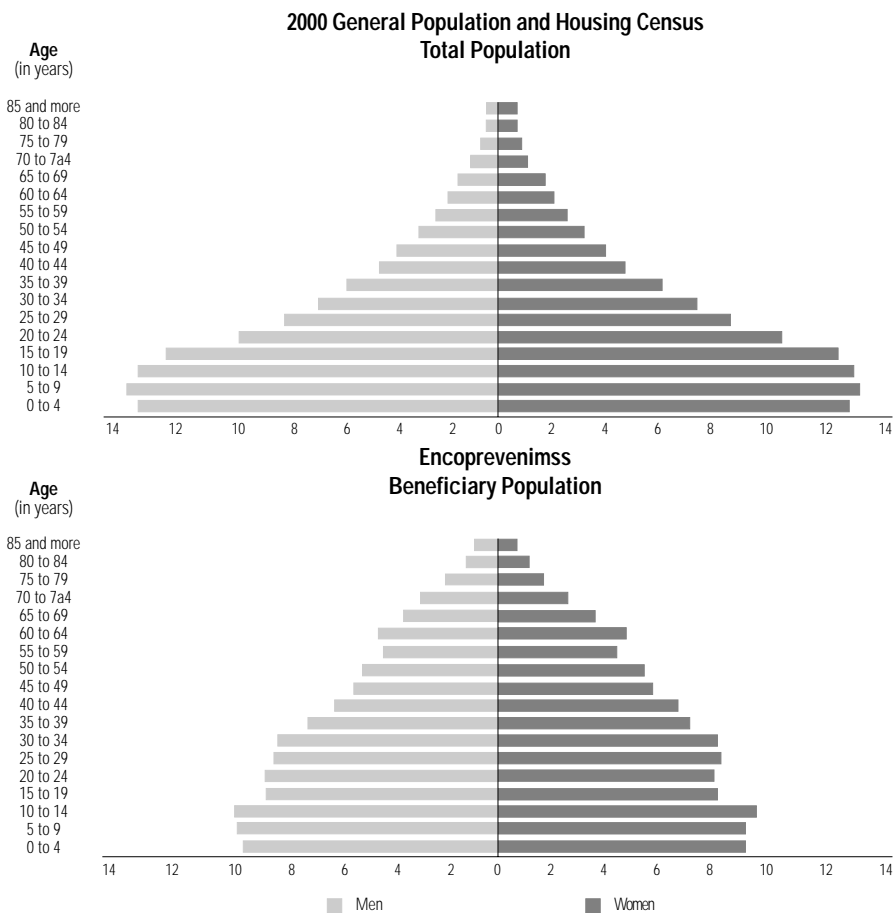
Family medicine current model

Attention provided by the first level medical units is oriented to “providing integrated and continuous medical care with a procedural approach that favors humanistic treatment, timeliness, quality, and efficiency; that promotes the modification of the disease of the patient seen in the family medicine outpatient consultation, through risk-focused early diagnosis, timely treatment, damage limitation, and early rehabilitation to achieve the cure, improvement, palliation, and prompt reintegration to the family, labor, and social environment of the patient”.

Structure and organization of the family medicine units

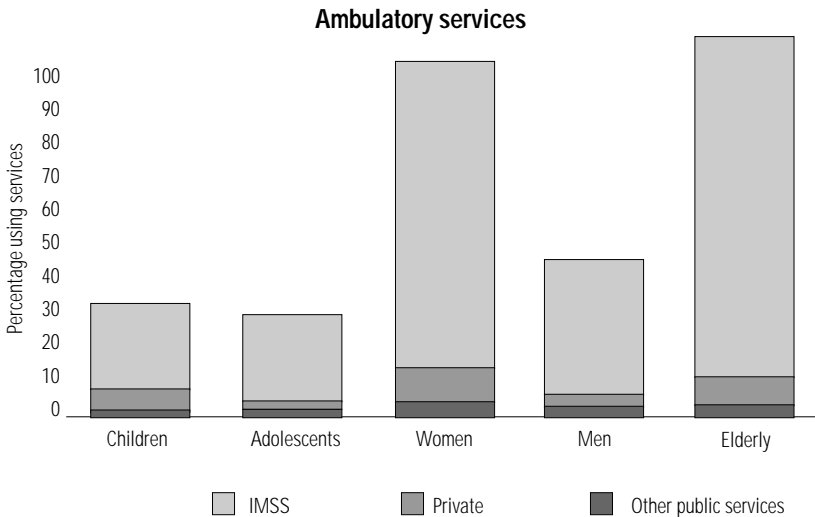
The first level provides health care through a network of 1 201 clinics or family medicine units (FMUs). The FMUs vary in size and complexity, from 1 to 40 con-

Figure 1
Percentage structure of the total population
and the beneficiary population according to age and sex



sultation offices. The FMUs offer their services from Monday to Friday for 12 hours daily; those made up by 10 or more consultation offices have emergency services. Some FMUs are located adjacent to second level hospitals. Approximately 12 000 physicians and a great variety of health workers, like nurses, dentists, social workers, laboratory technicians, X ray technicians, and nutritionists work in these units, as well as administrative, housekeeping, and conservation staff.

Figure 2
Use of services by IMSS beneficiaries, 2003



The family physician leads the health care activities. Every family physician has 2 400 registered beneficiaries who can go to the clinic within specific working hours (morning or afternoon). Some units with more than 10 consultation offices provide emergency services available 24 hours a day. There are no restrictions with regards to the number and type of health services that beneficiaries can receive, both in FMUs and in hospitals.

The organization and type of services provided by an FMU are: outpatient consultation and preventive medicine, basic laboratory studies, X rays, drugstore, social work, stomatology and occupational health; some also have nutrition and dietetics, psychology and health promotion. Activities outside their facilities, like vaccination and health education, are periodically conducted, for example, during the vaccination campaigns or the National Health Weeks. The auxiliary services that support the family physician vary depending on the number of consulting rooms; for example, the units made up by four consultation offices have preventive medicine, stomatology, and social work; those with more than ten consultation offices have the support of a specialized nurse in maternal/child care, family planning service, occupational health, clinical laboratory, and X rays.

Table I
Percentage of chronic patients with regards to the total number of consultations granted in family medicine.
Mexican Institute of Social Security

Motives for consultation	Total consultations	First time consultations	Subsequent consultations
High blood pressure	7 232 809	130 755	7 102 054
Type 2 diabetes	3 164 117	47 201	3 116 916
All the reasons	67 413 834	30 679 351	36 734 483
Percentage of consultations to patients with diabetes and high blood pressure with regards to all the reasons	15.42	0.58	27.82

Source: Technical division of health statistical information

In 2004, approximately 66 million consultations were given in the first level of care.

Strengths and weaknesses of the family medicine organizational model

The response of the institution before the demographic structural change and the health needs and demands of the population has been limited as a result of multiple factors, some attributable to the institution and others associated with the economic conditions of the country. From the perspective of a health system analysis, the strengths and weaknesses of the institutional family medicine were identified.

Among the strengths found are the FMU personnel training, as they have qualified personnel identified with the institutional mission and experienced in the provision of primary attention services. The structure has the resources, equipment, and services necessary so that the units can grant outpatient services.

In terms of the organization, the FMUs have nationwide coverage for the attention to beneficiaries, facilitating access to services, both to the beneficiaries and their families. The family medicine service grants 85% of the services that IMSS offers to its beneficiaries.

Even though IMSS has made several organizational and structural modifications in the first care level since its foundation in 1943, the institutional diagnosis

communicated by the General Direction in 1995, and subsequent investigation studies and assessments, have stressed the weaknesses of family medicine. Worth of mention among them is that as a result of IMSS coverage growth and of the needs of the population, the problems of attention timeliness and quality deficiencies have increased. This situation has generated dissatisfaction among the population and loss of prestige for the institution and its workers. Likewise, lack of motivation of the health team can be attributed to the lack of recognition to individual and collective performance and to insufficiency of human and material resources, which also contributes to deterioration in care quality.

Other weaknesses are: the personnel training system does not respond to their current needs, the response capacity of the FMUs is heterogeneous, the care approach is mainly curative, and there is no teamwork culture.

Objectives and methodology

This chapter deals with the methodology to comprehensively assess the FMUs; their analysis made it possible to identify their problems with greater accuracy and it has contributed to support the concepts of the FMIP, as well as to develop the interventions that have been applied in the pilot units.

The comprehensive diagnosis of the eight participating FMUs was made about the following aspects: user satisfaction; satisfaction of service providers; medical care quality; management of directors; infrastructure; human resources; and productivity. An analysis of the processes was also carried out. The assessments were performed in the period between October 2001 and November 2002. Below, the methodology and the most important results are described. It is important to comment that the assessment of the medical care quality is presented in another chapter of this publication, where the impact of the technical-medical updating is assessed.

Satisfaction of users

To measure the satisfaction of users, exit surveys were made with beneficiaries immediately after they were provided with service (pharmacy). Information was collected about type of user (insured worker, IMSS worker, beneficiary, and pensioned worker), age, sex, and education. The opinion and perception on the following aspects was captured: previous appointment, clinical file, and waiting time, treatment and performance of the filing and duration services, outpatient consultation, laboratory, X rays, and pharmacy. Their opinion about the conditions in the facilities was also obtained.

Service provision satisfaction

Labor satisfaction was measured through a self-applied survey. Health personnel [unionized] of the FMUs: physicians, nurses, consulting room assistants, social workers, nutritionists, and laboratory personnel. Information was collected about category, age, seniority, sex, education, shift, medical unit, and district. For purposes of information collection, the surveys were delivered to the service heads and to the union representatives or directly to the workers. Questions were asked about the labor satisfaction in three dimensions and their corresponding sub-scales.

- Personal relations dimension: belonging, cohesion between peers, and support of supervisors.
- Personal growth dimension: autonomy, task orientation, and work pressure.
- Dimension of system changes and sustainability: clarity, control, innovation, and physical comfort.

Directive management

This assessment was carried out to identify to what extent the directors and middle levels (manager and service heads) apply the basic stages of the classical administrative process through the application of a "Guide for the assessment of the directive management" that covers the aspects associated with planning, organization, execution, assessment, and control (table II).

The guide consisted of a total of 76 items, each marked with the level it should be applied to and the corresponding rating criteria.

Infrastructure, human resources, and productivity

This information was collected through a questionnaire that was sent to each unit to be filled out by its authorities. The document collected information about the following aspects: general data of the unit; population served; benefits in cash; infrastructure (number of consulting rooms, cubicles, etc.); productivity; level of provisioning and supply; affiliation, duration, and benefits in cash; medical benefits; workforce; scheduled and unscheduled absenteeism and its coverage; conservation and opinion survey by service (applied to workers).

The FMIP working group visited each participating unit and completed the information by interviewing the FMU authorities, the union representatives, and the operative personnel. Group and individual interviews were made.

Table II
Basic stages of the administrative process.
Mexican Institute of Social Security

Planning	Organization	Execution	Evaluation	Control
<ul style="list-style-type: none"> • Objectives • Policies • Plans and programs • Budgets • Resources • Methodology 	<ul style="list-style-type: none"> • Structure • Set of standards • Resources 	<ul style="list-style-type: none"> • Application of the set of standards • Compliance with plans and programs • Process interaction • Leadership • Decision making process • Communication 	<ul style="list-style-type: none"> • Information systems • Measuring systems • Supervision 	<ul style="list-style-type: none"> • Preventive and corrective action methods • Feedback systems • Improvement

Results

Satisfaction

In each FMU, 170 questionnaires were applied to beneficiaries. Among the results obtained are that between 66 and 99% of these beneficiaries had had a previous appointment; in the units with low percentages of previous appointment, 50% of users waits for more than 60 minutes to be served, resulting in high level of dissatisfaction. Of these same people surveyed, 90% said that the treatment given by the service providers is good, that is, they felt satisfied with the treatment received by the family physician. However, they expressed dissatisfaction with the treatment received in the filing and duration areas.

With regards to medical assistance, 60% of the interviewees said that they do perform activities associated with the consultation. Concerning the laboratory and X ray services, saturation is the main reason of dissatisfaction because it results in long waiting periods. This happens both when the studies are made and when they are attended on their appointment day. In the case of X rays, around 70% of the users stated that they were dissatisfied because the results had not been included in the clinical file when they went to their consultation.

As far as the pharmacy service is concerned, 75% of beneficiaries said that all the medications prescribed were filled out. In case the medications were not in stock, patients decided to wait until they were available in the drugstore. However, three out of every ten patients decided to buy them. The perception of users concerning the cleaning and maintenance conditions of the facilities (restrooms, waiting areas, consulting rooms, cubicles) was more favorable in general terms for cleanliness (90%) than for maintenance.

Labor satisfaction

Initially, attempts were made to apply the interview to all the FMUs of '90' unionized personnel, equivalent to 1 900 people, but only 500 accepted to answer them (approximately 26%). The main results showed that there is dissatisfaction by the workers in practically all the dimensions, mainly in those of the perception they have of support given by directors, physical comfort, and the sense of belonging.

Capacity for directive management

The survey to assess the directive management capacity was applied to all the directors of the medical units. According to the assessment document, most of the FMUs obtained an overall acceptable rating. One unit was reported as excellent, and one as deficient (table III).

Infrastructure, human resources, and productivity

The questionnaire was applied to all the medical units and the following problems were identified. With regards to personnel: lack of location reconciliation, deficient coverage of scheduled and unscheduled absenteeism, and delay in the task force. In terms of structure, what was found was: obsolete equipment, inadequate and insufficient facilities, deficient preventive and corrective maintenance, shortage of therapeutic and non-therapeutic supplies. In the registration area: overpopulation and lack of updating in assignments to family physicians. In terms of service use: excessive demand by beneficiaries.

Process analysis

A process analysis questionnaire was applied to all the workers by service, resulting in the fact that most of the areas of opportunity are in administrative processes and 15 % of the proposals refer to the organization of the family medicine consultation.

Table III
Rating of Family Medicine Units. Mexican Institute of Social Security.

Unit	Overall rating obtained
FMU 50 Durango, Durango	Average
FMU 31 Iztapalapa, Federal District	Good
FMU 2 Manzanillo, Colima	Acceptable
FMU 3 Monterrey, Nuevo León	Acceptable
FMU 38 Oaxaca, Oaxaca	Acceptable
FMUH 2 Puerto Progreso, Yucatán	Deficient
FMU 64 Tequesquihuac, State of Mexico	Acceptable
FMU 27 Tijuana, Baja California	Excellent

Contributions proposed and perspectives

The results of the assessment in its different components reflected an acceptable level of satisfaction of users. However, the rest of the items reflected important limitations, organizational lag, shortage of resources, limitations in directive management and in clinical practice and, the most relevant point, dissatisfaction by the workers of the Institute.

The similarity of the results obtained stands out, despite the heterogeneity of the participating units in terms of their size, population registered, geographic location.

However, this represents a cross-sectional assessment that displays some methodological weakness. In order to achieve a robust and reliable assessment about the FMUs performance, information derived from multiple sources of information must be combined (supply, medical team, consultation demand, medical updating) so that valid conclusions can be drawn.

This baseline assessment contributed significantly to the design of the FMIP interventions and represented an important starting point in its creation.

Financing sources

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Conceptual design of the Family Medicine Improvement Process

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Conceptual premises to guide improvement

Primary health care has a conceptual basis defined by the World Health Organization (WHO) since 1978:

Health care is based on scientifically sound and socially accepted practical methods and on universally accessible technology for individuals and families in their community through adequate means for them.

This concept has evolved mainly as a result of accelerated changes in societies that affect their population's health status, demographic trends, socio-economic conditions and, hence, government priorities and health policies. Reforms in health systems worldwide have incorporated new strategies considered feasible, since they are derived from relevant evidence, for primary health care. Perhaps the major challenge has been to obtain a reliable model supporting primary care political considerations, although there is no proof that one model may be applicable everywhere. The implication of this experience indicates that the implementation of reforms aimed at improving primary health care needs to be considered within the context of each society and be based on an agenda of well founded health priorities.

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Although the current family medicine system is based on the original primary health care premises and on the perspective of family as a substantive part of this services, the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) has acknowledged the need to respond to the challenges that the beneficiary population is still facing, which are the result of the changes experienced at the National level in the above-mentioned areas. The family medicine model that has provided primary health care to the Institution's beneficiary population has been progressively surpassed by the changing health needs; therefore, there is an indubitable need to improve the model. To achieve this, the elements that will allow the contextualization of the intended model must be first defined based on the main principles of family medicine: a) it is a first contact service; b) it assumes the responsibility of providing attention to health needs of all family members throughout time; c) it is integrating, i.e. it incorporates the health team serving individuals and their families.

It is within this setting that the Family Medicine Improvement Process (FMIP) is being developed, where primary health care is characterized by its being the first contact, being integrated, continuous, coordinated, culturally accepted and responding to beneficiary population's health care needs.

Elements of the Family Medicine Improvement Process

The building up of FMIP model's conceptual framework entails an inevitable intersection of assumptions for the definition of its elements. These assumptions represent conditions that must be complied with in order to achieve each one of these elements, which are not independent from one another. Hence, the challenge for a successful model is to fully comply with these elements because the absence or deficiency in any of them will determine the behavior of the other. These elements are: integrated health care, flexibility, coordination, quality care, labor environment improvement, decision capacity, professional growth and financial feasibility. The provision of services under the proposed model also requires a sound information system platform as an essential tool for the model to be feasible. Following is a description of the elements mentioned and the conceptual assumptions for an information system applicable to said elements.

Integrated health care

Integrated health care within the FMIP is conceived as the timely and technically correct sequence of attention and satisfaction of the population's health needs and expectation through the articulation of all the services of Family Medicine Units (FMUs) and the active participation of the beneficiary and corresponding family.

Attributes of integrated care

Family focus. In addition to providing medical attention for the motive of consultation, the necessary services to preserve or recover the beneficiaries and their families' health are systematically offered. To achieve this attribute, there is a need for an understanding of the family context; that is, life conditions, family dynamics and cultural environment.

Timeliness. Health care services are delivered when beneficiaries and their families so require them.

Integrated. Actions carried out by the professional working at medical units are provided in a technically correct sequence and in an organized and coordinated manner to satisfy the beneficiaries and their families' health needs throughout time.

Co-responsibility. Both the health team and the beneficiary population put in practice the necessary actions to preserve and recover health.

Continued. Permanent health care delivered to beneficiaries and their families, throughout their lives.

Culturally accepted. Health care is provided respecting each region's cultural patterns.

Flexibility

Flexibility refers to the capacity of adapting organization and adjustment of services at the local level with the purpose of having a model applicable to all types of FMUs in the system.

The analysis of Units' current organization, which include the services offered and the health personnel, have proven to be very heterogeneous. The range varies from single consultation-office clinics with one family physician and an auxiliary nurse, who cover a population of less than 2 400 beneficiaries, to 40-consultation-office clinics with 80 family physicians, a diversity of services and a covered population of more that 200 000 beneficiaries. Thus, there is a great diversity of physical and human resources, as well as populations covered and problems to be resolved.

Based on the heterogeneity of medical units, a flexible health care model, capable of adapting the FMUs' resources to provide integrated health care is

proposed. Additionally, the model proposes the fostering of team work for the planning and development of specific service provision activities aimed at improving performance and labor environment.

Coordination

Coordination refers to the possibility of a continuous interaction between family physician, who is the person responsible for providing health care to the assigned population, and the personnel from the units' substantive and support areas (preventive medicine, laboratory, X-rays, emergency, etc.), as well as with the secondary health care level. Coordination also includes the exchange of information and people education and the use of communities' own resources to meet their health needs. Thus, coordination entails the interaction of health personnel with the people and their families to promote health, respond to health problems, share decision making regarding families' health care and provide support to reduce the emotional and social burden associated to disease. The expected results of the health team coordinated actions are the efficiency in service provision and a satisfactory relation with the population.

Quality of care

Quality of care is defined as the degree in which health services increase the likelihood of reaching the expected health results based on current scientific knowledge and compliance of beneficiaries' expectations.

Based on this definition, quality in the FMIP model incorporates the user's perspective, the health care provider, and the performance of the system as a whole. The following conditions have to be met in order to attain the objectives of a quality health care:

1. Proper input, sufficient and efficient allocation of resources
2. Efficient distribution of processes and technical competence
3. Timely provision of services and dignified treatment
4. Effectiveness

Users' satisfaction enables to a large extent the compliance of the aforementioned conditions, since it reflects experiences in term of access and coordination of health care, technical and interpersonal aspect during the process and health results deriving from the health care.

Improvement of the labor environment

This means the creation of proper conditions to facilitate coordinated and harmonic activities from the health team and its result reflects personnel satisfaction with their working setting. This improvement is achieved through changes in the organization which facilitate joint efforts, and coordination and interrelation among different FMUs' services; through the interaction with other units and support-reference hospitals; through the possibility of continuous training and education aimed at improving performance and through the necessary infrastructure conditions for realization of tasks.

Professional growth

Professional practice of all the health team in primary health care is a complex task that entails responding to the population's health needs through a process involving prevention, early identification of health problems and adequate management of disease, all of which consider the social environment that has an impact on individuals' lifestyles.

Health personnel's daily work is an experience that will allow them to reach their patients and understand their social environment, both of which are essential for good professional practice. In ideal conditions, it represents a continuous exercise of analysis and application of knowledge to problem solving. The knowledge base obtained through sound academic education and training is necessary to make this scenario come true, as well as a continuous medical education for their permanent updating in the progresses accomplished in their professional field, which are indispensable for their professional growth.

Increase of the response capacity

The response capacity is conditioned to the compliance of the above described elements and should be the consequence of a harmonious input/supplies and processes. However, if we consider that this response capacity implies better health results, it is necessary to take into account that in actual health service provision there is not a direct relationship between efficacy of health interventions, amount of resources and improvement of resource allocation and a greater effectiveness in the system. There is an obvious need to strengthen FMUs and their personnel through infrastructure, employees, materials, equipment and sufficient medication, as well as continuous education to all personnel. Still, this task is complex and includes the participation of the beneficiary population in the sense of assuming

co-responsibility in health care and this involves continuous education and sensitization towards mid and long-term goals.

Financial feasibility

Financial feasibility refers to the Family Medicine Model's sustainability and availability of sufficient resources in the short, mid-terms. The model itself will have to instrument mechanisms for a more efficient use of resources through the optimization of functions and implementation of cost-effective programs.

Information system as substantive infrastructure of the Family Medicine Improvement Process

In order to make FMIP model realizable and its integrating elements achievable there is a need for an infrastructure that may overcome the standard needs for adequate facilities, equipping, supply or personnel. The family medicine information system must include patients' medical records in electronic format, which is currently considered an essential technology of any modern health care system; must establish continuity throughout time and links to patients' family information, and should be the source of permanent and updated data on the health conditions managed by the physicians, the health teams and the FMUs themselves.

Final reflections

The most relevant aspect in today's IMSS family medicine system's conceptual model proposal and future sustainability is to ensure its capacity and strength to respond to emerging demographic, social and health challenges in a population as dynamic as the IMSS beneficiary population. Therefore, it is essential to reinforce infrastructure, reorganize processes and build a new primary health care culture based on values of permanent innovation spirit, internal collaboration networking and continuous education at all levels. The model should likewise respond to health policies adapted to local needs inside the Institute itself.

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Implementation and evaluation of the Family Medicine Improvement Process experimental model

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Introduction

The Family Medicine Improvement Process (FMIP) responds to the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) needs of enhancing the quality of care offered to the beneficiary population at family medicine clinics.

Several operational research studies and reports have emphasized the increasing limitations IMSS has to provide quality care services. In 1995, the institution conducted an in depth evaluation of its health care system and several serious backwardness problems were identified in terms of medical technology obsolescence, lack of knowledge of the effectiveness of the health care; unprogressive information system, limited evaluation systems and absence of an academic environment capable of motivating IMSS health personnel towards professional growth.

Since then, IMSS started to implement interventions and strategies aimed at strengthening its capabilities of offering services and enhance quality of care. These interventions included plans, programs and operational research studies.

In 1997, IMSS started a significant reform directed towards extending social security coverage and strengthening financial viability. This reform included

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changes in the retirement system, cost of contributions made by employers and employees to IMSS, decentralization and desconcentration of functions and changes in health services policies and procedures. These changes had the Social Security Act as their framework.

The institution invested part of its budget in these strategies; the federal government increased its financial contribution, and the World Bank granted a loan for external technical assistance.

IMSS current management started in the year 2000. From the beginning, the Institute's authorities, in the collaboration with the National Union of Social Security Workers (SNTSS, for its abbreviation in Spanish), approached this backwardness in a frontal manner, and the family medicine service problems was addressed through a cooperation agreement, whose main principle was the implementation of continuous family medicine improvement activities. This proposal was called "Family Medicine Improvement Process" (FMIP).

In a previous chapter, IMSS family medicine problematic was described in detail from the perspective of a health system analysis. Under this perspective, the FMIP interventions were designed and family medicine is defined as the first contact, continuous health care (preventive, curative and rehabilitating), culturally acceptable, integrated and coordinated, which is provided to both individuals and their families within a frame of full respect of human rights.

This chapter describes the main FMIP interventions and the results of the first evaluations.

Objectives and methodology

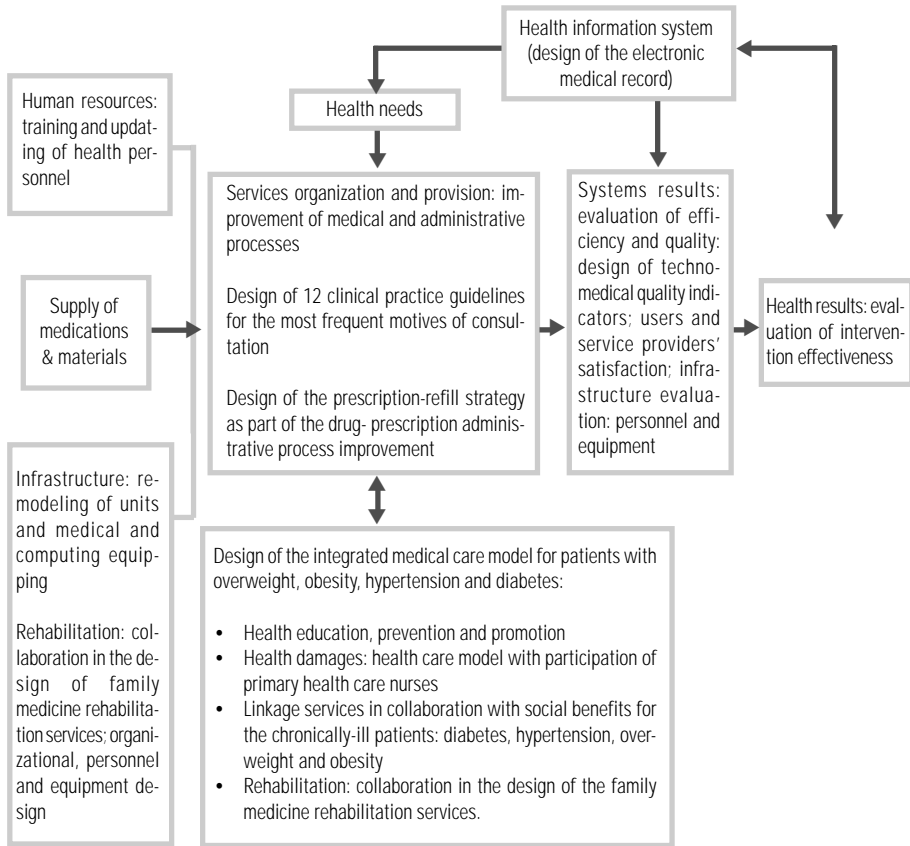
The main objective of FMIP is to provide an integrated quality care based on people's health needs, an optimal use of resources; the acknowledgement of worker's participation and an improvement of the labor environment.

The FMIP is a complex strategy aimed at satisfying the health needs of the beneficiary population's more than satisfying the demand for health care. Interventions were designed taking into consideration the complexity of IMSS primary health care level and under the perspective of an intervention in health services. They comprise improvement in care structure and processes. Likewise, indicators to evaluate the FMIP impact were set (figure 1).

Implementation

Interventions were designed by means of the operational research methodology and were implemented in eight family medicine clinics, whose characteristics vary in size and complexity of problems (table I).

Figure 1
Family Medicine Improvement Process interventions.
Mexican Institute of Social Security

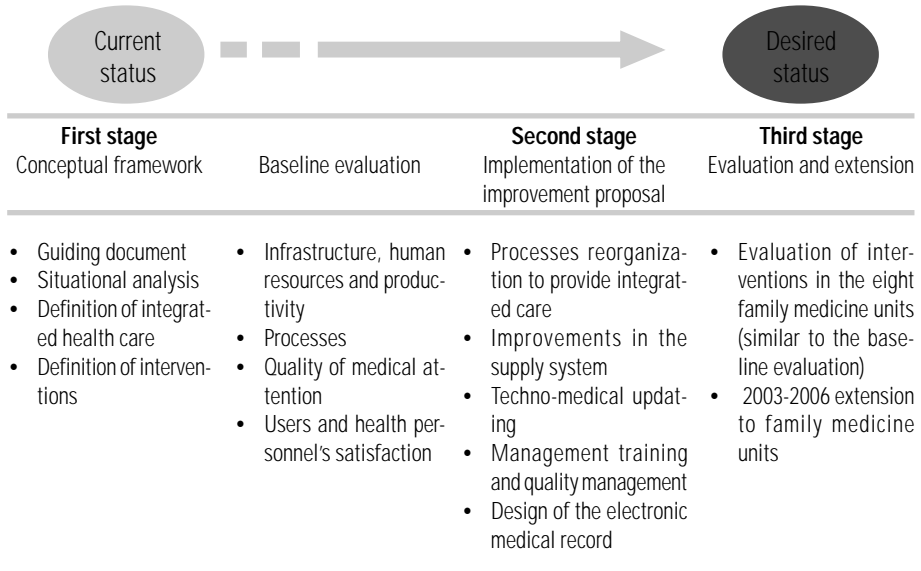


The experimental model consists of three stages: the first one corresponds to the conceptual development of the Improvement Process, design of interventions and baseline evaluation; the second comprises the implementation of interventions, and the third one corresponded to the post-intervention evaluation and extension (figure 2).

Table I
Characteristics of the eight pilot clinics for the Family Medicine Improvement Process. Mexican Institute of Social Security

City and State	Number of consultation offices	Number of family practitioners	Beneficiary population
Tijuana, Baja California	40	80	192 000
Mexico City, D.F.	37	74	177 600
Tequesquihuac, State of Mexico	35	70	168 000
Monterrey, Nuevo León	14	28	67 200
Oaxaca, Oaxaca	11	22	52 800
Manzanillo, Colima	8	16	38 400
Durango, Durango	5	10	24 000
Puerto Progreso, Yucatán	3	6	14 400
Total	153	306	734 400

Figure 2
Stages of the family medicine improvement process



Results

Structure improvements

Training and updating of health personnel. This strategy included three training and updating interventions aimed at health personnel:

1. Development of a continuous medical education program aimed at updating 300 family physicians, who work at eight family medicine clinics, on the 12 main motives of family medicine consultation: prenatal care, healthy child control, acute respiratory infections, pulmonary tuberculosis, urinary infections, cervicitis-vaginitis, type 2 diabetes mellitus, arterial hypertension, dyspepsia, lumbago, hand trauma and degenerative osteoarthritis.
2. Implementation of directive training programs and quality management program. The first one is addressed to directives, administrative and union representatives of each medical unit; the second will be focused on health personnel.
3. Diffusion of the Family Medicine Improvement Process. This program allowed the diffusion of this Process objectives and main components among health personnel. This activity was directed towards the participating clinics' health personnel.

Drug and inputs supply. IMSS implemented, through its different regulatory directions, a series of actions oriented to increase the supply of drugs and inputs at the Institution's medical units. The eight family medicine clinics participating in this experimental stage were also included in the process.

Improvement in infrastructure. A situation diagnosis of clinics' infrastructure and medical equipment was conducted. As part of the interventions, clinics were remodeled and medical personnel were provided with basic devices, such as stethoscopes, sphygmomanometer, diagnostic kits; the clinics were equipped with ultrasound, electrocardiographs and medical instruments. Additionally, they were provided with servers, computers and printers. A group of experts participated in the design of family medicine rehabilitation services and this design included a definition of the infrastructure, the necessary personnel, rehabilitation medical equipment and architectonic design.

Improvement of processes

These improvements comprise medical and administrative processes. With regard to the medical processes, the following actions were taken:

- design of 12 clinical practice guidelines
- design of the operative integrated health care model
- collaboration in the design of the family medicine rehabilitation services

Clinical practice guidelines. A work group of 60 physicians from different specialties was formed to design the 12 guidelines, which address the most frequent family medicine care problems (these 12 motives for consultation were already described). These guidelines were designed with the evidence-based medicine approach and were used as updating of family physicians tools. They were spread through different means: they were published in IMSS medical journal and also as part as the support information that family physicians have in the electronic medical records. The purpose of these guidelines is to contribute to family physicians' clinical decision making.

Integrated health care model. This model is focused on the attention of overweight, obese, hypertensive and diabetic patients. Several epidemiological foundations related to health care quality and patients' health status are available and all of them support the decision of using the integrated perspective approach.

The National Coverage Survey carried out by the Institute in 2003 (ENCOPREVENIMSS) reported a high prevalence of overweight and obesity since the first years of life (table II); these findings reflect the need to design specific strategies to approach the problem

At IMSS family medicine units, hypertension and type-2 diabetes mellitus are the two major causes of consultation for chronic diseases. Health care provision for these patients consists of monthly consultations, irregardless of patients' clinical state, delivered by a family physician who examines patients' physical status and lab parameters, usually blood glucose. That is, controlled and uncontrolled patients are seen with the same periodicity, which responds to the need of supplying patients' with their medication, more than to administrative or other non-clinical-in-nature reasons.

In order to achieve a better control of the disease, uncontrolled patients should be scheduled for medical control at the discretion of the physician. In contrast, and taking into consideration that 30% of diabetic patients and 70% of hypertensive

Table II
Prevalence of overweight and obesity among beneficiaries
Mexican Institute of Social Security

Age group	Overweight %	Obesity %
Children	10.2	–
Adolescents	9.2	4.7
Women	32.8	38.6
Men	43.1	29.1
Elderly	21.9	44.3

Source: ENCOPREVENIMSS

patients are controlled, periods for medical examination in these patients may be extended from 3 to 6 months, as is the case in other health care systems.

The family physician relies on the health team for a continuous attention: social worker, nutritionist and dietitians, preventive medicine, clinical laboratory and, whenever necessary, emergency services. However, the process is not coordinated and patients receive these services in an inarticulate and irregular manner.

This disarticulation of the health team is due to the obsolescence of the organizational design, which does not comply anymore with the modern vision of health care. The current model is somehow fragmented, so physicians' actions are not fully linked to the rest of the health teams'.

This situation is associated to several factors: the traditional curative medical model which privileges drug prescription for the management of these conditions, but does not identify that continuous and coordinated participation of health personnel is necessary for a good guidance and education of patients and their families on diseases. The asymmetry between demand for health care and availability of health personnel is another factor, since there is one physician for every 2 400 beneficiaries. Nonetheless, the number of dietitians, social workers or stomatologists who work in family medicine clinics is significantly lower than the current needs.

Several operational research studies have pointed out essential problems with regard to health management and results in patients with DM and arterial hypertension. A high proportion of diabetic patients are uncontrolled (70%), with a blood glucose > 124 mg, and a significant proportion of treatments are inappropriate

due to inadequate indication of diet and exercise , lack of timely identification of acute and chronic complications and inadequate use of available medications. This problem is similar in HBP, where proper use of medication represents only 36.4% and adequate diet indications, approximately 70%.

Attention of overweight, obese, type-2 diabetes mellitus and hypertensive patients requires strategies that go far beyond medical updating. Thus, the need to provide an integrated medical care scheme through a multidisciplinary health team was proposed with the purpose of reinforcing health education, nutritional education and preventive measures aimed at preventing complications of these diseases and positively influencing lifestyle changes. Processes and procedures were thoroughly redesigned so that different health professional participate in the care of chronic diseases in a coordinated and continued manner.

FMIP proposes an integrated care scheme for medical attention of these conditions which are interrelated in daily clinical practice and that due to their complexity and the backwardness of the attention processes; they are saturating outpatient and hospital services. The integrated care proposal contemplates the participation of primary care level nurses who continuous and reinforces management of these patients; participation of social workers and nutritionist-dietitians is also considered, all of them coordinated by the family physician.

The medical attention of these patients is not only the competence of family medicine. Some substantive activities, such as disease self-care education, food preparation, type of exercises to be practiced, family participation in the disease management and incorporation of self-help groups, are essential elements for good control of diseases. To comply with these activities, a “linked actions” strategy was designed between family medicine clinics and social benefits operational units. This new proposal was called “Linking Services”, which, in order to perform the aforementioned activities, links medical care to socio-medical service provision. In this manner, patients may acquire healthier lifestyles, individuals’ participation is fostered and families and communities’ participation in the disease management is also encouraged.

This health care model was developed in such a way that its implementation may be feasible and congruent to the specific conditions of the family medicine clinics and social benefits operational unites.

Evaluation

As was previously described, baseline and post-intervention evaluations were performed. For the purpose of this paper, the baseline and post continuous medical activities evaluations will be described, as well as the way in which they positively influenced an improvement of health care quality.

The evaluation was carried out through the design of specific indicators for each of the main six motives for medical consultation at IMSS: acute respiratory infections, type-2 diabetes mellitus, arterial hypertension, healthy child health care, prenatal care and cervical vaginal infections. The scoring-of-indicators criteria are based on institutional clinical guidelines developed for family physicians' training and daily work. Following are the indicators per consultation motive.

Prenatal care

Prenatal care is among the main six motives for medical consultation at family medicine clinics. The studies to evaluate obstetric health care quality have highlighted the following as the most important problems: lack of identification of obstetric risk, absence of prenatal care during the first trimester of pregnancy, untimely identification of preeclampsia and low percentage of pregnant women attending regular prenatal care consultations. Risks such as poor prenatal care and co-morbidities during pregnancy –preeclampsia and urinary tract infections, among others– are associated with multiple complications, low weight at birth and maternal deaths.

Indicators:

- Percentage of pregnancies with updated obstetric risk score.
- Percentage of pregnancies with high risk scores sent to secondary health care level.

Healthy child health care

Good nutrition is a fundamental condition for normal growth and development. The most reliable and simple to register indicator for a longitudinal follow-up of children's nutrition status is weight by age. The nutritional status diagnosis must be updated at every consultation visit to the family medicine clinic.

The indicator is the percentage of children under age 5 with recorded weight and size and with a nutritional status diagnosis.

Respiratory infections

Acute respiratory infections (ARI) are the first cause for family medicine consultation and most of them are self-limited. In the cases of rhino-pharyngitis, there is no need for antibiotics; however, there have been diagnostic and treatment

errors documented that have resulted in an over-prescription of antibiotics, with a consequent increase resistance to antimicrobial agents and a raise in price of medical care.

The indicator for this condition is percentage of antibiotics in acute respiratory infections.

Cervicitis-vaginitis

At IMSS, cervicitis-vaginitis is among the 12 main motives for medical care at family medicine clinics. Inflammation of the vagina and the presence of vaginal discharge support the most frequent gynecological diagnosis in reproductive age women. The basis for an etiological diagnosis of cervicitis-vaginitis is a vaginal discharge fresh smear, measurement of pH and physical exam. However, clinical examination through a vaginal speculum is a mandatory requirement for this diagnosis. A very important problem is the proper examination of these patients and so is treatment of the couple. There is enough evidence to support that treatment of both members of the couple is effective in preventing relapses of *Candida* and *trichomona* cervicitis-vaginitis, which are responsible of more than 60% of the cases.

The indicators in this condition are:

- Percentage of vaginal examination in women with a diagnosis of cervicitis-vaginitis.
- Percentage of treatments administered to the couple in *Candida* and *trichomona* cervicitis-vaginitis.

Type-2 diabetes mellitus

Type-2 diabetes is the second motive for chronic disease consultation in family medicine. Several trials have evidenced two main problems: a high proportion of diabetics are uncontrolled –around 70%– and a high proportion of inadequate treatments, such as improper recommendations for diet and exercise, erroneous use of drugs available and lack of timely identification of acute and chronic complications.

The proper use of medications such as metformin, indicated for type-2 diabetic obese patients, has proven cost-effective. Glybenclamide, a frequently prescribed glucose lowering agent in family medicine, has a 20-to-24-hour-effect duration; a maximum blood concentration between 1.5 to 4 hours after its administration and

a 2-to-4 hours half-life. The highest proportion of its hypoglycemic action (75%) is reached with a daily dose, which is half the effective maximum dose (10mg).

With regard to early identification of complications, incipient micro-albuminuria is a powerful predictor of mortality in type-2 diabetic patients. A patient is considered to have diabetic nephropathy when micro-albuminuria persists for more than three consecutive months, preferably in the last six months.

The indicators for this disease are:

- Percentage of patients with one or more proteinuria-positive urinalysis and a protocol of renal impairment or referral to internal medicine (also applicable for arterial hypertension).
- Percentage of patients with proper dosage or interval of glybenclamide ($= < 20 \text{ mg/d} \times 1 \text{ or } 2$).

Arterial hypertension

Arterial hypertension is the primary cause of chronic diseases consultation at family medicine clinics. The problem is similar to that referred for diabetic patients. The percentage of improper medications is 36.4% and around 70% of patients receive adequate indications with regard to the diet. Two aspects that are important to evaluate are prescription of drugs and identification of complications. It has been proven that in hypertensive patients with type-2 DM, angiotensin –converting enzyme inhibitors reduce progression of renal disease and albuminuria more than other antihypertensive agents. For identification of complication purposes, the level of serum creatinine, which reaches values higher than the normal (up to 1.4 mg/dL), is a gross estimator of a glomerular filtration rate reduction. However, this test may not detect early damage in these patients.

Following are the indicators considered for this condition:

- Percentage of patients with $>1.5 \text{ mg/dL}$ creatinine level sent to internal medicine (secondary health care level).
- Percentage of patients with diabetes mellitus + hypertension treated with ACE inhibitors (captopril or enalapril).

Impact of the technical-medical updating program

The evaluation comprised the baseline and post-intervention stages (after participation of family physicians in medical continuous education program). Patients with following characteristics were included:

Prenatal care: 32-gestation-weeks pregnant women who started prenatal care before week 18.

Infants' growth and development surveillance: infants under age 2 with any diagnosis, including control of healthy infants.

Acute respiratory infections: patients of any age with any of the following diagnosis: rhinopharyngitis or equivalent conditions (flu, common cold, cold-like condition), pharyngitis, tonsillitis, pharyngo-tonsillitis, vesicle-pharyngitis, otitis media, sinusitis, laryngitis, laryngo-tracheitis, bronchitis, pneumonia.

Cervicitis-vaginitis: women of any age with this diagnosis.

Diabetes mellitus: patients with type-2 diabetes mellitus diagnosis with at least one year consultations at that clinic.

Arterial hypertension: patients diagnosed with arterial hypertension who have been treated for at least a year at that doctor's office.

A sample of cases per motive for consultation was selected and divided in three strata according to the clinic's organization. Information was collected from medical records and collection of data was carried out by family physicians who were not full-time physicians at those units. Baseline evaluation started in October 2002 and post-intervention evaluation, in October 2003. The information was analyzed through descriptive statistics and was contrasted to the information obtained through the indicators.

Results

Prenatal care: no impact was observed in the proportion of cases in whom an obstetric risk was identified. There was a slight increase in the proportion of patients in whom lab tests were indicated after week 20 of pregnancy (table III).

Healthy child health care: after the intervention, the percentage of children's weight and size entries in the medical record increased, as did the proportion of the nutrition status diagnosis. It is worth noting that there was an elevated percentage of pediatric patients with overweight (table IV).

Acute respiratory infections: the diagnosis registered show a high proportion of pharyngo-tonsillitis, whose actual frequency with regard to the total respiratory

infection cases managed at primary health care does not surpass 20%. Perhaps these diagnoses correspond mostly to rhino-pharyngitis, which is under-recorded, and this is important since antibiotic prescription depends on diagnosis. Data reflect an underutilization of antibiotics in two ways: first, there is an under-diagnosis of bacterial pharyngo-tonsillitis and secondly, antibiotics are prescribed for conditions that are diagnosed as common colds.

After the intervention, there was a reduction in antibiotic prescription for treatment of rhino-pharyngitis, as was also the case in patients with bronchitis and otitis. On the contrary, there was an increase in antibiotic prescription for pharyngitis cases (table V).

Cervicitis-vaginitis: the two proposed indicators were evaluated. The percentage of patients in whom physical examinations were performed increased two-fold compared to the baseline evaluation; this same situation was observed in couple treatment. Yet, the percentage achieved is still insufficient (Table VI).

Diabetes mellitus: it is possible to estimate partial health results through glycemic control. It is also possible to detect renal impairment through the search of proteinuria in general urinalysis routinely requested to diabetic patients.

The principal results reflect a discrete increase in glucose control and a slight percentage increase in patients sent to secondary health care levels. Treatments with glybenclamide reduced in number; however, the prescription of appropriate

Table III
Prenatal care quality indicators
Mexican Institute of Social Security

Characteristics – indicator	Baseline evaluation N = 365	Post-intervention evaluation N = 240
Age in years (median min-max)	25 (15-44)	25 (15- 42)
Identification of obstetric risk at first consultation (%)	60.6	55.4
Lab tests (at least once) (%)	93.9	91.3
Second lab test after week 20 (%)	37.9	41.7

Table IV
Healthy child health care quality indicators
Mexican Institute of Social Security

Characteristics – indicator	Baseline evaluation N = 365	Post-intervention evaluation N = 240
Age in months	6	
(median min-max)	(0-24)	8 (0 - 57)
Sex		
Male	52.3	51.3
Female	47.7	48.7
Entry of weight and size in medical record		
Complete	66.1	79.2
Incomplete	24.7	16.7
Absent	9.3	4.2
Nutritional status diagnosis		
In the medical record	54.8	62.5
Nutritional status		
Normal	68.7	60.8
Grade I malnutrition	10.0	6.7
Grade II malnutrition	3.8	4.6
Grade III malnutrition	2.9	1.7
Overweight	10.5	18.3
Obesity	4.1	3.7

doses of this drug increased significantly, which may have been due to a higher availability of metformin (Table VII).

Arterial hypertension: the proportion of hypertensive controlled patients is around 60%, which is to be expected if we consider that current treatments are highly effective.

Table V
Antibiotic prescription quality indicators
Mexican Institute of Social Security

Characteristics – indicator	Baseline evaluation N = 365	Post-intervention evaluation N = 240
Rhino-pharyngitis	66.1	57.5
Pharyngo-tonsillitis	78.9	87.0
Otitis	93.3	80.0
Bronchitis	85.0	75.0

Table VI
Cervicitis-vaginitis treatment quality indicators
Mexican Institute of Social Security

Characteristics – indicator	Baseline evaluation N = 365	Post-intervention evaluation N = 240
Physical examination (use of vaginal speculum)	26.5	48.3
Treatment of partner	6.7	14.6

Evaluation of renal impairment detection with this disease was also low, since one third of patients were requested a creatinine clearance test in the last year. Likewise, 25% of those patients suspected to have this condition were sent to secondary care level interconsultation for treatment.

Lastly, compliance of treatment indication with ACE inhibitors in hypertensive and diabetic patients was achieved in three thirds of cases.

After the educational intervention, an increase in the number of patients under control and of patients with creatinine tests in the last year was observed. Of every three patients, there is one with concomitant diabetes mellitus and arterial hypertension. The number of patients treated with angiotensin-converting enzyme increased slightly.

Table VII
Diabetes mellitus treatment quality indicators
Mexican Institute of Social Security

Characteristics – indicator	Baseline evaluation N = 365	Post-intervention evaluation N = 320
Glucose control (<=120 mg)	17.7	18.4
Presence of proteinuria in the last year	11.2	8.1
Referral to 2 nd care level (those with proteinuria)	23.5	25
Treatment with glybenclamide	82.2	73.6
Appropriate dose of glybenclamide (<= 20 mg/d)	34.5	92.6

Table VIII
Arterial hypertension quality indicators
Mexican Institute of Social Security

Characteristics – indicator	Baseline evaluation N = 365	Post-intervention evaluation N = 240
Percentage of controlled patients (<140/90 Hg)	65.1	78.4
Percentage of patients with creatinine level determination in the past year (n)	32.4	38.4
Number of patients with diabetes mellitus and arterial hypertension	27.0	10
Patients with diabetes mellitus + hypertension treated with ACE inhibitors (captopril or enalapril)	68.8	70.9

Contributions, proposals and perspectives

The interventions in the Family Medicine Improvement Process are complex and identification of their impact is difficult in the short term. The evaluation of FMIP's performance, in particular with regard to quality of medical attention, only reflects

partially the impact of the continuous medical education program. It is necessary to consider the context under which health care is provided, as well as the working conditions (health care demand, labor satisfaction, academic environment, etc.) and availability of resources and medications.

It is important to interpret results in a cautious manner. As was mentioned previously, some indicators do reflect appropriateness of clinical decisions (example: diagnosis of nutritional status in the growth and development indicator; diagnosis of acute respiratory infections; decision to administer treatment to cervicitis-vaginitis patients' partners; decision to send patients with proteinuria to a secondary care level for assessment of their chronic renal insufficiency).

In contrast, other indicators reflect the low context under which the family physician provides care and evidences aspects such as input and resources availability, medical equipment, etc. For example, the physical examination in patients with cervicitis-vaginitis may be erroneously interpreted if availability of a vaginal speculum is not considered and not enough time exists for this examination. These two conditions are frequently missing in family medicine clinics.

FMIP interventions are still ongoing and their effects will be observed and measured in the mid-term. The preliminary benefits of these interventions have convinced the institutional authorities and union representatives of their pertinence and feasibility. Therefore, they have been extended throughout the system and adapted according to each delegation's context.

While this is an experimental model, the complexity of the interventions and their applicability to solve institutional problems gradually has convinced the authorities to continue their support.

Financial sources for the project

The FMIP has relied on the following funding sources:

- Budget from the Medical Benefits Direction.
- "Economic evaluation of the Family Medicine Improvement Process" Project. IMSS-2002-785-019. Institutional Health Research Programs Support Fund. (FP-0038)
- "Evaluation of a health care model for patients with type-2 diabetes mellitus and arterial hypertension, with the participation of primary care nurses" Project. IMSS-2003-785-024. FOFOI.
- "Evaluation of a health care model for patients with type-2 diabetes mellitus and arterial hypertension, with the participation of primary care nurses" Project. IMSS-2005-202. FOFOI.

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Linkage Services between medical and social benefits. The social health care approach in the Family Medicine Improvement Process

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Introduction

With the purpose of guaranteeing a quality-improved medical care to beneficiaries, the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) is making efforts to strengthen the activities of the Family Medicine Improvement Process (FMIP) and the Integrated Health Programs (PREVENIMSS) through the “Linkage Services between Medical and Social Benefits” project. This project links medical care with the delivery of social care services in the disease prevention and health promotion components.

The main objective of the Linkage Services is to contribute to the development of an integrated attention aimed at generating changes towards healthy life styles by fostering the participation of individuals, the contribution of families and beneficiaries and of the surrounding socio-community setting. Integrated care shall be delivered through the strengthening of the relationship between Family Medicine Units (FMU) and the Social Benefits Operative Units (SBOU).

This chapter presents the main components of the project’s strategic and operational planning as agreed by IMSS Medical Benefits Direction’s Coordination of Health Policies and Economic and Social Benefits Direction’s Coordination of Social Benefits. Likewise, a brief epidemiological overview of the three selected health care consultation motives for the instrumentation and development of the Linkage Services is described. These motives are: overweight/obesity, high blood pressure and diabetes mellitus. The project’s basic components are the following:

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- Need to improve institutional disease prevention and health promotion strategies
- Justify the Linkage Services project
- Linkage Services conceptual framework
- Linkage Services project objectives in the FMIP
- Project target population
- Socio-economic interventions of the Linkage Services
- Evaluation of Linkage Services

Epidemiological overview of the selected health care motives

The directive and technical team formed at IMSS in the year 2002 between the Directions of Medical Benefits and Economic and Social Benefits analyzed the prevention and health promotion policies and strategies that will complement the health education actions set out in the FMIP and PREVENIMSS. After determining the diseases with the highest incidence in Mexico and within IMSS beneficiary population, the team decided to direct and define the priority of the Linkage Services project towards overweight or obesity, high blood pressure and diabetes mellitus.

These three motives for health care were selected due to their significant prevalence among the Mexican population, their relationship with chronic and dysfunctional processes, the relevance of preventive and health promotion actions in the emergence, evolution and development of these conditions, and the increase in health-related public expenditure derived from the demographic and epidemiological transition in Mexico. This transition is causing an increase of chronic diseases associated to aging that are giving way to new personal, family and community situations and thus a change in the demand for integrated health care, which should include not only the physical aspects of disease, but also the psychological and social aspects related to the loss of personal health.

Overweight and obesity: an epidemic disease

In most industrialized countries, statistical data are evidencing the alarming increase of individuals with overweight or obesity. In this sense, the World Health Organization (WHO) has considered obesity an epidemic disease.¹ Therefore, to talk about obesity today means to refer to the most important epidemic affecting humanity at the beginning of the 21st Century.

In Latin America data are scarce, but are showing trends similar to those of the western world, though with certain regional characteristics. In Mexico, the prevalence of this condition also shows regional features. With regard to age, the

National Health Survey, 2002 presents that one out of three adolescents is overweight or obese, one of every two adult females has the same problem. In the case of young individuals, the risk of persistent obesity at adulthood in obese boys or girls is very high. There is evidence that a high percentage of adults with obesity problems had overweight or obesity during childhood.

The 2000 National Health Survey showed that almost two thirds of the surveyed population had either of the two conditions: 36.2% were overweight (BMI between 25.1 and 30 kg/m²), 23.7% were obese (BMI over 30 kg/m²) and only 38.4% of this population had a normal weight (BMI between 18.5 to 25 kg/m²).

These same data broken down by gender evidenced that 40.9% of men and 36.1% of women were overweight, whereas 18.6% and 28.1%, respectively, were obese. In women, abdominal obesity (CA > 88 cm) was 58.8% and in men (CA > 102 cm), 21%. This problem increases proportionally with age in both genders. The highest prevalence was observed in the 40 - 59 age-group.

This problem is also predominant among IMSS women beneficiary population. The 1999 National Nutritional Survey and the 2000 National Health Survey concluded that overweight and obesity had increased in women from 31% to 36% and 23% to 31%, respectively. More recently, the 2003 ENCOPREVENIMSS revealed overweight and obesity prevalence shown in Table I, which varied by regions as presented in figure 1.

High blood pressure: a public health problem

High blood pressure (HBP) is a serious public health problem worldwide. WHO reported that the number of individuals afflicted by this disease had increased to approximately 600 million worldwide and that almost 3 million die as a result of this condition.² Seven out of every 10 individuals with hypertension do not receive an adequate treatment, as both WHO and the International Hypertension Society so claim.

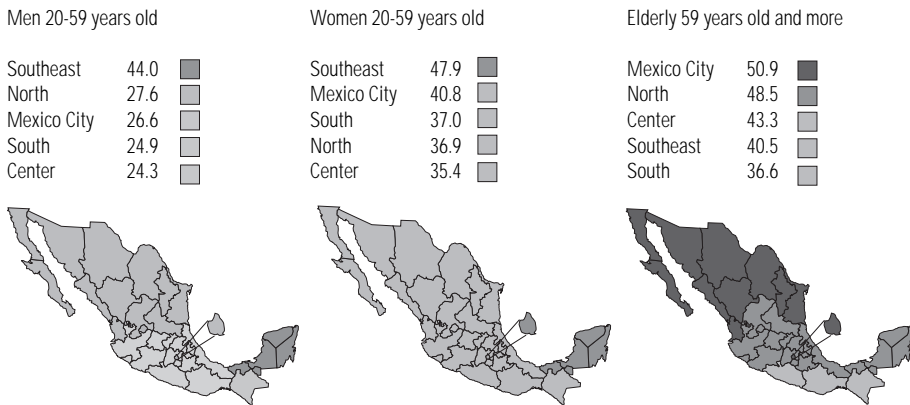
In Mexico, mortality due to cardiovascular diseases for the year 2000, according to PAHO, was 178 per 100 000 individuals. Mortality attributed to HBP in 1995 was 12.85 per 100 000 men and 15.22 per 100 000 women. The increasing number of people with this disease is becoming alarming, mainly among the young population.

The best treatment for hypertension includes the balance among benefits, risks and costs of treatment and prevention of sequela.³ When analyzing the incremental cost-effectiveness of high blood pressure treatment, hydrochlorothiazide and propranolol are the most cost-effective drugs in individuals with moderate to severe hypertension, whereas hydrochlorothiazide and nifedipine are most cost-effective in patients with mild hypertension.⁴

Table I
Prevalence of overweight and obesity. ENCONPREVENIMSS 2003

Age group	Overweight (%)	Obesity (%)
Children	10.2	
Adolescents	9.2	4.7
Women	32.82	38.6
Men	43.1	29.1
Elderly	21.9	44.3

Figure 1
Prevalence of obesity by region. ENCONPREVENIMSS 2003



In regard to health care services, uncontrolled hypertensive patients demanded medical attention more frequently than those with a controlled condition; therefore, treatment was more expensive. Request for medical consultation represents one of the main short-term costs of high blood pressure treatment.⁵

Those interventions aimed at providing home nursing care to hypertensive patients have proven to be cost-effective.⁶ Conventional economic studies in well controlled clinical trials haven't properly determined factors such as lack of

compliance or change or interruption of treatment. These problems have an important impact on hypertension treatment costs in actual clinical practice.⁷

Diabetes mellitus: silence disease

Diabetes mellitus is one of the most frequently present chronic-degenerative diseases worldwide and because of its magnitude, it is considered an increasing-trend pandemic. In Mexico, diabetes mellitus constitutes one of the most important public health problems. Debilitating conditions and disability, as well as the years of life potentially lost as a consequence of premature death, have resulted in high social and economic costs.

At IMSS Family Medicine Units, type-2 diabetes mellitus is the second motive for chronic-degenerative medical consultation. Two interrelated aspects have been identified: a high proportion of uncontrolled diabetics (up to 70%)– and a similar percentage of treated diabetics with poor dietary and exercise indications; lack of prevision for timely identification of acute and chronic conditions, and improper utilization of available medications.^{8,9}

Likewise, there are limited education actions aimed at making overweight and obese populations aware of the risks of developing insulin resistance syndrome and type-2 diabetes mellitus if these conditions are maintained.

In Mexico, the 2000 Health Survey reported that the prevalence of diabetes among people > 20 years old is 7.5%. Diagnosis was made in 22% of individuals from this universe during this Survey and the northern states had the highest incidence. The prevalence among IMSS beneficiaries was 8.9%, higher than the national figure. Factors such as family history, low education level and lifestyles associated to poor dietary habits and sedentary lifestyles –leading to overweight and obesity– play an important role in the disease. These conditions will start a vicious cycle that will eventually cause type-2 diabetes mellitus.

Interventions directed towards improving the quality of medical care have shown 13-to-27%¹⁰ effectiveness in prescription of adequate medication, dietary recommendations and exercise. A study¹¹ that evaluated the efficacy of a clinical guide in a family medicine unit revealed positive results associated to a decrease in caloric intake and a 30 to 36% increase in the proportion of controlled patients.

The need for improvement of institutional strategies

In the year 2001, the Directions of Medical Benefits, through its Coordination of Health Policies, and of Economic and Social Benefits, through its Coordination of Social Benefits, designed and separately executed their respective situational

analysis (internal analysis)¹² regarding health promotion actions of both Directions. The most important conclusions are:

Direction of Medical Benefits

- Poor definition of strategies and lines of action in the topic of health promotion.
- Lack of articulation and heterogeneity of health promotion programs with limited effective interventions.
- Deficiencies in regulatory aspects, resources, design of interventions, definition of interventions and target populations.
- Difficulty in measuring operational performance, quality of interventions and health impact due to an inadequate planning of goals and indicators, as well as of control, follow-up and evaluation instruments.

Direction of Economic and Social Benefits

- Operational deterioration resulting from a limited effectiveness of health promotion actions and interventions determined in linked programs between medical and social benefits.
- Heterogeneous criteria of linked actions due to poor development of both regulatory aspects and action guidelines, as well as of target populations and intervention controls.
- Scarce participation of users in health promotion activities, with limited effectiveness in habits and lifestyle changes.
- Difficulties in unifying and systematizing health promotion and social participation intervention methodologies and techniques.
- Consistency and broad coverage of workers' health programs.

Justification of the Linkage Services project

In view of the high prevalence rates of overweight/obesity, hypertension and diabetes mellitus in Mexico and the beneficiary population, as well as of the need to improve the linking actions between IMMS Medical Benefits and Social Benefits, particularly with regard to disease prevention and health promotion components, the Linkage Services constitute a complimentary and innovating strategy of both FMIP and PREVENIMSS projects for the development of the following health policies:

- Strengthening of the model based on primary care and FMIP's continuity of health services.
- Development of the health education component as the core element of PREVENIMSS health promotion.
- Fostering of beneficiaries' social and community participation in health actions and interventions.
- Promotion of the social approach in integrated health care services with individual, family, group and community interventions.
- Strengthening of interdisciplinary work in family medicine with integrated health teams linked to the Social Benefits area.
- Development of self-care and disease control co-responsibility among beneficiaries.

Conceptual framework in the design of Linkage Services

From the previous situational diagnosis, the Medical Benefits and Social Benefits Linkage Services project, embedded in the FMIP, sets out the following theoretical references:*

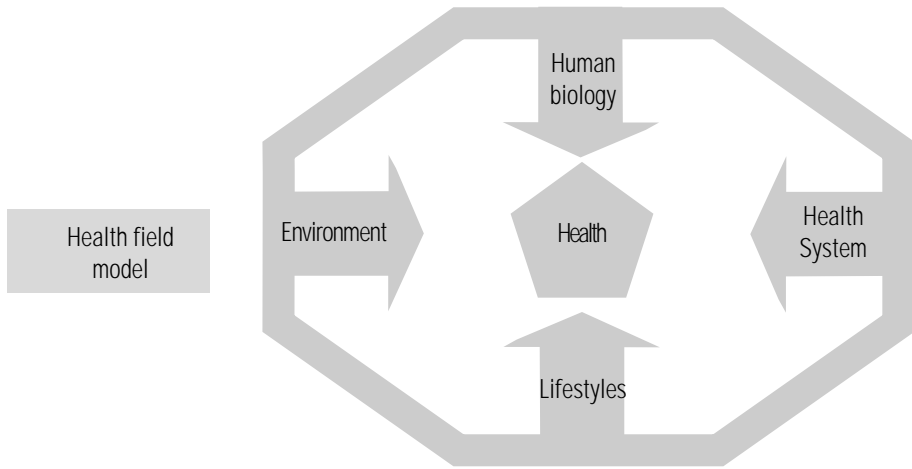
Health field: it incorporates and recognizes the presence and interrelationships between people's health status and social welfare conditioning and determining factors, and it includes four main components: human biology, lifestyles, environment, and health systems and community social services organization, which were not taken into consideration before, but are currently allowing a clear definition of integral health interventions (figure 2).

Integrated health care: it is the process by which individuals, community groups and society in general develop the necessary condition to control and act on the previously mentioned factors, combining personal choice with social co-responsibility. This is done through people's behavior and through the access and use of sufficient and quality technical integrated health services.

Health promotion concept: process by which people may preserve, improve and recover their health through health education actions, community participation

* Synthesis and adaptation of several documents and reports from the World Health Organization, the Pan American Health Organization and the European Union.

Figure 2
Definition of the health field concept. Strategy definition.
Theoretical foundations



and social integration, all aimed at promoting higher autonomy, changes in lifestyles and control of their own health within a user-institution frame of co-responsibility.

Dependence or loss of personal autonomy: individual need to get help and support to adjust to their environment and interact with it. It may be analyzed from different perspectives; from a functional approach, it is determined by the adjustment of individuals to the demands of their surrounding environment in different areas of their daily life in society, and in particular, their family and community settings.

Socio-medical coordination: a set of health care and social care resources that operate from their own systems. Its purpose is to optimize the use of these resources through the integration of interdisciplinary and complimentary actions aimed at strengthening and improving the synergies and impacts of integrated health interventions.

Social health care or socio-sanitary care: it is the social and institutional response to demand for support and help on the part of the people experiencing diverse dependence situations or loss of personal autonomy, whether transitory or

permanent. This is a new social demand that has to be met by the integration of continuous personal health and social care services. The end-goal is to improve the quality of life of those individuals with severe dependence problems through promotion of healthy life conditions, rehabilitating interventions, integral assistance to the dependent and their caretakers.

Objectives of the Linkage Services pilot project

Based on the aforementioned health policies and directly associated to the previously defined background, a pilot project was designed for the Medical Benefits and Social Benefits Linkage Services, embedded in the FMIP, the objectives of the project were the following:

On IMSS beneficiaries: to change beneficiaries' habits and lifestyles with regard to overweight and obesity, high blood pressure and type-2 diabetes mellitus, through health education socio-medical interventions and social participation aimed at improving their health level and quality of life.

- Development of individual intervention plans in conjunction with beneficiaries through clinical diagnosis and a previous socio-medical evaluation.
- Fostering of knowledge acquisition and favorable attitudes towards health care through physical activity, dietary guidance and health education groups.
- Favoring the incorporation of beneficiaries in mutual help and social participation groups in order to strengthen their individual, family, group and community autonomy.
- Promotion of beneficiaries' participation in social and health resource networks within their surrounding setting.

At Family Medicine Units and at Social Benefits Operational Units: to strengthen the interaction and integrated health services provision capabilities at FMUs and SBOUs.

- Improvement of reference and counter-reference and beneficiary population socio-medical detection and evaluation processes to achieve the systematization of participants' socio-medical, follow-up and control intervention procedures.
- Development of health and teaching personnel interdisciplinary work based on criteria of professionalization, quality and continuous improvement of socio-medical interventions with beneficiaries.

- Evaluation of performance and health impacts achieved with the Linkage Services.

Project's target population

During the first phase the Linkage Services are directed to > 20 year-old beneficiaries with one or a combination of the following three motives for consultation: a) overweight or obesity; b) type-2 diabetes mellitus, and c) high blood pressure.

The following basic requirements for the inclusion in the project of potential users shall be applied:

- Economic availability to pay for transport and to acquire the necessary materials at workshops.
- Time availability to attend all the activities in a systematic manner.
- Voluntary participation of beneficiaries in socio-medical interventions: informed consent.

Other factors that will be taken in consideration are:

- Socio-economic level
- Educational level
- Family situation and informal support
- Medical diagnosis
- Health-related quality of life

The only exclusion criteria, which will apply only for physical exercise, shall be the recommendation of the family physician of no participation by the beneficiary in physical activity workshops; in which case participation shall be at any other scheduled at each SBOU.

Socio-medical intervention in Linkage Services

Area 1. Individual socio-economic interventions¹³

The Local Linkage Services Team, integrated by medical care professionals, social workers and FMU's and SBOU's facilitators, will implement the procedures manual and the technical instruments for the joint development of the subsequent socio-economic interventions phases with users.

Medical diagnosis: medical detection of individual risk situations according to the above-mentioned motives for consultation. This activity will be conducted by the family physician at FMUs through the corresponding diagnosis and shall be carried out in conjunction with the dietitians-nutritionist and the head of the clinical laboratory, the psychologist whenever one is available at the FMU.

Information to the beneficiary: it will be the responsibility of the FMU's social worker who shall use a semi-structured interview to inform the user about the Linkage Services, the local offer of group and community socio-medical activities. In the same manner, the social worker will refer the beneficiaries to the SBOU's social worker with the corresponding reference note.

Individual socio-medical evaluation: this evaluation will be applied by the SBOU social worker who, through a semi-structured interview, will apply the Individual Socio-Medical Evaluation Questionnaire to comply with the first Individual Socio-Economic Report. The results will be included in the Individual Socio-economic File and/or in the Electronic Clinical File's social module.

Individual socio-medical intervention plan: based on the results of the previous phase, the SBOU social worker will devise an individual socio-medical intervention plan which will be shared and assessed with the techno-medical advisor and the group-and-community socio-medical facilitators before incorporating the user to these interventions. With regard to physical exercise, the teacher will subject the beneficiary to a fitness test (those authorized by the physician to do exercise) in order to schedule the type and intensity of physical activities in a customized plan.

Control and follow-up of results: continuous assessment by the techno-medical advisor or social worker of the progress achieved by those beneficiaries participating in group and community socio-medical interventions. The attendance records and the facilitators' own assessments will be used for this purpose.

Impact evaluation: based on the initial, mid and final application of the Individual socio-medical Evaluation Questionnaire to users, results will be evaluated quarterly using the following basic indicators:

- Healthy lifestyles and habits
- Health-related quality of life
- Perception of social support
- Physical health status

Post-plan impact follow-up. Periodical measurements on the maintenance of health impact shall be performed once the participation of users in group and community socio-medical interventions is completed. The questionnaires will be semester-wise applied by SBOUs social worker through telephone or face-to-face semi-structured interviews.

Area 2. Group socio-medical interventions

SBOUs facilitators will devise, based on their regular working hours and classroom availability, an offer of group workshops based on the Linkage Services Facilitators Guides. These workshops should include at minimum the following group socio-medical interventions:

- Physical activity
- Health education
- Dietary guidance
- Optional cultural activities: ball room dancing and/or theater.

Area 3. Community socio-medical interventions

In collaboration with the social and health resources of each SBOU surrounding settings, whether public, private or social, facilitators, under the supervision of social workers, and from an inter-institutional and inter-sectorial approach, will develop the following basic local offer: mutual help and family support; social participation (figures 3, 4).

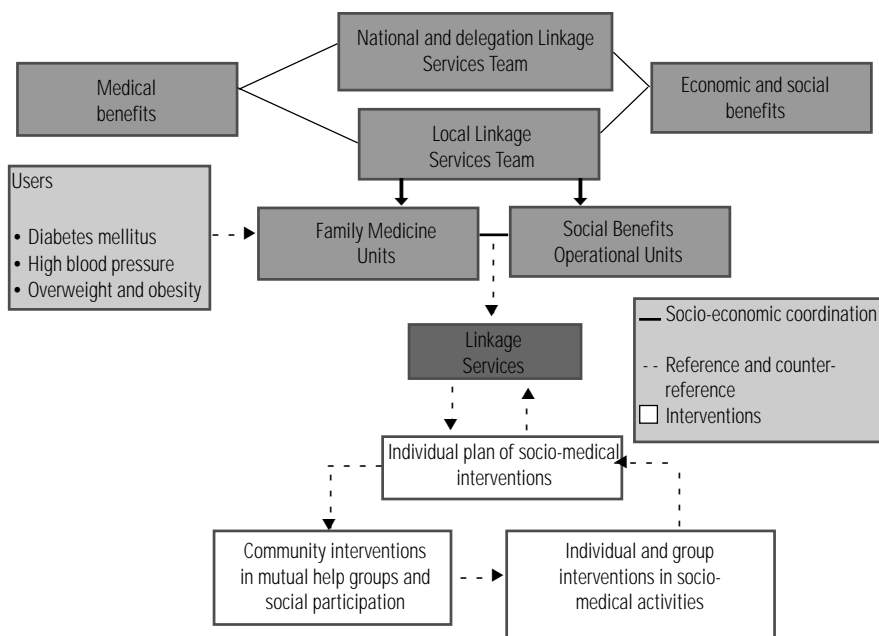
Evaluation of Linkage Services

The Linkage Services establish, according to their objectives and lines of action a continuous evaluation system with the purpose of assessing the operational development, performance and health results achieved by the participation of beneficiaries in socio-medical interventions.

Performance evaluation¹⁴

This evaluation will be conducted with the purpose of analyzing the degree of progress in the implementation and development of the Linkage Services, which will allow an assessment and introduction of necessary improvements in terms of:

Figure 3
Socio-medical organization and coordination process



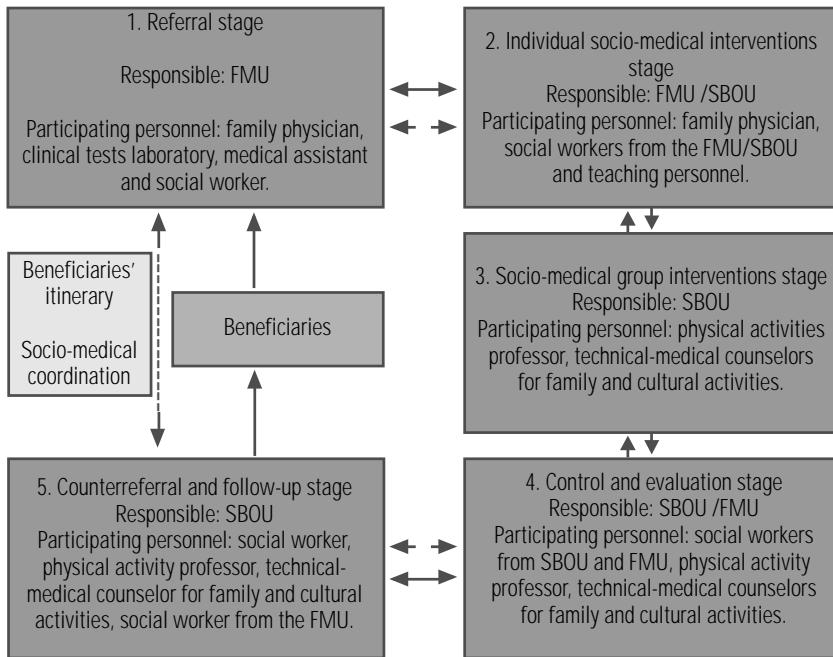
Source: Linkage services pilot project in the FMIP, 2004

Efficacy: analysis of the degree in which the project objectives and goals were met. It will include an evaluation of the processes that have facilitated or hindered its strategic and operational development and implementation.

Efficiency: study of the relationship between utilization of institutional resources in Linkage Services and the results obtained in terms of quantity and quality.

Timeliness: assessment of the pertinence and validity of project objectives and goals, including an analysis of the consistency of the Link Services strategic and operational planning.

Figure 4
Linkage Services Process



Source: Linkage Services pilot project in the FMIP, 2004

Technical Quality: analysis of procedures and drafting of operational manuals, socio-medical intervention guides and technical instruments for the development of continued improvement criterion in the services offered through this project.

Cost-effectiveness: development of indicators and evaluation instruments to determine the relationship between the results obtained, the costs of human and material resources used in the Linkage Services, as well as the level of achievement of the project's objectives and goals.

Evaluation of health impact with the users¹⁵

The purpose of this evaluation is to quarterly assess the effects of the results achieved on the health of participating beneficiaries, as well as their variation and permanence in time in terms of:

- Changes in lifestyle and health habits
- Improvement in health-related quality of life
- Increase in the perception of social support
- Results of physical health

Additionally, the following aspects will be evaluated at the end of each quarter of socio-medical interventions:

- User and service providers' satisfaction
- Acceptance of proposed intervention on the part of users
- Compliance of users with the various activities established
- Access to Linkage Services

Evaluation methodologies

Performance evaluation: the project management, control and evaluation methodology is considered for this purpose, which includes the basic following components:

- Based on the Linkage Services strategic goals, definition of indicators for each of the general and specific objectives.
- Planning and establishment of an instrumentation, implementation and operational activities calendar and determining of the necessary input and supplies (human and material resources), as well as their relation with the indicators proposed.

Evaluation of health impacts. Health, social and educational evaluation methodology is recommended. Sufficiently verified and validated questionnaires will be selected as part of the technical instruments and they will be adapted to the measurement of the health impacts expected in participating users. The questionnaires will be applied through semi-structured interviews both individually and in focus groups.

Table II
Participants in the Evaluation of Linkage Services

Elements involved	Evaluation function	Evaluation components
Health Policies Coordination Social Benefits Coordination	Policy evaluation Analysis of the evaluating reports of institution Linking Services team to support informed decision making	<ul style="list-style-type: none"> • Policies • Health institutional problems • Health promotion and prevention • Coordination and link between medical benefits and social benefits
Institutional Linking Services technical team	Strategic evaluation Analysis of the lines of action to evaluate the degree of progress in institutional implementation, the achievement of the goals set: planning improvement, compliance of the theoretical foundations and conceptualization of the project	<ul style="list-style-type: none"> • Pre-evaluation of the situation or situational diagnosis • Evaluation of the Linking Services design: pertinence/coherence, implication and sufficiency/timeliness • Operational processes • Indicators of operational activities • Indicators of human and material resources involved • Compliance of the activities calendar • Design and application of indicators verification instruments
Delegation and local Linking Services teams	Operational evaluation Continuous follow-up and analysis of socio-medical intervention development with users as participants and group and community workshops at FMUs and SBOUs,	<ul style="list-style-type: none"> • Estimation of local coverage and access indicators • Utilization coefficients • Productivity achieved • Extension of use • Productivity and efficacy of group and community activities • Impact on the health of participating users
Participating users Informal support networks (families and close relatives) Potential users, beneficiary population in general	Focus of evaluation <ul style="list-style-type: none"> • Service expectations • Methodology effectiveness • Usefulness of attention received • Degree of needs and demands satisfaction, individual and group 	Health impacts <ul style="list-style-type: none"> • Changes in lifestyles and acquisition of healthy habits • Improvement in quality of life • Increase in social support • Maintenance and/or improvement of physical health status.

Human elements participating in the evaluation¹⁴

The evaluation system will include all human elements participating in the implementation and operation of the Linkage Services. In this sense, it is convenient to count on basic functions and evaluation components shown in Table II.

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Section I



The Mexican experience
on improving Family
Medicine

**B. System-wide implantation
of the Family Medicine Improvement
Process at IMSS**

Implementation of the Family Medicine Improvement Process

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The demographic and epidemiological transition worldwide has imposed great challenges to health organizations. Among other, the responsibilities of the health care systems are to maintain accessibility and equity of services to the population they have under their responsibility.¹

The challenges faced by the Mexican Institute of Social Security (IMSS, per its abbreviation in Spanish) to attend the health needs of its beneficiary population have had an accentuation in the past century. On the one hand, the population assigned to a family physician has had an approximate 3% annual increase in the past five years,² and on the other, the health care needs of the beneficiaries with chronic-degenerative conditions and of the elderly population are higher. The Family Medicine Improvement Process (FMIP) can be considered a jointly defined political agreement by the IMSS and the National Union of Social Security Workers (SNTSS, per its abbreviation in Spanish).

The implementation of a program or a new process, like the one planned to be carried out in the field of health care services of an organization such as IMSS is not an easy task, because the selection of policies and decision making process will dictate whether service delivery will be affected positively or negatively.

Within the working program and in accordance with the 2001-2006 strategic directives, one of the policies of IMSS CEO has been to improve the health service delivery in the primary health care setting; that is, in family medicine units considered as the regular entrance by which the beneficiary population has access to the Institute's medical services, where 85% of the health problems are attended.

The health policy approach emerges from the social sciences and takes into consideration theories from different disciplines and uses them in an eclectic manner. Hogwood and Gunn believe that policies always entail the making of specific decisions in a reasonable sequence. For Harrop, policies involve a good

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amount of decisions and he explains how they should be put into practice. However, in daily life, there is generally not a clear differentiation between politics and decision making. For Walt, policies are used to identify a series of more or less related activities and their expected or unexpected consequences for the goals intended to be achieved.

The sequence that policies should follow is: identification of a problem and its consequences; drawing of policies; implementation of policies and finally, evaluation of these policies.³

Once a policy is established, there is a need to fulfill a laborious work that includes the aligning of wills, and in the case of our subject matter, first of all, the alignment of the following Directions: Medical Benefits; Organization, Management and Quality, and the SNTSS. As the works progressed, the wills of the Directions of Technology Innovation and Development, Planning and Finances, Economic and Social Benefits, Incorporation and Collections, and Human Resources.

It was when policies were known by these Directions, decisions were made by the institutional authorities and the interests of the regulatory divisions were aligned that the planning of the improvement process implementation obtained relevance.

Based on this relevance, the planning process is broken down in the scope of the planning, the planning program and the planning projections. When a plan is drafted, a time-horizon perspective has to be distinguished: for a long-term plan, it is 20 years; for a medium-term plan, it will only be from five years on, and finally, the annual plans, which are usually dependant on a budgeting period and on the situation of the financial resources for their implementation. Actually, intermediate plans are the most frequently selected because they may be combined with the budgeting process and the financial resources circumstances, both of which are usually done in an annual basis in most organizations.

The responsibility of defining the work plan and objectives and of determining their importance is always assumed by the organization's highest executive level. It is crucial to reach a deep understanding of the expected results and put special attention in development-related aspects, such as the critical path, communication, education, negotiation with local entities and availability of financial resources. Within the planning process, the general plan should determine the actions and activities that need to be directly planned at the central level and those actions and activities that have to be planned and followed up at the decentralized level so local entities appropriate the strategies and become co-responsible with the central level. The gathering of information is organized at the central level, but the quality of this information depends on the involvement of the local entities. If people at the local level where data is collected from are aware of the purpose of this

information, they will become more interested and will be more accurate in obtaining and validating this data.

Planning is a dynamic and continuous activity and requires implementation to be an integral component of health planning.⁴

Once a policy is defined and the actions and activities planning process for their implementation are concluded, the next step is the integration of effective work-teams.

According to Hischorn, the work teams are conformed to increase the participation of the workers who execute the tasks with knowledge and experience in various functional areas; for Galbraith, these teams are coordinated resources and are integrated around the occurrence of frequent problems. Hence, the team is in charge of discussing and resolving certain problems according to their level and hierarchy. For Scott, work-teams not only solve the problems that originated their becoming a team, but also carry out certain organization's jobs.

Hellreigen and Slocum say that there are three types of work-teams in the health organizations: problem solving teams, teams integrated for a specific objective, and self-management teams.⁵

The Medical Benefits Direction is the regulatory instance directly responsible of leading the FMIP; and the Medical Care Unit is responsible for its implementation in the system as a whole, as well of supervising and evaluation the performance of actions and activities an the primary care level represented by the Family Medicine Units (FMUs).

IMSS primary health care level is formed by 1 201⁶ medical units with the following features: pure family medicine units, family medicine units with hospitalization, sub-zonal general hospital, zone hospitals with family medicine and regional hospitals with general medicine. The medical units have from 1 to 40 consultation offices; of the total number, 384 have between 5 and 40 consultation offices, which cover around 84% of the beneficiary population. These units are usually located in the State capitals, large cities or areas of the country with high industrial and business development. There are also 817, 1-4-consultation office units distributed in smaller and generally more distant communities spread throughout the country. These units provide coverage for 16% of the beneficiary population.

There are 13 441 full-time family physicians in outpatient family medicine services and 2 177 in emergency rooms.⁷ The family physician is considered the core of FMUs medical care and is responsible of 2 400 assigned beneficiaries. There are two six-hour family physician shifts, from 8 to 14 hours and from 14 to 20 hours. They have the support of medical assistants who help in the organization of consultation schedules; they assist in the physical examinations and they carry out guidance and education to beneficiaries.

Depending on the number of consultation offices, medical units have a specific number of services and different category personnel providing support to family physicians during their shift activities.

At medical units with four and more consultation offices, the health team is integrated by personnel from the preventive medicine, stomatologists and social work departments; in units with more than 10 offices, the team includes a mother-child nurse, family planning personnel and occupational health personnel. From 10 consultation offices on, there are also ancillary diagnostic services, clinical laboratory and radio-diagnosis support services.⁸

Along IMSS history, the organization of health services delivered in these units has been subjected to dynamic and progressive changes so they may be at conditions to meet the changing health needs of the population. In 1955, the Family Medicine System was established, a relevant event; in 1956 the first instructive ruling the family physician's activities was defined;⁹ in 1970, the Family Medicine Specialization Program;¹⁰ in 1972, the Family Medicine System Manuals; and in 1990, assignment of families to each family physician.¹¹

Acute upper respiratory diseases and GI tract diseases are among the first motives of family medicine consultation, as well as chronic diseases such as diabetes mellitus and high blood pressure, often times coexisting with obesity and overweight; secondary conditions associated to the previously mentioned diseases have increased, which even though they are not among the main family medicine consultation motives, have a great impact on the population and the institution: chronic renal impairment and cerebrovascular diseases. Patients are more informed at present and have increased their capacity of questioning medical decisions; others are more assertive, but with a higher level of sophistication.¹²

On the basis of the foregoing described aspects, IMSS, through its Director of Medical Benefits, the Director of Management, Organization and Quality and the General Secretary of the SNTSS, drafted a project entitled "Family Medicine Improvement Process", which poses new forms of service organization and operation, the incorporation of the necessary primary health care level technology aimed at enhancing problem-solving capabilities. All of the above has the purpose of contributing to improve the population's health with an integral attention, where all services, both preventive and curing, are coordinated.¹³

During the year 2001, the members of the team responsible for the planning of the pilot test worked in the project's conceptual definition and in the selection of eight FMUs, two in each of the Regional Directions in order to test and validate the proposed strategies.

In 2002 the clinical practice guidelines for the 12 main motives of family medicine consultation were drafted with the purpose of supporting medical

decisions related to the selection of procedures and conducts to be followed in patients' specific clinical circumstances that would have a demonstrable impact on health care process results.¹⁴

In this manner, after the work performed from may 2001 to December 2002, the institutional and Union authorities identified that the actions and activities that the FMIP would be of great benefit for the beneficiary population, for the workers and for the organization and hence, it was decided to expand them to all the units in the system.

Despite the fact that we had the support of the results obtained in the pilot study at the initial eight units, where an extremely thorough and controlled focus was placed in the process, the adequate time to extend the FMIP actions and activities to all medical units of the system had come and we considered that the process would produce uncertainty and inconvenience in the structure and among the workers of the selected delegations and units. A relevant aspect included the selection of the best diffusion strategy aimed at preventing the occurrence of any obstacles during the implementation stage as much as possible.

Diffusion was considered a very important factor for the communication of innovating actions and activities in the daily work of workers and this was instrumented through different channels. Communication was especially careful so that messages could convey the required changes in the daily work tasks.

When actions and activities to be innovated are intimately linked to technological changes, they may cause significant uncertainty in the minds of the people selected to implement them.

Four major elements for the diffusion of innovative actions are believed to exist: the type of innovating action, the channels used for its diffusion, the time foreseen for said diffusion and, finally, the time needed by the work group to whom it is oriented to accept. Thus, the attributes of each innovating action is considered for the diffusion purpose: a) the advantage they entail, which is the degree in which said activities are perceived as better than the ones in place; b) the compatibility between the new activities and the existing values, the experiences of previous social groups and the potential need for a larger number of people accepting it; c) their complexity, that is, the difficulty with which it is perceived; d) the probability of them being accepted, in other words, the degree in which an innovating process is accepted by a specific number of people; e) the visibility that those people who are to adopted it and for whom it was proposed may have of the results of said activities.

When innovating actions are proposed, the members of the work group for whom they are intended will experience five stages: an interest to know what they are all about, an analysis of the pros and cons and the positive or negative way in

which they will affect their job; a period to decide whether to accept them or not; in case of acceptance, the group is attentive to the way in which they will be implemented, until they are convinced about them and use them.¹⁵

The process of diffusion was stratified. First, sessions were addressed to Regional Medical Coordinators, Delegates, Heads of Medical Benefits, Secretaries of the National Executive Committee and the Secretary Generals of all the Union sections in the country. At a second stage, the diffusion was aimed at Medical care Delegation Coordinators, the Training and Education Secretaries of the Union sections around the nation, Medical Units Directors and Union Delegates. The final stage was diffusion to all medical unit full-time personnel.

During the FMIP diffusion process there were an endless number of questions raised that were attended by the work strategic team in most cases and the participation and contribution of several IMSS workers.

Among the factors that were found in the workers who posed the highest resistance to change were: seniority at the Institute, distorted information by people alien to IMSS and SNTSS (note: Spanish acronym for *National Union of Social Security Workers*), a perception of loss of power and control, difficulty in developing skills and dexterities, personal attitudes.

For the extension of actions and activities of FMIP, the size of the medical units was considered the inclusion criteria. Thus, three strata were established: 40 to 18; 18 to 5, and 4 to 1 consultation offices. On the basis of this stratification, the General Director and the Regulatory Directors decided to allocate financial resources to improve the architectonic image and functionality of medical units; to change bad shape furniture; to incorporate leading-edge medical equipment according to the health care level; to incorporate computing equipment at those services where direct attention to beneficiaries is provided, such as family medicine outpatient services, emergency rooms or continuous medical education; stomatology, preventive medicine, occupational health; reproductive health and family planning; social work, nutrition and dietetics; ancillary diagnostic methods; to draft the clinical guidelines on the main motives of consultation;¹⁶ and to incorporate the family medicine information system software.¹⁷ This system includes the catalogue of the International Classification of Diseases in its tenth version (CIE 10), the catalogue of the official basic formulary; on-line consulting of the main-motives-of-consultation clinical guidelines, the guidelines of the MDA and the possibility of doing on-line reference queries.¹⁸

With the purpose of conducting the follow-up of the extension of actions and activities at the national level, a FMIP Bilateral National Strategic Team was integrated, with the participation of IMSS Regulatory Directors, Heads of Units,

Regulatory Coordinators and Heads of Division. Six Secretaries were incorporated from the National Executive Committee.

The National Strategic Team considered as recommendable to integrate delegation and local bilateral work teams with the purpose of having a thorough follow-up at the Delegations and the FMUs.

The implementation of outreach activities and actions that the National Strategic Team agreed to put in place were:

- Gathering of the information contained in FMUs and Delegation Integral Diagnostic Form.
- Visits to the Regional Directions seat cities with the purpose of spreading information on the implementation of FMIP outreach actions and activities.
- Formalization of the integration of bilateral work groups.
- Distribution of clinical guidelines to all the system family physicians appointed to consultation offices.
- The educational strategy “professor visit” was selected for the update of family physicians.
- Training visits for clinical advisors.
- Changes to each FMU local basic formulary.
- Baseline and final evaluation of family physician training.
- FMIP implementation, extension and training program.
- Rehabilitation services in FMUs.
- Strategies for the implementation of the Integral Health Care strategy.
- Improvement of accessibility to outpatient family medicine services.
- Strategies for family physicians use of basic ultrasound devices.
- Follow up visits and supervision.

Family medicine units’ integral diagnosis form

An FMU integral diagnosis form was devised which includes characteristic sections of the problems perceived in the operation. It was validated in eight units to confirm that the necessary information was obtained with the proposed instrument and it was applied in 106 and 295 units in 2003 and 2004, respectively. The plan is to implement it in 500 additional units by 2005. The information obtained with the form was used by FMUs’ local teams as the basis to organize and rank the best way to attend the problems. It was also the basis for the Delegations and different central level entities managerial considerations. A Delegation Diagnosis Form was drawn from the set of Unit diagnosis forms.

Diffusion of the outreach actions and activities program

In 2003, four visits to the seat cities of the Regional Directions were organized to present the National Strategic Team information to institutional and union officials from each delegation and Union sections. The Delegation, Union sections and FMUs officials were instructed to draft the integration memorandum of the respective work teams, which have been responsible for the follow up of the outreach actions and activities in 402 medical units.

Distribution of the clinical guidelines to all system family practitioners appointed to a consultation office

The Medical Benefits Direction instructed the extraordinary printing of 20 000 samples of volume 41 of “Revista Médica del IMSS” where the 12 clinical guidelines were published.

The “professor visit” educational strategy was selected for the updating of family physicians.¹⁹ On the basis of the experiences of several delegations of the system, and with the commitment of updating family physicians, the training plan based on the “professor visit” strategy was established. This strategy consists of the visit of non-family physician from a reference hospital or a family medicine expert to FMUs with the purpose of updating family physicians²⁰ on the main motives of family medicine consultation. The Delegation teams selected the non-family physicians with a teaching background. This strategy includes clinical activities in the family physicians’ office with the patients assigned to them and clinical sessions for the revision of bibliographic references, analysis of clinical cases from the same Medical Unit and revision of instructor’s clinical cases.

The Medical Benefits Direction negotiated the necessary financial resources to cover the family and non-family physicians participating in the training program.

During the years 2003 and 2004, 16 cities were visited per year and 804 professors were trained with the purpose of ensuring a homogeneous knowledge of the strategy. For 2005, the same number of visits to professors has been scheduled to introduce them in other type of strategies aside from the “professor visit” one, such as adult education and interactive videoconferences.

Among the products that professors are requested to submit at the end of the activities are the design of a training program, with the advice of the Health Education Delegation Coordinators, who conduct the follow up activities and are responsible for the compliance of program activities, and the Family Medicine Assistant.

The Coordinators of Family Medicine Assistants and the FMU Directors jointly make the necessary negotiations with the Supply Coordination at the beginning of the family physicians' training to ensure that the basic formulary medications included in the clinical guidelines be available at each FMU to treat each one of the corresponding conditions.

The evaluation of family physicians' degree of learning is very important; therefore, a baseline and final evaluation methodology based on the revision of patients' medical records by motive of consultation was defined. The revision of these medical records was done before and a month after the training.

Since 2001, Medical care and Medical Services Technology Co-ordinations have jointly and coordinated worked to determine the actions to be put into practice for the implementation of the Family Medicine Information System at FMUs. The sequence selection of medical units was based on the afore-mentioned stratification. During this collaboration work, the wiring of the consultation offices and services, as well as the installation of electric and data nodes and the allocation of computing and printing equipment for medical units were planned. Subsequently, the personnel to be subject to training in FMIS appointment books, integral attention, PREVENIMSS (IMSS' preventive actions program); stomatologist, labs and x-rays, prescriptions, leaves of absence and referrals was identified by category; 540 FMUs have been incorporated to these actions from 2003 to April 2005.

As part of the implementation work and as the planning work and outreach actions progressed, the FMIS link to other institutional systems were defined: the *Sistema de Información en atención Integral a la Salud SIAIS* (Integral Health Attention Information System), the *Sistema de Abasto Institucional SAI* (Institutional Supply System), the *Sistema de Pago de Incapacidades por Microprocesador, PMS* (Leave of Absence/Payment System), and the *Módulo Automatizado de Afiliación Vigencia, MACP* (Automated Affiliation Validity Module) which later became the "Acceder" system.

In order to achieve links to the other systems it was necessary to conduct intensive negotiations with several institutional entities responsible for the design, development and operation of the systems, such as the: Technical Division of Health Statistics Information and the Co-ordinations of Institutional Supply, Economic Benefits and Affiliation Validity.

In 2005, the training will be extended to personnel of 2-4 consultation office units throughout the country and for June of the same year, the new version of the FMIS that includes the Nutrition and Dietetics, Social Work, Emergencies and Occupational Health modules will be installed; improvements to the integral attention, PREVENIMSS, maternal health, reproductive health, pre-menopause and

menopause modules will be incorporated, and information output for medical care will be increased.

Family medicine unit rehabilitation services

IMSS, through its Medical Benefits direction, has generated a relevant change for the health care of beneficiaries that require rehabilitation services. Access problems, long waiting times and inefficiency in service provision were identified²¹. These services, which were traditionally delivered at secondary and tertiary medical levels, would delay timely access of beneficiaries to early rehabilitation services. Hence, 32 FMU were strategically selected to start the implementation of these services in four regional directions in 2005.

Clinical guidelines on the 10 most frequent motives of early rehabilitation consultation were drafted and it was determined that they will be attended at these new services. In 2005, the training of rehabilitation specialist physicians appointed to these services will begin, who in turn will train family physicians.

Strategies to implement the Integral Health Care strategy

Family medicine is considered an academic and scientific discipline with core own concepts, knowledge, skills and specific research fields. This specialty has acquired great experience in the study of common diseases and has always worked in the biological, psychological and social integration of patients and their families, who are considered the nucleus of health care.²²

The new integral health care model entails the provision of services to patients and their families according to their health needs, where preventive medicine and medical care are included for both acute and chronic diseases and early rehabilitation.^{23, 24}

Preventive actions are offered through PREVENIMSS program; medical attention, through family physicians, who are the drivers of health care; there is active participation of the multi-disciplinary health team and early rehabilitation is offered through family medicine rehabilitation services. These actions will be accompanied by socio-medical strategies in 10-to-more consultation-office units, so beneficiaries may identify the need to make changes in their life styles, which will become an essential element for the control of chronic diseases, such as diabetes mellitus, high blood pressure, overweight and obesity, and prevention of subsequent complications. These strategies will be implemented in medical units where self-

help groups for uncontrolled patients will be formed, as well as in social benefit operational units –through their liaison services– where patients will be attended once they have achieved a metabolic control. Videotapes with selected information for the diffusion of the proposed measures are under development; multidisciplinary health team members are participating in patients' activities, both individual and group activities. A strategy that will favor the interaction of patients with common problems for the resolution of group needs is also being developed.²⁵

Accessibility to family medicine outpatient services

Eighty five percent of IMSS medical care demand is solved in family medicine services, where accessibility, continuity, integral care and quality are the main attributes.^{26, 27, 28}

On the basis of the demographical and epidemiological transitions, on the one hand, and the uses, customs and preferences of beneficiaries from different cities, the Institute has always been interested in responding to the patterns of medical care demand. In 1993, IMSS issued the Norm for the Reorganization of the Outpatient Service through the use of appointment books. In this manner, 30% of the demand for consultation would be attended and the rest would be of a spontaneous nature. This program was put into practice in those medical units that included the category of medical assistants in their structure. Despite this strategy, various surveys applied at the FMUs show that the main motives of beneficiaries dissatisfaction was the waiting time for consultation.

In 2001 and 2002 some delegations began testing other consultation modalities to provide attention to the increasing demand for medical care. A change in the statistics reported by each one of these units was also observed. Therefore, in 2003 a change was implemented to include both the health care modalities and the system expected goals. Appointments, concerted schedule for consultation and medical care to spontaneous patients were considered health care modalities.

The criteria for medical appointments were: a date determined by the physician, patient's telephone or personal request at least 12 hours in advance; for 2004 and 2005, the goal was to achieve 50% and 55%, respectively. The attention modality for spontaneous patients is the one implemented when patients show up during the family physician's working hours. The goal in 2004 was to cover 20%, whereas for 2005, it will be 15%.

The patients who are attended through a concerted appointment are those who show up to request for consultation and with whom the medical assistant

agrees a schedule for consultation different to the one requested, but in the same day. The goal for 2004 is 30% and for 2005, 35%.

Basic ultrasound equipment at family medicine units

With the purpose of benefiting the affiliated population, the Medical Benefits Direction, through the improvement of service provision and the increase in the family physicians' problem-solving capabilities, determined to acquire 351 basic ultrasound equipments to be allocated to 351 family medicine units of 37 Delegations. These equipments were allocated in 3-to-37-consultation-office units, at State capitals and smaller cities.

The above-mentioned measured is justified by the increase in use of these equipments by family physicians mainly during the first trimester of pregnancy to verify if the fetus is alive, during the second and third trimester to obtain valuable and timely information on the placenta site of insertion, the presence of fetal abnormalities, estimation of gestational age and evaluation of discrepancies between the size and the age of pregnancy so referred by the patient.^{29,30}

When the equipments were delivered to the FMUs and in conjunction with the Health Education Coordination, a family physicians training strategy was devised and radiologist specialists were proposed as the course professors. The proposal failed because radiologists emphatically refused to participate as professors of family physicians. There was a heterogeneous participation of some radiologist and some gynecologist-obstetricians joined the professorate, since the objective had always been to use the equipment mostly in pregnant patients.

At least one full-time family physician was trained per shift per FMU, as well as the Heads of Family Services. One hundred percent of the equipment was in use by the first semester of 2004.

The delegations and medical units in the system put in place different strategies to optimize the use of the equipment. In those units where the category of radiologist existed and in some where the radiology technician was trained to use ultrasound equipment, the equipments were placed in the X-ray room service, where ultrasound studies are performed. In other units these studies are performed by family physicians on the patients they have been assigned, or by family physicians or the Heads of Family Medicine Services whenever they are prescribed.

These studies have been useful to confirm viability of fetus in uncertain cases; early identification of problems in pregnant women; ratification or rectification of fetus' age. As a result, prenatal leaves of absence have been reduced and timely reference to secondary care level has been achieved^{31,32} with a benefit for the mother and the fetus.

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The Electronic Record and the Family Medicine Information System

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Background

For more than one decade, the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) started the first actions towards the use of electronic medical records. The XXI Century Hospital Information System was implemented in three hospitals, and the XXI Century Family Medicine System in six Family Medicine Units (FMUs). The limited extension of the process only had continuity in the benefits control areas of 340 FMUs, through the implementation of the Benefits Control Automated Module, which registered beneficiaries for around 10 years. Later, through process-centered systems, the pharmacy and medical statistics systems were developed, as well as the supply, personnel and economic benefits systems.

These systems were prepared to deliver data to other systems that were part of the same process, but were outside the medical units; yet, they were not interacting within the same unit. For example, the pharmacy system could detect when it was under the minimum and requested for replenishment to the storehouse system located perhaps in a different city, but internally it could not provide information to physicians on the stocks available for prescription purposes.

In the 10 FMUs where the medical records was automated, physicians had the possibility of accessing legible documents inside a file that would not be lost and would not be on shelves accessible to any person inside the unit. They could request for diagnostic and treatment auxiliary services, but they couldn't access any information on medical events that patients could have experienced in other units. Hence, it was necessary to use patient-centered systems.

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IMSS had a multiplicity of local network platforms, most of them with obsolete hardware and software, and concentrators of different technologies and cabling infrastructure without minimum performance standards. This resulted in a poor level of local network services that caused slowness of the systems. There were local network equipments that did not comply with the port and bandwidth coverage requirements of the existing computing systems. When new computing equipments were acquired, the backwardness was considerably increased.

At the beginning of 2001 there was a great shortage of data node services in multiple facilities of IMSS, and their cabling, most of which was temporary, was in bad conditions and was insufficient to meet all the connectivity requirements of users of different systems and applications. With this obsolete platform, integration of new technologies was almost impossible, and even when the Institute acquired computing equipment, personnel or servers with new technology, they were underutilized.

With regard to health services, the Medical Benefits Direction kept a series of support information systems in operation, most of which had serious deficiencies in the management and integration of data and information. Some of them were:

- XXI Century family medicine System.¹ This system was developed in 1993 and was operating in six FMUs under the Novell operating system. It included a retrieve files manager and MicroStep language. Its design through non-standardized charts and the language incompatibility and development limitations constituted a serious obstacle for the connectivity with other systems. The applications maintenance and its untimeliness when executed under a batch processing philosophy were also hindering the system's performance. One of the modules in this system, the Benefits Control, was operating in 340 FMUs nationwide.
- XXI Century Hospital Management System. Also developed in 1993; this system operated in three tertiary level hospitals under an Informix 4th generation language. The development tool was discontinued in 1997, so its maintenance was hindered and the database was not standardized.
- Single Information System (SUI, for its acronym in Spanish). This 20 year-old system, developed in third level COBOL language and flat files, provided information to all medical units with a 55-day gap, plus all the difficulties to integrate new reports and to administer data, which limited the economic feasibility of further system maintenance.
- Medical Operative Information System (SIMO, for its acronym in Spanish). This 15 year old system, developed on a dBase III (Clipper) clone database, had multiple errors in the data records as a result of the null flexibility in

data handling to generate information and the inherent conflicts in the administration of indexes at the database manager. Today, this system still operates in secondary and tertiary levels.

- Hospital Prepared for Disaster Case (HPCD, for its abbreviation in Spanish). The HPCD system first version was implemented in 2000 on Visual Basic and it allowed the entry of the Hospital Resources Registration Form, which was stored in local data bases.
- Diagnosis Related Groups (GRD, for its abbreviation in Spanish). A patients grouping system "Diagnosis Related Groups" was already installed in 2000. This system was a patients' classification mechanism for the analysis of hospital discharges and was aimed at supporting decision making at different levels of IMSS. It enabled a measurement of hospitals' final product: expenditure. All the instruments that facilitated the complexity and variety of the treated pathologies measurement were included (case-series). However, it was implemented in "stand alone" form at hospital units and at several divisions of the central level and so information corrections were not reflected to other divisions, which caused disparities in results. Additionally, two different systems (3M and IASIST) were also in use and they also produced several grouping, which also hindered comparisons among medical units nationwide.

With such unfavorable scenario resulting from a multiplicity of problems: insufficient investment in infrastructure in the past 20 years, the levels of understatement and evasion levels in employer/workers fee payment, the increase in expenditure levels in medical care derived from the demographic and epidemiological profile changes, insufficient pension funds and the high cost of the labor obligations, the Institute's Management was facing the greatest challenge in its history: to guarantee the mid and long-term sustainability of the largest and prime social security institution of our Country.

During the 80th IMSS General Assembly held in March 2001, President Fox instructed the Institute's General Director to implement a set of strategies based in the application of six basic lines of actions as a support for the transformation of IMSS:

Promotion of a stringent management of financial resources that would strengthen the rationality, efficiency and transparency of the expenditure exercise.

Information technology integration as the Institute's modernization process cornerstone.

Establishment of the professional human resources management through the creation of the Civil Service Career System, training, development, incentives and rewarding programs.

Guidance of IMSS process towards a quality and service culture to patients.

Promotion of IMSS, a crystal box, where the public and society in general will become a part in the efforts to develop an environment of transparency and eradication of corruption in IMSS management.

Guaranteeing of the Institute's financial sustainability through the creation of financial reserves and professionalization of the financial management.

As of this Assembly, the incorporation of the Information and Communication Technologies (TICs, for its acronym in Spanish) are integrated to the Institute's strategy. This is a tool aimed at improving the services offered to companies and workers. With the formal establishment of the e-Government, the technological development of IMSS is marked as the cohesion element of three major areas: Medical Benefits, Incorporation and Collections, and Economic and Social Benefits. In like manner, the support and shared services is also established: Planning and Finances, Administration and Quality, Personnel Development and Organization, Investments, Legal, and Services to Beneficiaries. The Direction of Innovation and Technology Development (DIDT, for its abbreviation in Spanish) was constituted and has the authority and the objective of defining and implementing the institutional strategy in information and communications technologies, innovation and technology development, according to the guidelines set forth by the competent authorities.

Four strategic directives were defined to support the reorganization of the computing applications:

1. Homologation of the development platforms through the definition of standard database managers, both for transactional type of information, as well as the supporting information for decision making and environments of uniform development. The Project Management Institute (PMI) methodology was defined as the official one for the administration of technology projects, as well as the CMM methodology of the administration of the applications' life cycle.
2. The use of standard and open architecture Internet servers was determined as users' interface for all new applications instead of the ownership client

- systems associated to specific software manufacturers, with the purpose of reducing related costs and standardize final users' interaction mechanisms.
3. Promotion of strategic impact application developments as support to all the substantive areas' processes so as to generate added value to their respective clients in contrast to those of predominant internal use.
 4. Concentration and integration of application development. In order to have short-term outcomes, the operation of some of the traditional systems was kept and they were consolidated through databases that could be exploited.

With these strategies IMSS and the National Union of Social Security Workers (SNTSS, per its abbreviation in Spanish) agreed on the pace and modalities of laboral, structural and organizational changes. The Quality, Productivity and Modernization Commission of the SNTSS were involved and committed with the FMIP.

e-Government and medical services

Technology development and implementation of the Family Medicine Information System

Improve quality, favor organizational development and ensure technical efficiency requires availability of instruments that facilitated, during the medical care process, the establishment of accurate judgments to establish timely diagnosis and treatment plan. These require a clinical record that provide for the realization of these processes and the systematic registry of information related to the health-disease process in the preventive, curative and rehabilitation aspects.²

Preparation for implementation

The conjoint work of IMSS with the Presidency's Office for Governmental Innovation, the Ministry of Health and the e-Mexico Program resulted in the patient electronic record (EEP, for its abbreviation in Spanish) initiative of medical service provision. Through this record, the information of all beneficiaries' medical events throughout their lives will be available on line at each medical unit of the Institute. This will enable that a patient appointed to a FMU in Chiapas may attended in other unit located in the state of Sonora and physicians will have access to all medical background information of this patient.

The EEP has been conceptualized as a repository of information supplied by all the systems where information is registered during the medical care processes.

Since 85% of the medical attention is offered in family medicine units, their systematization have been given priority. Based on the adopted standards for the DIDI, and within the framework of the improvement service process, so called Family Medicine Improvement Process, the development and implementation planning of the Family Medicine Information System (FMIS) was initiated.

As there was no development that complied with the technologic needs posed by the DIDI (development with web browsers operating in Intranet with Windows 2000 Server and SQL Server that would comply with the institutional security guidelines and interfaces with other institutional systems), as well as those of the functionalities posed by the medical division (appointment book, medical care, auxiliary services, administrative), a decision was made to work on a specific development, need which was presented by the Institutes to several suppliers.

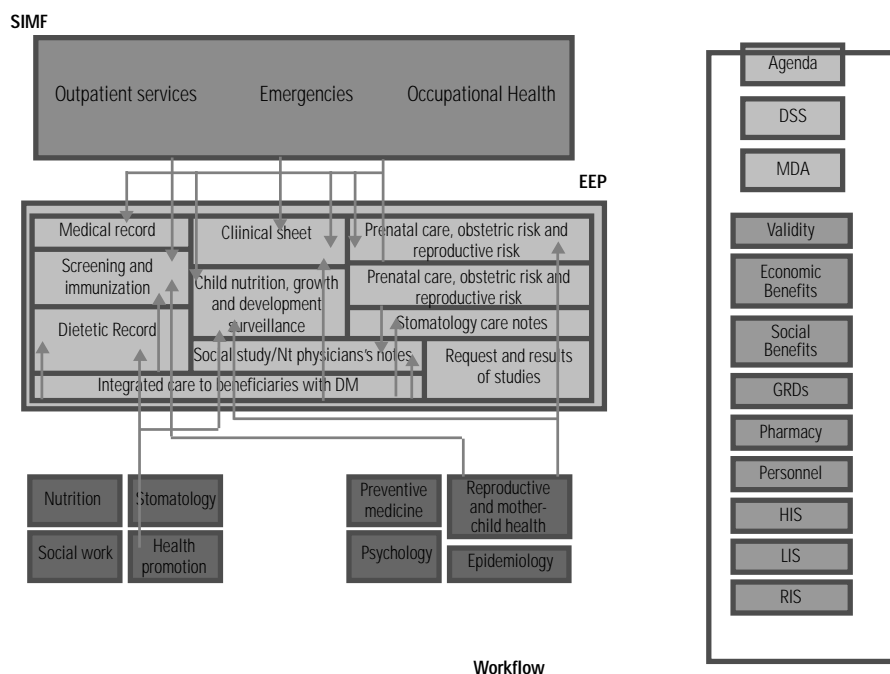
The different proposals were received: from the Autonomous University of Nuevo Leon's School of Physics-mathematical Sciences, from the National Polytechnic University's Interdisciplinary Professional Unit of Engineering and Social and Administrative Sciences, and from the National Autonomous University of Mexico (UNAM)'s School of Engineering. This last proposal was selected due to its broader coverage and lesser cost.

For the instrumentation of the system's development, the Institute has relied on its General Agreement of Collaboration and Academic-Administrative Support with the UNAM, which enables the conjugation of efforts and resources for the development of actions in education, training, research and technical assistance. The Rector of UNAM, Dr. Juan Ramón de la Fuente, and IMSS General Director, Dr. Santiago Levy, subscribed this Agreement, which, through an inter-institutional collaboration, confirms the eagerness to strengthen the development of training actions, basic research and applied technology, as well as technical advisory to increase the efficacy and efficiency of the services provided by the Institute. Nine specific agreements were executed to conduct development, training and other activities necessary for the implementation of a proprietary system.

The first version of the system was piloted in seven FMUs and the initial scope regarding its functionality was set (figure 1), covering:

- An electronic appointment book for all FMUs' services aimed at strengthening the already available scheduled appointments in operation in more than 600 medical units around the country.
- An integrated health care module that implements the electronic clinical record sheet with a functionality capable of including all the details of the outpatient medical care service and implementing the forms used by the family physician and specialists nurses, such as drug prescription and leave-

Figure 1
FMIS Architecture



of-absence, services requests within the unit and references to other units or specialties, and

- A PREVENIMSS (for its acronym in Spanish) module responsible for registering the integrated health programs related tasks.

The Gartner Group has defined a classification scheme of the electronic clinical registries (computer based patient record).³ It is based in a set of system functionalities metrics that resume nine main capacities (defined for the period 1993-2012, for the adoption of these tools in the world).

The first version of FMIS corresponds to the first generation (collector system), defined by the following characteristics: functions as a clinical information repository; includes a privacy information process through an authentication level;

and the possibility of inter-operability with other systems. These characteristics have been covered by the FMIS, and since the start have been aimed to maintain the evolution and to increase its functional capacity.

The system operates with a server per unit, where the following are located:

- The medical records database in use
- Pharmacy database
- FMIS application

Each FMU's family medicine and other medical services required two computers and one printer per consultation office (physician and assistant), in addition to the systems already operating in the medical supervision and administrative areas (Direction, Medical Services Head Office, Auxiliary Diagnostic and Treatment Services, Pharmacy, Economic Benefits, Affiliations).

With regard to the communications equipment, a local linking network was required for the all units, including the affiliation, pharmacy and economic benefits areas, as well as a connection with IMSS Virtual Private Network. This entailed installation of wiring, inside communications and external link equipments per unit.

For the implementation of the FMIS, in 2001 the Institute began a medical units' infrastructure preparedness process to support this program. The challenge posed was to implement this system at the 1200 FMUs spread at all the states of the country. Under a gradual strategy, all the units were divided in five large blocks, taking as a basis the unit's size in terms of family medicine consultation offices:

- Stage I: formed by the 101 largest units in the country, the ones with a range of 18 to 40 consultation offices.
- Stage II: formed by 295 medical units between 7-18 consultation offices.
- Stage III. Formed by the remaining 1-7-consultation-office medical units.

For each of these stages and for each FMU, the infrastructure and logistics preparation activities needed to be coordinated: local network wiring, reception and configuration of the computing (servers and PCs) and printing equipment. This involved the acquisition, distribution and installation processes; hence the need to create a technological infrastructure. All medical units were connected to the Institute's Virtual Private Network, the two national information technology centers located in Mexico City and the city of Monterrey, which were specifically created to support the institutional modernization of all the areas, particularly substantive areas. In December 2004, 402 FMUs were equipped with computing and

communication equipment infrastructures to allow them operate the FMIS; thus, implementation stages I and II were covered. The preparedness process to complete stage III by 2005 started since mid-2004.

This program has been a joint work between the SNTSS and IMSS through the Directions of Medical Benefits and Innovation and Technological Development. The development obtained during 2002 was implemented in three pilot FMUs and full-time personnel, union leaders and medical supervisors were trained to validate its functionality and determine the change in medical-administrative procedures aimed at being prepared to implement the application in a massive manner. The pilot units offered electronic-clinical-record coverage to 166 334 patients. Later, in the first few months of 2003, the FMIS was implemented, still as a pilot, in four units, covering 324 785 beneficiaries.

Once the units were technically prepared and with the system ready for implementation at the national level, it was necessary to devise an action strategy to put the system to work at each medical unit through technical and training activities though. Local and district teams composed of members of IMSS and SNTSS oversighted the implementation of FMIP.

Training

In parallel to the aforementioned, the training of the System's operative and user personnel was planned. As the UNAM was the institution that contributed to the development of this application, its support in the national training strategy was requested.

A module-oriented training was determined according to the functionality and focus of each segment. A training profile matrix was established to be matched to the system's functional modules in order to define each medical unit's training universe. Likewise, and based in this matrix, a training plan per unit was drafted.

The training material, which included description charts, set of themes, manuals and contents were jointly elaborated with the UNAM. This resulted in a classroom-training approach that required computing equipment and trainers who visited each medical unit to provide theoretic-practical training. To ensure the understanding and management of the system on the part of institutional personnel, and to favor the development of operative skills and dexterities, there was a need to expand the training approach and take this activity outside the classroom, which lead to a production-support process.

Conceived under IMSS needs, this process consisted of granting support to FMIS users – after classroom training during the real operation of the system inside the consultation office, where clinical care was provided to beneficiaries. This

involved the participation of additional trainers who would act as Unit's advisors. These personnel were appointed during the training phase and would prolong their stay afterwards.

The training elements and activities established per medical units were:

- The devising of the training profile matrix
- The drafting of the training plan
- The teaching at classrooms through each unit's appointed instructors
- The support to production through the advisors appointed to each unit
- The installation of the FMIS at each unit
- The installation of temporary training rooms per unit

This training is currently in the process of being incorporated to the courses regularly taught at the institutional training centers and will allow new personnel to be fully integrated to work after their training.

In addition to the foregoing activities, other arrangements for the process must be considered, such as the coverage required to avoid interruption of care services while personnel is at training, as well as the institutional logistics at the central and delegation levels to comply with and supervise the activities.

The need for planning and control, given the national scope of the project, required the setting of a national implementation calendar for each of the FMIS stages, where each unit and undergoing training process could be reflected.

Installation

The implementation of the FMIS required the installation of the application in each unit and an access authorization process at each service point. When the units were technically prepared, the process previously described –which needed time– was considered an activity.

The server at each unit was installed by IMSS delegations' IT personnel appointed to each unit. The server required:

- The installation of the commercial software chosen as the system platform.
- The installation of the FMIS.
- The initial load of each unit's information and specific parameters, with data supplied and registered by personnel from the same unit and centrally validated by the medical area.
- The validation of the training and production environments.

- The configuration of the system's interfaces with other systems, such as that for Affiliations, Pharmacy, Leave-of-absence Payments and Medical Statistics.

On the other hand, physical and technical installation, as well as configuration and linking of the computing and printing equipments of all units to the network, were required. After the preparation process, the Institute and the SNTSS started to outreach the FMIP through a series of regional launching meetings where the functional and geographical scopes of the FMIS were disclosed and the Institutional and Union commitment to support this initiative was ratified.

Additional functionality of the Family Medicine Information System

The initial version of the 2002 FMIS included additional development to the one implemented at the pilot units and works have continued ever since to complete this functionality, which has entailed the analysis, development and incorporation of suggested modifications made on the part of the users. Following, FMIS mentioned interfaces (links) are described:

- Interface with the Institutional Pharmacy Supply System (FAIF, as per its abbreviation in Spanish). This interface allows physicians to access the formulary directly from their units to verify availability of medications in the amount requested. The system includes options to select any other drug in case of out-of-stock products; it informs physicians when they exceed the established reasoned prescription and allows them to include up to eight products in their prescription. It keeps information on the medications prescribed, whether they were their first option or a substitute was used.
- Interface with the Leave-of-absence Payment system (PSM, as per its abbreviation in Spanish). This link generates a daily archive of the leave-of-absences issued by the system every day. It is updated in the PSM, making it unnecessary to do more entries as was the case previously, and preventing errors in entering the information, thus optimizing the process times.
- Medical Statistics Interface. The clinical records personnel has the option of coding those diagnosis noted by the physician without the need to use the International Classification of Disease (ICD 10), since they can now record free text in the system. Once all the diagnosis are coded, the system allows the transfer of information to the Medical Statistics system to generate reports regarding the services provided in medical units.

- Interface with the Beneficiaries' Access System "AcceDer". Since its release and implementation in medical units, the updated information of the beneficiaries assigned to each unit – by consultation office – is available.

The FMUs services that will be incorporated gradually to the FMIS functionality are:

- Nutrition and dietetics
- Social work
- Occupational health
- Rehabilitation
- Hemodialysis

The abovementioned will offer the health team with a tool that will help it in their daily activities and thus improve the timely health care of the final user (the beneficiary).

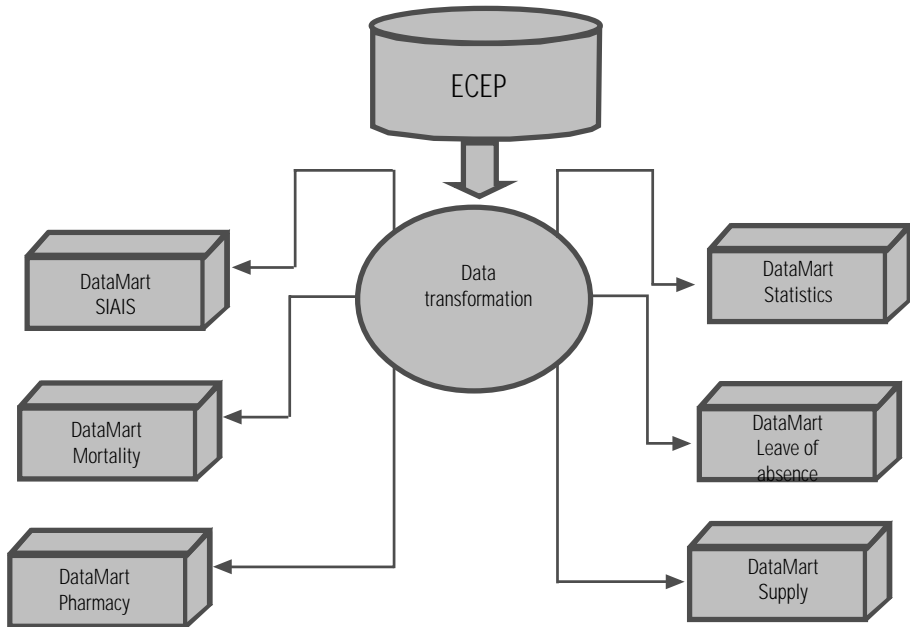
After the adoption of the international HL7 standards for a safe exchange of information on the part of the Institute, the interfaces that would allow the inclusion of the entire information gather by the FMIS into the EEP were developed so that the EEP could establish communication with the rest of the institutional medical systems through a coding process (figure 2). This implied the incorporation of IMSS as a member of the HL7 standard; however, the notorious rejection of the cited standard in Mexico led to the creation of the Mexican HL7 Chapter, a civil association in which enterprises, the government and educational institutions participate.

With regard to diagnostic and treatment auxiliary services, the technological specifications established for the purpose of integrating information to the EEP through an HL7 standard for data exchange, will enable physicians from the three health care levels to have access for timely decision-making to a more complex clinical record in the management of outpatient services' patients.

Results

In sum, at the end of stage II, 402 FMU had the FMIS available, which covered 75% of the Institute's beneficiary population. With this in place, and with the incorporation of the authentication and profile and competence security mechanisms required in electronic clinical-record system, the Units' medical personnel have the opportunity of providing medical attention through the FMIS's appointment book, electronic clinical records and PREVENIMSS module for the recording of the Integrated Health

Figure 2
Proposed Architecture

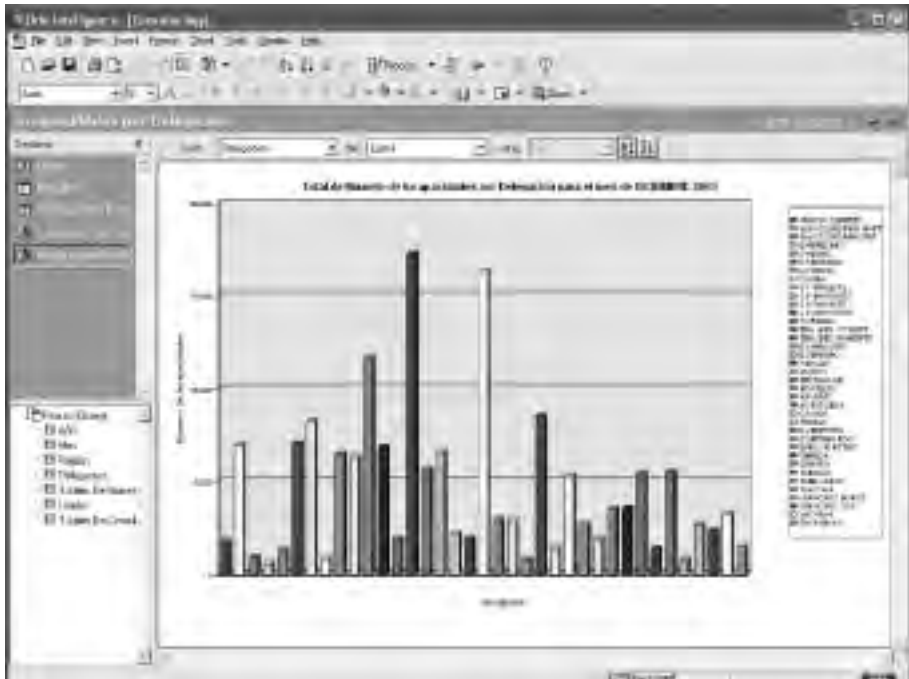


Programs activities. They can also access the pharmacy to check on medication stocks before printing their prescriptions; they have control on leave-of-absences and have access to the Medical Disability Advisor, as well as to the Diagnostic-Therapeutic Guidelines and the on-line electronic publications (figure 3).

As a result of the FMIS success in its first year of operation and due to its functionality fully defined based on IMSS needs, the decision to complement it with certain functional adjustments and to use it in hospitals' outpatient services was made. Thus began the automated activities of the secondary and tertiary health care levels, with their corresponding link to FMUs.

This health services technological innovation program was acknowledged by Steve Ballmer, Microsoft, Corp. Chairman, in April of 2004 at the Government Leaders' Summit held at Redmond, Washington, as the most innovating application,

Figure 3

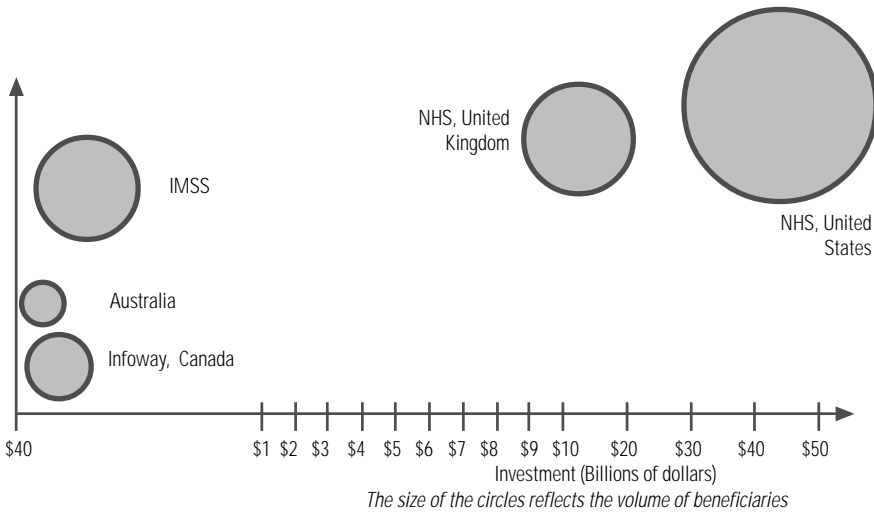


with the greatest potential for reproduction in other countries, for the development of governmental electronic services and for the improvement of services to citizens.

Complement of the electronic record: hospital systems

With the purpose of improving the quality of hospital medical attention, the search for an integral application of medical information and administrative flows was initiated in 2003. The selection of such tool was performed comparing success cases in Brazil, Malaysia, Spain and the United States of America (USA) (figure 4). Among the tools assessed, one developed by the USA Veterans Administration (VA) was

Figure 4
International Initiatives



identified which adapted best to IMSS needs in terms of operation and flow. The tool in question (*VistA*) includes more than 150 modules that offer integrated support services along all health management processes provided by different hospitals and medical centers. This system is installed in 170 VA hospital and more than 1 000 primary health care clinics.

One of the disadvantages of this tool was its need to be integrated to closed platforms, and this feature limited significantly the leveraging of the Institute's procurement capabilities. Nonetheless, such disadvantage was overcome when a portable version of this tool was successfully tested in public and private institutions within the USA, which was capable of executing on free codes, reducing the cost of its acquisition and opening the possibilities of unlimited escalation within IMSS hospital centers. The decision to follow the path of this open version (*OpenVistA*) has led to the tool's service-architecture oriented modernization and the integration of applications in alignment with the technologic vision dictated by the Direction of Innovation and Technologic Development.

The installation and configuration of the following modules is intended as the first part of this implementation:

- Admission, transference and discharge of patients
- Electronic clinical record
- Surgery
- Nursing
- Imaging and radiology

The fact that this system is based on free codes constitutes a great costs-reduction opportunity for the Institute without the need to sacrifice the quality of applications used in health care provision to beneficiaries. Open code applications are restricted to central systems that consolidate information and maintain the business' logic, while at the user levels; they allow the interface with the commercial operating systems which they are familiarized with. Free code applications have been traditionally seen as risky due to the fact that most of them do not provide supplier's support to backup support and maintenance contracts, and no commitment for new versions or error corrections exists. The approach used in this case relies on a free code modality where support and maintenance are included by the supplier, who keeps a close relationship with the client for administration and training purposes. By following this type of licensing, the Institute can reduce ownership total costs which in most cases are associated to high asset acquisition costs (licenses). The decision to use *OpenVistA* was not due only to costs reduction, but also to the considerable advantages that its modern and modular architecture offer and which allow the Institute to escalate the application as needs require and according to the institutional technologic guidelines. This version already uses the HL7 standard; however, it has version 2 incorporated, so an analysis for a migration to version 3 is currently under way.

In order to have a medical information system that would guarantee interoperability and data exchange, an in view of the lack of national standards, a series of international standards for the construction of the EEP and health systems were determined as compulsory –including HL7 for data exchange and interoperability, CCOW for health applications integration and DICOM for digital imaging integration.

Since there were no standards management bodies for health information systems interoperability in our country, IMSS promoted and coordinated the constitution of Mexican HL7 Chapter to perform the local adaptations required to comply with our legislative and institutional needs before HL7 international organizations. This taskforce incorporated the main public health sector's institutions, public and private universities, software developers and private health institutions to this Chapter, which has been promoted in e-Health forums. Thus, IMSS has been the first institution to adopt HL7 Version 3.0 to guarantee the

interoperability of all its systems. The HL7 Inc. organization has granted IMSS the authorization to propose the message in the case of blood bank and hemodialysis applications where no messages were defined in the standard, and was likewise granted the authorization to administer the information models of the affiliated organizations worldwide. In addition, IMSS is a member of the panel of experts and the country's representative for the definition of the minimum functionalities that an electronic clinical record system should support.

Information integration: interoperability platform

With the purpose of enabling the integration of the different applications in the medical information systems' architecture, the use of Web Services was selected as the interoperability interaction method. This allows a simplified and almost legible form of sending and receiving information irrespective of suppliers and technologies. A critical aspect for this platform are the volumes to be administer, which are directly proportional to the number of physicians' encounters held, though in most cases, a single medical event requires several messages for its full execution. According to volume estimates, by the end of 2006 a volume of 400 transactions per second will be required to be managed in order to administer the load of peak hours.

These volumes of information also require a high capacity platform and time availability to administer them. A highly Intel-technology based available platform has been conceived for the first stage. In a second stage, such volumes will be migrated to an entrepreneurial UNIX platform with virtually unlimited escalation capabilities. The system's interoperability is highly linked to the medical information standards upon which the architecture is based and is centered in the use of HL7, CDA, DICOM and CCOW. These standards permit the use of XML to send information to the 12 Web Services that comprise the platform and which allow an architecture design based on high cohesion and low coupling concepts with well defined and delimited layers (figure 5).

Premises for the electronic record interoperability

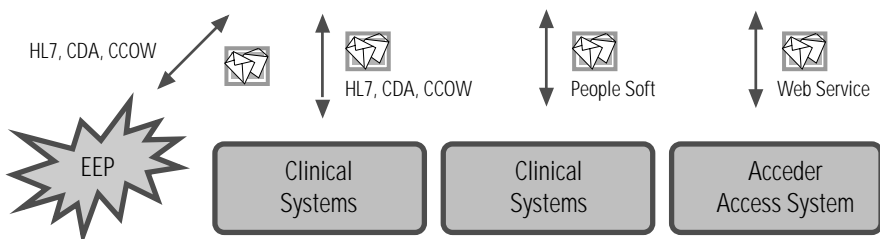
- The system must support the Medical Benefits Direction strategic directives (PREVENIMSS).
- The system must be aligned to the FMIP works.
- The system must be developed under the standards defined by:
 - a) DIDT

- Browser ready
 - Web services
 - Standardized databases
 - Java or Net
 - SQL in local DBs, DB2 in National DBs
 - PKI
- b) Physicians
- ICD 10, ICD9MC
- c) International medical information systems
- HL7
 - DICOM
 - LOINC
 - CDA
 - CCOW

In the event that an application capable of covering IMSS functionality requirements were nonexistent within the software market, a decision was made, under the protection of article 111A of IMSS Act, to device an Institute's own development.

In view of the country's geographic diversity and the decentralization of IMSS diverse medical actions to the delegations, a patient electronic medical record was created to reside in central repositories, independent of any other application, but capable of exchanging data with any medical system through a standard interface.

Figure 5
Interoperability Platform HL7-DICOM-CCOW-CDA



Current status, main achievements, objectives and challenges of the Patient Electronic Record

As of to date, the EEP integrates the data of IMSS largest FMUs' medical entries as well as the information of the lab, blood bank and hemodialysis integrated services from the west and south regions. More than 8.5 million medical entries from 3.5 million beneficiaries have been centralized. As FMIS's stage III coverage progresses during 2005, all the units will be incorporated to send and consult the information in the EEP.

There is already a high availability technological platform in place that integrates more than half a million HL7 messages daily corresponding to the information generated in the medical services. This platform has proven to be capable of processing up to a million messages per hour.

The purpose of the platform is to register the entire medical consultations delivered by the Institute at all levels and institutional services, including the information on diagnostic and treatment auxiliaries.

One of the most important challenges is to integrate the data relative to the medical consultations provided in the 3 000 rural medical units, which are under the responsibility –most of them– of pre-graduate medical students, who will have to be permanently trained. Despite their geographical dispersion and difficult-to-access location, these units will be integrated through the support and training of these pre-graduate medical student. Another prime challenge is the integration of the diverse data generated by the Institute's hospital units, which include digital information of varied nature generated by all the health services, even from those delivered outside of institutional facilities. Likewise, the coverage of the non-insured population, the registration of non-beneficiaries' donations, and the generation of information on the moving beneficiary population entails a major challenge. And all of the above within a 24-hour, 365-day record availability structure.

By the end of 2005, more than 90% of the primary health care outpatient services and also the tertiary level will be systematized, as will be 50% of the largest secondary level hospitals. It has been predicted that most of the medical units will have the diagnostic and treatment auxiliary services contracted under the Integrated Services modality, where data are sent to each patient's electronic medical record. IMSS will also have an imaging manager. During 2003 the technical specifications, interoperability standards, data functionality and exchange for medical imaging devices was initiated, as well as the definition of technologic development alternatives for the digitalization of the analogous or digital medical devices that are part of the installed infrastructure of IMSS. The definition of the images central storing capability has already been established for image retrieval by out-

patient service systems and their availability to physicians, thus integrating the imaging services to the EEP.

There are still many more areas of opportunity; there are documents which due to their nature and the current technologic development of the country cannot yet be automated, such as the *informed consent letters and death and fetal death certificates*. These will continue being printed documents until no other options are available in our country that would enable a more generalized use of technological elements, such as digital signature, to comply with the no-repudiation criteria established in NOM 168.

The FMIS in the integrated medical care

Family medicine has tended to adapt to the changes of the population that demands the service, not only as a result of the epidemiological transition worldwide, but of the need to preserve its main function as first contact patient-oriented health care service with the coordinated participation of the health team.⁵

The family physician is ever more imperiously committed to having the elements necessary to cover the health care needs of the populations who are requiring and demanding more information on their diseases and who have to continually contribute as active health care subjects and make joint decisions with the physician on their treatment.⁶

In the past two decades, many primary care physicians have faced the problem of complying with administrative paperwork – which national health care systems dictated – that takes away from them much of the time they could devote to their patients to talk about their daily problems and life in general, and this has had a negative impact on the patient-physician effective relationship.⁷

The advent of technologic development, like the FMIS, raises the question on how these technologies will favor or deteriorate primary care level's patient-physician relationship. Although it is unquestionable that the Institute will have time and cost related savings in the future with the use of the electronic records, the benefits could be considered poor and in some cases even insignificant in so far as the end-users do not develop the skills and dexterities to efficiently use the FMIS.⁸

On the other hand, the incorporation of the FMIS to most of the country's FMUs has faced obstacles due to a series of barriers that other countries have also encountered when starting up the incorporation of electronic medical records; however, in our case, they have been dealt with and are worth commenting on them.⁹

The use of the traditional yellow file-clinical records was suddenly replaced by monitors and keyboards before the perplexity and incredulity of both patients

and health team members, especially those who hadn't been exposed to computers during their college or graduate formation. This absolute lack of knowledge in the use of computers on the part of some physicians, nurses and medical assistants constituted one of the main obstacles to tackle, and raised extreme reactions such as that of some people who procured themselves with their own computing equipment to "practice" before the courses started, or that from others who were naturally afraid of the unknown and who refused to participate in the change. Thus, some hours from the training course were dedicated to an introduction to the use of personal computers.

At the beginning of the Family Medicine Improvement Process outreach process beyond pilot units, an important factor had to be overcome: resistance to change. Many didn't understand at first how the presence of a computer in the consultation office could improve the quality of patient care. Most of the physicians are used to sitting in front of a patient and not in front of a computer and having to adopt this new way of conducting the office dynamics. It wasn't easy for them; yet, they gradually became accustomed to the requirements involved in modernity.

These changes not only affected family physicians, but the whole health team members, who were also uncertain with regard to how some categories within the health care units could be replaced by this technological innovation, or whether the functions they were commended to perform would be modified, specially in an organization such as IMSS, where the presence of the union is undeniable powerful. Hence, there was a need to work with them in a bilateral manner, since this is a project that unquestionably benefits both health workers and beneficiaries.

The progressive practice and diffusion of those who successfully achieved to work with the system allow many more physicians to develop the necessary skills to convert this novel acquisition into a tool that facilitated and sped up the recording of their patients' clinical information, with the subsequent advantages, among which the most relevant are the following: have a legible and organized information available to any consultation on their part or on the part of the authority for decision-making purposes.

Once the physicians became familiar with the system and developed the necessary skills to use it, they also have the possibility of saving time and devote it to their patients, since they don't have to register "x" number of times the identification data, social security number on each document generated during the consultation, now automatically recorded by the System. Likewise, they have the possibility of including eight medicinal products in one prescription –thus ensuring their legibility by patients and compliance to treatment– which is more

practical in the management of those patients who require multiple medications on a regular basis.

It has been proven that electronic records significantly improve the quality of care, since they prevent valuable information from being lost as a result of actions that, even though performed, were not written due to omission or neglect, which reduces errors in the integrated health care. In addition, follow up of other members of the health team is possible as well as continuity of actions indicated by the family physician.

The FMIS includes information that has to be invariably recorder in order to continue the succeeding steps, which ensures storage of the data, as well as warning messages on allergies, outside-of-normal-ranges physical examination data, pertinence of referrals to diagnostic auxiliaries in the case of prenatal control, and administrative reminders that ensure, for instance, that the number of days that a worker has the right to by the Law are not exceeded, depending on the weeks quoted.¹⁰

As in all new processes, the total transition of paper records into electronic ones is still not 100% completed; however, the possibility of substituting a large proportion of documents with special form for electronic forms with some security locks, has also economic savings impact which will be eventually quantified.

Part of the functionality that the FMIS will have to ensure in the near future is the availability of information for consultation purposes at different levels of the organization, from the family physician to the central level –for briefing reports– but mostly for timely decision making aimed at providing quality health care in IMSS FMUs.

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Professional education of family physicians at IMSS

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Introduction

Family Medicine emerges worldwide as a movement that reconsiders medical work under an integration-of-human-beings approach in response to a phenomenon of overspecialization and technological progress that fragmented the practice of medicine, both in the diagnosis and the treatment phases.

The concept of Family Medicine was implemented in England in 1948, when the National Health Service was established and general medicine became a form of medical practice that should be based in principles of general order and postgraduate studies. After several attempts, it was in 1952 that the first 3-year postgraduate academic program aimed at general practitioners began.

Another important antecedent of this approach of general medical practice is the formation of the Canadian College of Family Physicians in 1954, which was created to guarantee the proper training of the general practitioners in the country.

The Mexican Institute of Social Security (IMSS for its abbreviation in Spanish) decided to develop a Family Medicine System since 1954; however, there were many obstacles faced and it was not until 1959 that it was established with the purpose of providing general medicine care to children and adults. The population was divided into these sectors with the purpose of seeking for a more effective and reliable physical, psychological and social relationship between physicians and their patients.

Mexico was the first Latin American country to institute a 2-year Family Medicine residency program in Mexico City on March 1st, 1971 at Clinic # 25 of IMSS, with a total of 30 students. In 1974, it was recognized by the National Autonomous University of Mexico (UNAM for its abbreviation in Spanish) as a postgraduate course.

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Background

IMSS residency program for family physicians started in 1971 and grew very quickly in response to medical care needs; hence, the number of sites where this specialization course was given, whose original purpose was to form general practitioners with broader scopes, reached eleven in 1972, seventeen in 1974 and fifty one in 1988. This last increase tripled the number of sites in response to a need from IMSS to grow in parallel to the economic growth of the country and of the number of insured population requiring medical services. This situation was questionable and inconvenient from the stand point of an education process that had to be supported on the suitability of sites, professors and academic environment. Therefore, the explosive growth of spaces for the education of family physicians altered to a great extent the purpose of the program by weakening its academic aspects and giving more emphasis to care delivery aspects.

Most of physician and specialists education programs have being conceived under a perspective that confer priority to classroom activities, i.e., to the theoretical aspects of the program, where a reductionism view of disease and patients predominated (biologicism). These ideas, originating mostly from education institutions, when implemented during the specialization course, resulted in a neglect of the close and indissoluble relationship between patient care and the new generations of physicians, specialists or continuous education of physicians at practice.

In order to understand the limitations and the unsatisfactory results of specialist education programs it is necessary to recognize that both processes, medical care and education, are interdependent and that there is a direct relationship between educational processes and the problems the institution is facing in terms of quality care provided to the population. Very often, the role that the labor-academic environment plays in both processes, the delivery of medical care and education –diversity of educational experiences including research– is avoided; that is, the reasons for both processes showing deficiencies and sometimes even serious limitations should be seek within these processes and their interaction, not in external causes which, while contributing as intervening factors, are not the root cause of the problems, nor they allow for satisfactory explanations nor pertinent answers to overcome them.

The studies we have undertaken to assess the scope of the health team educational process show that their limitations are determined by the health care process. While IMSS and higher education institutions have established agreements aimed at favoring the development of the necessary qualities in students, in our case, graduate physicians, to effectively and pertinently perform their duties in

their field of work, so they may respond in a suitable manner to the population's health care needs, this purpose is still far away from being reached. Traditionally, the learning process derived from health care specific experiences at the institutional level has been viewed from an educational institution perspective, as something "complementary" to academic programs, and from a health service delivery institution perspective, as a means to rectify the shortage of personnel to cover healthcare service needs. Under these conditions, the presence of students is not only seen with good eyes, but it is imperative to meet the demands of health care services. Hence, there is no progress whatsoever in bettering any of the two processes: the availability of a larger "labor force" does not mean that services will be improved in quality, and the development of an education processes will be hindered by the absence of a proper environment for the reflection on the health care deliver experiences, where the questioning and the exchange of points of view should be the foundation of these educational activities.

Therefore, it is necessary to recognize the differences between the explicit health care delivery process and the implicit process of personnel education to provide this care; each one has its own logic and characteristics. Yet, identifying these differences becomes notably difficult when our attention is focused on the space where they take place: a specific environment, which in our case is the labor-academic one. Welfare aspects have to do with the "what" of health care actions; educational aspects, with the "how" health care actions should be carried out. Thus, the influence of the environment becomes a decisive aspect to be considered in order to understand that the medical care and personnel education processes we observe are the result of an evolution, are revealing meeting points of habits and customs deeply-rooted in these environments.

The intertwining of organizational, health care and educational matters make it more difficult to easily perceive and consciously understand that the deficiencies in the health care process are determined by an environment and that this is the result of a history that has been configured by the health care process itself, within the framework of a determined organization, which ultimately conditions, whether positive or negatively, the type of relations established between individuals and groups, the way in which health care process is implemented in the population and the manner in which personnel is educated. The development of talents in residency students necessary to practice in an effective and broad-range manner within the universe of care delivery, is related to how health care is provided, and both education and medical care require a non-subordinating synergic relationship in order to enrich, perfect and project themselves and be more influential in the configuration of the environment in which they will be implemented. We shouldn't fail to remember that the medicine practiced is the medicine learnt and vice versa.

We can conclude from the above that academic programs are conceived and designed, most often than we may believe, without considering the conditions under which they will be carried out, without realizing that it is inside medical care environments where feasibility of a productive development is found. Activities conducted in the classroom receive predominant attention and contribute to strengthen learning, provided they are closely linked to the health care process. This attempt to establish this link has not been achieved with the theoretical program because clinical problems cannot be programmed to fully correspond to what is taught in the classroom; as this is a problem without solution, it therefore becomes a poorly defined problem.

Now, the transformation of the curricula itself has not led to a real transformation of actions, since these are performed in health care services that result from social construction. Learning, understood as the process of building knowledge which only gets a meaning from the way it is conceived and procured, is not the centre of attention of academic programs. What usually happens is that contents receive more emphasis under the presumption that they are the ones providing a more systematic and updating view of the topics treated.

The contents per se play a secondary role and this situation has been overlooked: i.e. the potential meaning and relevance that they have for the physician's experiences is what may give or not certain priority to the contents. If students receive dissociated information, or even worse, contradictory information with regards to the experiences in health care services, it will be from these that students will get resources and basic elements to guide their learning and their work.

It is the learning derived from providing care to patients that is decisive and of special priority, not the one obtained in the classroom. Hence, the health care process constitutes the prime basis of education, for better or worse. For instance, if the health care process takes place in an adverse, monotonous, rigid and authoritarian environment, if what the most important is to respond to administrative requirements and activity overload, students are seen as "resources for health care", not as irreplaceable opportunity to reflect upon experiences, to question, search, investigate, devise alternative; in other words, to better services.

Educational strategies

Along three decades, IMSS has formed around 15 000 family physicians. During this period several educational approaches have been used. The first program of the Family Medicine specialization course –and it must be point out that the adjective "specialization", which leads to an idea of reduction of the scope of action, is inappropriate because the education program has a "generalistic" intention–

was structured by academic objectives and later, by modules. Its structure and design served as model for the drafting of other Institute's specialty academic programs and it was also used as a model in Central and South American countries. The family medicine education course was the core of the strategy to impel the development of primary care, both in Mexico as in Latin America.

In 1981, the course's educational plan was reviewed by professors of the 51 acknowledged sites and adapted to an area-based curricular structure. The original program was used as the foundation and the curricula was organized in three areas, which at the time were considered to represent education and health care needs in a more appropriate manner:

Medical-technical area: provide integral, continuous, humanistic and quality health care and promote active participation of the health team, patients and their families.

Administrative-technical area: administer the integral and continuous medical care process focused on the individual and his/her family.

Education and research area: participate in educational programs aimed at self-development, health care team, in-training personnel, and families under the physician's responsibility. Investigate through scientific methodology, aspects of the professional practice and using the results obtained in problem-solving and development of the specialty.

As may be observed, the emphasis of administrative-technical area reaches the level of the medical-technical and education-research areas.

Since 1983, a modular curricular structure was adopted and the contents were updated to achieve a higher theory-practice relationship. In 1988, 1993 and 1996 the academic program was subjected to an update in search of a more efficient adjustment of the education model and the health care system, but maintaining its modular structure.

The academic program issued in 1999 describes the professional profile of family physicians and sets forth the distinctive and fundamental aspects of this professional:

"... integral and continuous medical attention to individuals and their families, so this professional must have a high competence in the clinical, teaching, administrative and research areas, and must establish links of shared responsibilities with the health care team in approaching the health-disease process; he/she must adequately and timely derive patients who need to be referred and should act with humanism and adherence to professional ethics, under a sound social and institutional conscience".

Mission

Specialist physician who delivers integral, timely and continuous medical care in the health-illness process of individuals and their families, with a preventive and risk approaches, to maintain and/or recover health, with a humanistic sense and complying with professional ethics and a sound social conscience.

The actions of family physicians are differentiated from other specialties in the way they approach health problems, the depth and extension of their knowledge and their therapeutic actions.

- The health-disease process in individuals and their families is their continuous and integral object of study and they act during the pre-pathogenic period with an anticipatory attitude.
- This professionals use their own method based on the scientific method to study their patients' health-disease-family process.
- Their place within the health care system is the primary care level in coordination with the other two levels.
- In order to carry out their professional duties, they interact with the health team.

Worksite

The family medicine specialists' places of work are the family medicine units and other primary health care level areas, as well as their patients' homes, where they do their job with the members of the family. These sites represent the access to the health care system.

At the primary care level, the family physician is directly responsible for the integral and continuous health care of all the family members, both during health and diseases status.

It is important to note that this is not what happened in concrete situations, given that work-academic environments are not the best niche for the development of the education process.

Despite the number of family physicians formed at IMSS in conjunction with different universities of the country, the needs for health care coverage in the primary level have required all along the hiring of general practitioner for the family medicine positions. This means that the training of family physicians was never enough to meet the coverage needs of the Institute. This was one of the reasons why as of march 2002 IMSS developed a 3-year, semi-presence modality specialization course in Family Medicine recognized by the UNAM aimed at IMSS

full time general practitioners who have a minimum of three-year institutional seniority and have an ascribed population.

An important aspect to bear in mind is that the development of this semi-presence modality course is being implemented without physicians (the student) having to abandon their usual health care tasks as family physicians, nor their responsibility towards their appointed beneficiary population.

During the first year, 332 students from 43 sites finished the academic cycle. For next 2003-2004 course 296 students enrolled at 50 sites; this number increased to 560 students in 50 sites for the 2004-2005 cycle. This will total 1 888 students in the three academic cycles.

This program contemplates four-month rotations in secondary care level hospitals during each year of the three-year program, as well as complementary clinical activities (wards). During this period, physicians receive a full scholarship in order to comply with the clinical-hospital activities adapted to the desired profile; that is, activities oriented towards the management of ambulatory patients, with emphasis on a patient-family integration approach and home visit activities. During their rotation, students join their tutor in their ward rounds, they participate in specialty interconsultations and they devote most of their working hours to providing medical attention to ambulatory patients at the offices of the specialists with whom they are rotating. Additionally, they carry out documentary research related to difficult cases seen at the office and also complementary clinical activities (wards).

In the eight remaining months of each of the three year course, the physician continues working at his/her office and parallel performs academic and clinical activities two or three times per week, such as presentation of clinical cases for group discussion, radiology sessions, presentation of family cases and research and teaching activities to deepen in prevention, health promotion, use of risk approach in medical care and provide an effective diagnosis and therapeutic attention focused on the damage.

The program has represented a stimulus for the full time general practitioners, an institutional effort to attenuate the primary health care problems. But it is still far away from being a main part of the solution. From an educational point of view, the starting-up of the program was irregular and of limited scope, so the progress observed has been slow and soon there will be a need to recapitulate to value actions to be followed.

Health and education institution

As a primarily welfare institution, IMSS should have incorporated strategic activities such as education and research into such an organizational re-adaptation that these

activities would not have to be subordinated to welfare requirements, particularly in the case of education.

In the search for educational improvement, our Institute has passed through different conceptions and practices. The behaviorist conception that inspired the so called objective-based education was at the time a decisive event for the progress of education; however, by smashing the idea of learning, often times the effects were counterproductive and the results were scarce from an education improvement point of view. This direction, though “officially” abandoned, is still effective in numerous locations where formal courses are implemented.

The cognitive approach, which is a variant of constructivism, appeared on stage and privileged significant learning; that is, the one which entails the acquisition of new meanings from the learning material, based on non-arbitrary ideas and concepts. Influence of this approach has been minor in our setting.

The educational model based on professional competences received a strong impulse in the last decade; many of the academic programs currently in operation at IMSS are focused on the mastering of capacities under the novice-to-expert evolutionary conception. Significant efforts were put into practice to implement the competence-based model with the renovated intention of improving educational results.

When considering the foregoing, we shouldn't neglect what often times takes place when programs begin or modifications are pursued during an educational experience: a dissociating of discourse from action tendency. We have repeatedly observed that doubtful adherence to certain education theories has had no parallel correlative practice, and if we observe properly, the change in educational ideas didn't hinder the same old practices from prevailing, where the role of the professor is that of the protagonist who “transmits knowledge” and the student's that of a passive receptor of updated information. In this sense, the changes introduced in the family physicians' education program from an objective-based, to an area-based and, finally, module-based models didn't represent real progress in educational results.

Evaluation is the key indication to asses whether a change in discourse has produced new forms of education; i.e. whether methods to assess learning have emerged in keeping with the new ideas that are to be put into practice. All the above-described education trends of thought and those which haven't been mentioned here, contemplate the issue of evaluation as the last step in their implementation. The fact is that the development and construction of learning evaluation methods by each of these schools of thought has truly been a significant gap or serious limitation. If indeed there was an intention of a substantial change in education, why was there such a “neglect” of evaluation? And these neglects are

not fortuitous; they translate, among other things, a non-reflected fascination for novelty, in particular if it comes from “abroad”, without considering its limitations. It should be clearly understood that in the absence of appropriate methods of evaluation, any educational approach is hindered from assessing its own scopes and limits, and hence it is condemned to repetition and routine.

These considerations are also applicable to family physicians’ education program. The modifications introduced in the program were aimed at improving it, but the dominated-by-bureaucracy-and-routine academic labor environments in which they were implemented were disregarded (see above). Likewise, the evaluation methods where knowledge (understood as recollections of information) is dissociated from skills and attitudes, has contributed very little to the strengthening of the educational program.

One of the most significant problems of highly centralized health institutions is the vertical and bureaucratized control mechanisms, which with time deteriorate the labor environments, since productive indicators are merely quantitative (number of consults, waiting times, number of surgeries and deferment times for schedule surgeries, number of courses, number of courses attended, etc.) Consequently, the qualitative aspects of actions are overlooked, such as clinical thoroughness, patient-doctor relationship, teaching skills, student-professor relationship, attitudes towards unexpected but necessary activities, constructive criticism, etc. Control systems will not notice the difference between what should and what shouldn’t be done as long as no clear inadequate acts are performed or necessary actions are omitted that may have evident consequences. This situation undermines the morale and commitment of personnel because if doing their work without caring for the results is no different to doing it with diligence and commitment, then what entails less effort is what usually predominates in collective behavior. Thus, the environments where family physicians work at IMSS are characterized by an impersonal and routine control, and if we consider that the medicine learnt is the medicine practiced, then the education of family physicians will be almost impossible to remove from this routine, bureaucratic and small-minded environment.

Perspectives

In view of the above, we have considered in the past few years that the most powerful educational strategy within reach to transform the environments where family physicians are formed is the professional education of teacher-researchers. Figure 1 shows how the traditional education that we have called “passive”, because of its passivity before knowledge, whether aimed at informing on different topics

or directed towards the mastering of certain techniques, has little repercussion on academic-labor settings. On the contrary, it is when education fosters students to reflect upon their own experience, to doubt, to question, to interrogate themselves about the what, the how, the why and the what for of their activities, that they enter the world of search and investigation, where alternatives to current habits and customs emerge and may be put to test, convince others and attain broader-in-scope actions. We call this a participatory education, since students become protagonist of their own knowledge-building and as figure 1 shows, by triggering motivation and initiative this participatory education tends to influence group and labor environments. This figure 1 makes evident how institutions have different levels of organization interaction, though there is still a predominating downward influence, that is, from higher to lower organizational complexity.

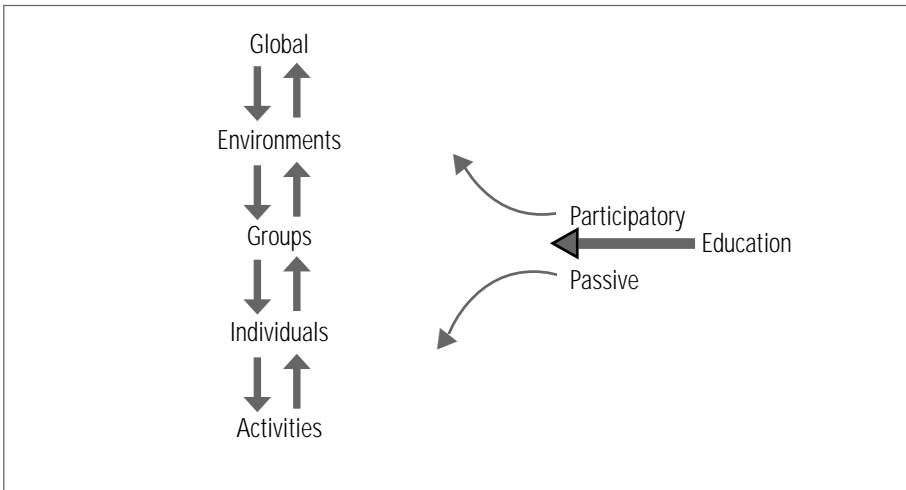
Since 2002, once we counted on a professorate with a background in educational research, we implemented the transformation of IMSS previous Regional Centers for Professors Training into Centers for Educational Research and Teaching Training. The purpose of this transformation is to have professors attend teaching courses and develop other educational conception and other participatory-oriented teaching practice where criticism, self-criticisms and research tools may be incorporated.

With the implementation of this professional training of professor-researchers we intend to modify the training process of physicians, specialists and particularly, of family physicians, fostering reflection on the knowledge-building experience and overcoming the academic-labor environments in which they are trained, thus strengthening the training of our specialists in Family Medicine.

Another strategy that was initiated in 2005 was the transformation of the residencies evaluation system with the purpose of conferring a new impulse towards betterment. As part of this attempt to increase the scopes of the educational process, this system will foster new forms of evaluating learning focused on the assessment of flair or skill development, where cognitive, psychomotor and affective aspects are indissolubly intertwined; thus, it would be counterproductive and inconvenient to assess them separately.

The concept of flair or skill refers to an organized conjunction of continuously evolving cognitive skills that confer effectiveness, reach and increasing pertinence to activities in a sphere of experience –in the case of family medicine; this is the primary care level. The development of a skill presupposes a change in knowledge-acquisition through criticism and self-criticism, where the reflection experience leads to question, doubt, search, devise alternatives, test them, propose, persuade, concert, influence, investigate, and so on.

Figure 1
Type of education and its repercussion on the hierarchical levels of the institutional organization



The evaluation system is focused on clinical skills, where the proper use of information sources is allowed. The development of this clinical skill is the key to professional growth of any physician or specialist. In fact, the development of such skills is a life project that does not end in a formal education process, though it may be and should be deliberately and firmly directed.

1. The first component of clinical capacities encompasses 15 diagnostic/therapeutic skills closely interrelated (table I), as well as the corresponding criteria to assess their development, which defines the beginning and the end of the road towards perfecting skills and considers each stage of the specialization training. For evaluation purposes, should take into account the fact that the development attributes of each skill follow a lower-to-higher progress pattern, and their specific significance on the evaluation process depends on each stage of the training process. For instance, in the use of diagnostic tests (subsection 5), the indication is priority, timeliness becomes an intermediate priority and individualization becomes the final phase (refer to assessment criteria in table I).

Considerations about diagnostic and therapeutic skills

- During the recording of the medical history, obtain the *relevant* clinical data related to the problem (key data) in a *consistent* manner, in the changing and diverse clinical situations; (items 1 and 2). These are the most important attributes at the beginning of the diagnostic process and represent the basis of clinical practice.
- What is important in a diagnostic hypothesis (item 3) is that it may be *congruent* to the set of clinical data and that it may integrate them and have the potential to guide the investigation of a problem situation in search of heuristic solutions.
- With regard to the use of means and resources or the implementation of diagnostic/therapeutic procedures (items 4,5, 8-12, 14), the following starting point should constitute the necessary base: to make a decision as to what procedure should be used, consider those procedures whose efficacy and safety have been proven by stringent investigations. With this assumption in mind, the first thing to develop skills has to do with its *indication* as related to the patients problem (disease); then, with the *timeliness* with which they are implemented (avoiding delays, suffering or damages); next comes the selective process of *individualizing* everything that is being done according to the characteristics of the individual (the patient) under our care, in order to assign a *priority* to one action over the others.

Dexterity is an integrating part of the different skills involved in clinical capacity. Keeping in mind the indication, timeliness, individualization and prioritization aspects of the context to realize diagnostic and therapeutic procedures.

- For the interpretation of diagnostic test results or therapeutic interventions (6, 13) *congruence* with clinical data and *timeliness* in detecting an unfavorable course (13) is required to justify a compelling change in decision (14).
- The arrangement of patient problems in order of importance (7) requires the *recognition* of diverse problems, their weighing according to patients' specific characteristics and conditions (*individuality*) so that decisions and actions are made according to these priorities.
- Finally, the recording of clinical data and incidents derived from the management of patients in clinical files (15) must be truthful and adherence to reality (*fidelity*) with the purpose of making the clinical file a rich, reliable and valuable information source.

Table I
Clinical capacity

I. Diagnostic and therapeutics skills	Development evaluative criteria
1. Obtain clinical data during medical history	Relevance and consistency
2. Obtain clinical data from physical examination	Relevance and consistency
3. Definition of diagnostic hypothesis	Congruence, integrating and heuristic power
4. Execution of diagnostic procedures	Dexterity, indication, timeliness and individualization
5. Use of laboratory and imaging diagnostic test	Indication, timeliness and individualization
6. Interpreting of diagnostic test results	Congruence and timeliness
7. Hierarchy order of patients' problems	Recognition, individualization, priority
8. Prescription of therapeutic measures	Indication, timeliness, individualization, priority
9. Non-pharmacologic therapeutic recommendations	Indication, timeliness, individualization, priority
10. Execution of pharmacologic therapeutic	Dexterity, indication, timeliness, individualization, priority
11. Primary and secondary preventive recommendations (risk approach)	Indication, timeliness, individualization, priority
12. Prescription of rehabilitation measures	Indication, timeliness, individualization, priority
13. Interpreting of patients' evolution (severity, prognosis)	Congruence and timeliness
14. Updating of diagnostic or treatment decisions	Indication, timeliness, individualization, priority
15. Recording of clinical data and actions carried out in the clinical file	Truthfulness and fidelity

II. Physician-patient-family relationships

16. Establishment of an adequate communication, make themselves understood, asks for opinions, listens
17. Establishes a relationship based on trust, confidentiality, privacy and respect
18. Reaches an empathetic relationship, is sensitive to states of mind, affective needs, motivations and emotional reactivity.
19. Takes into account in an appropriate manner the opinions, points of view, expectations and patients/families' decisions
20. Properly considers individual, family, cultural, economic, and social contexts of patients

2. The second component of clinical capacities is composed of doctor-patient-family relationships, where the following features must be highlighted: *adequate communication* among the different parties (16); consistent attainment of a *relationship* based on *trust, confidentiality, privacy and respect*; an *empathetic and sensitive treatment*

(18); the taking into account of *patients/families interests* when making decisions and implementing actions (19); and *patients' own contexts* (20). These qualities depend on the complex interrelationships among individuals who have different styles and forms, which is what makes its development more difficult.

The skill for the appropriate use of information sources includes two items: *information queries and criticism of original information sources*.

Three aspects are considered when making information queries: a) the ability to obtain adequate information in terms of number of sources and diversity of perspectives to enrich reflection; b) give priority to the usual clinical problems in the service as the reason for information search and c) give priority to original information sources for consultation purposes (research articles, theoretical contributions).

The criticism of original information sources involves six skills, five of which have to achieve an *appropriate judgment*; i.e. thorough and in-depth examination of information, establishing the difference between a higher or lower strength, validity, originality, relevance and applicability of the articles under criticism:

- One of the targets of criticism is *strength* of a research; that is, how firmly are the sought cause-effect relations established.
- The *internal or external validity* of results depends on the characteristic of the measuring instrument, the sampling and the control strategies, as well as the recollection and analysis of information.
- Originality with regard to the novel nature of a problem under investigation, the approach or the strategies used.
- *Relevance* refers to the ideas the selection of a research problems is based on and the approach method. It is not unusual to come across very robust but rather low-relevance studies on the implicit ideas of the paper. For instance, assessment of survival instead of quality of life.
- *Applicability* has to do with recognizing similarities, but mostly differences, sometimes profound, and usually found in social, cultural and economic environments where the investigation was conducted and the resulting outcomes and proposals, on the one hand, and the prevailing environment where the reader of this article acts, on the other. It may occur that the potential applicability of strong and valid findings may be absent due to the lack of correlation among environments.

- *Pertinence* refers to the manner in which a critical and experienced reader (combination of skills 4 and 8) may derive from examination of information the adequate proposals for daily clinical experience betterment.

We believe that another form of assessing family physicians' education process can lead the efforts of both professors and students to more fructiferous paths, where development of skills may enable a reflective experience on the subject of continuous betterment. This would result in more effective and broader-in-scope health care delivery; more favorable labor environments and more appropriate educational spaces that would become powerful stimuli for motivation and initiative aimed at reverting institutional degradation and constraining the effect of verticality and bureaucratism.

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Education as a strategy for organizational change

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Introduction

This chapter describes the undertaken actions and the environment where the education strategy that is part of the Family Medicine Improvement Process (FMIP) was put into effect; the chapter also explains the reason why this is regarded as a necessary strategy to achieve an organizational change. The following factors were identified in the design of the educational curriculum.

First: There are varied working conditions and service demand in the first level of medical care. These are determined by multiple manifestations of the health-disease process in the beneficiary population.¹

Second: Health care procedures are mostly targeted towards biological aspects, and physicians apply the clinical method in heterogeneous manners.

Third: There is a lack of equity in the primary medical care level in terms of access to the therapeutic and diagnosis resources.

Fourth: There is a lack of information about the prevailing level of professional competence and little is known about how well the job is performed.

Fifth: There are rules and regulations in the medical practice that are applied in levels that range from stringency to non-application.

The aforementioned explains the prevailing differences in family physicians' resolution capabilities in each consulting room, module, shift, and clinic. The

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acknowledgement of this complexity made everyone accept that the implementation strategies should be studied carefully, and at any rate, be flexible and applied in a systematized and gradual fashion, since otherwise there could be a risk of bringing about disorder and rejection and this could even turn out as counterproductive in a system full of unfulfilled promises.

An objective analysis of this reality is indispensable when putting together an educational curriculum aimed at responding to the need that originates it, because the future is foreseen and made from the present. About this, which may seem as a paradox, Lefebvre states that "this only exists for those who do not think with a dialectical perspective, for those who do not know that the future lies in the seed of the present, that present and future are not mutually exclusive, but are antithetical terms of one single space in conflict."

The main objective of FMIP is to provide comprehensive quality health care to satisfy the population's health needs with an optimum usage of resource, the recognition of workers' participation and the improvement of the working environment.

This objective provides an explanation of the reasons behind FMIP process' large series of sub-processes or events which, for a better understanding, we have grouped in two lines of work: first, those related to attitudes, such as the training of health personnel, paramedics and directives; the redesign of health needs-oriented medical-administrative processes that allow for a better integral prevention, sickness and rehabilitation attention. And second, those structure-related, like the achievement of a sufficient and timely supply of medication, as well as the inclusion of more efficient ones; the provision of more and better diagnostic auxiliaries; the renovation and provisioning of medical equipment; the renovation of health units and the incorporation of clinical records in an electronic information system. Both groups required the measuring and assessment of performance; hence, the Family Medicine Information System (FMIS) was created. This set of events has the purpose of creating an appropriate working environment for health care and professional development.

This chapter was structured in three parts: a) planned change, b) organizational development and c) professional development, which includes the medical training. The purpose is to rely on the organizational and educational theories in order to describe not only how it was done, but why it was done, what were the foundations and what we intend to achieve with medical training.

The planned change

FMIP is based, first of all, on the acknowledgement of the need to promote the organizational change in order to respond to new and old medical care quality

improvement demands for the insured population and to improve the working environment for the satisfaction of the health personnel. The lines of action necessary to impel the organization towards the desired change entail a series of resistances resulting from the loss of security spaces which Maslow demonstrated may be translated into preferences for what is known in contrast to what is unknown. This statement has to overcome many obstacles produced by the different stakeholders within the organization, since they are afraid of being affected or of feeling some kind of threat. All effective change entails a structural change and at the same time an attitude change. The organization works under structure and behavior, in such a way that the planned change involves a reconfiguration of both.

It is fundamental for the implementation of the educational strategy to recognize the most powerful source of resistance to change: the organizational culture. This is the basic force that guides the behavior of the working health personnel and, according to Kurt Lewin's field theory, this behavior can be explained as: "the way to do things". In the world of medical services this can be represented by clinical work procedures, without disregarding other sources of resistance, such as personal interests and those that have to do with "goals" that have to be achieved to move from the quantitative to the qualitative ones. In view of these problems, the improvement process necessary to achieve the planned change uses education as a basic and initial change agent, capable of having an influence on personnel's values, attitudes and behavior, and hence, influencing the structural change of your processes.

For any planned change it is necessary to consider the principles of an organizational quality management, specially, if there is an interest in improving performance;^{6,7} this is why the following elements were incorporated in the making of the educational program:

- Focus on the patient
- Inclusion of the head of family medicine services in the training process.
- Educational objectives based on the needs of the medical staff.
- A process approach when incorporating, before training, the sufficiency of therapeutic and non-therapeutic inputs needed to apply the acquired knowledge.
- The measuring of medical performance before and after the training process and the use of results for assessment and subsequent decision-making, as well as for the identification and internalization of the need for change.
- Recommend continuous improvement in process evaluation.

A process approach was adopted for the implementation of FMIP, that is to say, numerous activities or linked sub-processes were identified and managed.

This approach allowed for the design, application and continuous control among the different events that integrate it, among its interdependencies, on its combination and interaction. On the other hand, this vision allowed for an understanding of the “ins” and “outs” of the sub-processes and the logic sequence to follow at the time of organizing them for their completion and orient them towards the project’s central objective. In this way, the educational process is naturally considered as a triggering factor for other processes, such as clinical management and shared medical care.⁸

Organizational development

From all the change and innovation strategies in the organizations, the one that offers the broadest and longer-term intervention approach is the organizational development (OD); its main goal is to turn people towards a more efficient and cooperative work culture. At the same time, it fosters teamwork and inter-group co-operation, which are indispensable elements for a correct medical attention.

A basic premise of the OD that may be applied to the process of institutional health-service-improvement process is that changes roll forward in a gradual fashion, trying to make progressive changes into the structure and attitude of the personnel. The lines of action must be rationalized in such a way that one may empower the other, preventing fear and opening alternatives; this is the systemic approach. The application of the educational program is an example of the aforementioned, since it first considered the training of professors as clinical advisors, and through them, reaching the world of family physicians.

Two OD theses are implicit within the course: rationalization and democratization. The first involved the braking down of the specific medical attention process into its various components as they applied to the main reasons for demand of services. The second, through the outcomes of the first, boosted the participation of the medical team towards self-reflection and decision-making to reduce the studied clinical problems; a system that increases decisions to create better alternatives to reduce the complexities of the problems involved in diagnosis, treatment and rehabilitation of the health-disease process on a daily basis.

The organized labor movement in our country has been long demanding the achievement of higher training levels, as well as the abandonment of inflexible and authoritarian models with the purpose of adopting productions models capable of adapting to the frequent changes in demand. This change not only claims for new knowledge, capacities and expertise, but also a new working culture that stresses team-work cooperation and better wages.¹⁰

Change in an organization is only possible when its personnel is participatory and is empowered to make improvement decisions, where the roll of the Man-

agement is focused mainly on the coordination of efforts, promotion of resources and issuing of rules and policies that allow for a team-work targeted to recognizing that their most important asset are people. This is the tool to achieve the involvement of the staff; this entails pride and sense of ownership towards their work, dedication and appreciation for what they do and how they do it. This means learning a new language and a new behavior to be able to commit to continuous improvement in the quality of medical care. The premise of empowerment is perceived as the stimulus, the motivation of health personnel in medical units so that their experience and knowledge be developed to the highest level possible in order to better the analysis and improvement of the work processes in which they participate. In order to achieve the foregoing, the personnel need as much information as possible on the FIMP process, on the different lines of institutional work and on what it is intended to be accomplished. In this sense, we took the first step towards assuring empowerment, a concept that is incorporated to the training educational strategy.

Continuous education constitutes a substantive stage for the improvement of the efficiency and efficacy of medical performance, but this is only possible when the conditions to make this a reality are readily available. In our case, it was the relation between primary and secondary level physicians from the same medical branch that made two-way communications possible, opening up the possibility of promoting an innovation for a better medical care of our system.

The purpose of the training, at all times, was to grant the personnel with the knowledge and skills that, together with experience, improve their overall competence.

Professional Development: Medical Training

Justification

In education, the way in which formal courses are organized in practice depends on the concepts and ideology; hence, we used the transformationist model that makes one choose between reproducing and transforming society.¹⁵ For this purpose it is necessary to decide what the desirable person-society relationship is for the organization. The theoretical grounds of traditional and modern educational models are described in table I.

In modern education, both at the medical post-graduate level, as well as in continuous education, it is convenient to use Andragogy's rules, a term proposed by UNESCO to name the science of the adult education, one that we regard as in accordance with the self-perfection FIMP process. The basic principles and their most outstanding criteria are detailed in table II.

Table I
Outlook on the traditional and the modern educational models

Traditional	Modern
Education provides the values that the professor seeks	Because of education, the professor rises his or her understanding of reality and the health-sickness process for a better intervention
It rises the living standards and well-being of man by itself	Addresses the educational backwardness, equity and the need for update or scope for new professional skills
Meritocracy as a value excludes non-specialists	Training is specific for the first-level physician and in accordance with the available resources he or she has
The problems and the educational solutions are developed in the same educational fact, in the "classroom"	Education makes easier achieving new skills and even opening up fields of larger technology
The professor is an apostle, the one who teaches, the protagonist: the specialist physician teaches, the non-specialist learns	Addresses professors' training
The educational role is to "homogenize and diversify" the diagnosis strategy in a methodic fashion	Brings about the attitudes that grant a continuous and permanent education
Education is handled by means of a reward-punishment mechanism	Modular-educational resume: integrates theory and practice
The medical student is the object of transformation	Uses andragogy and its dimensions: psychophysiological, cultural and psychopedagogical
An educational resume that is fragmented and detached from reality	Clinical competence
Use of pedagogy	

Table II
Adult Education

Basic suppositions in adult education

Outstanding Criteria

Humans are social beings, their nature is derived from their interactions within social and historic contexts; while they contribute to the creation of themselves, society and history, they are influenced by what they have created

The basic requisite in teaching adults is a non-prescriptive attitude

An adult who thinks, learns and reflects critically is a more adequate social being

Problematization of content, relating it to meaningful issues and problems; more focused in the exploration and deduction than in direction and prescription

For the continuous development of the thinking potential and feelings during adulthood, there is the need for a qualitative change of the thinking structures

The dynamics in the andragogic process is the stating of problems and knowledge production

Critic and creative thought is more desirable than the non-critical reception of knowledge

Reflection and action are an indivisible unit, ideas need to be adjusted to the concrete experience by means of their application

Critical thought is fostered through the combination of group learning and self-directed individual learning

Continuous decision making about the process, the way the group works, the relation between one another and the task

The continuous integration of cognitive and affective learning is essential for adult learning

Individual and group responsibility which is shared to achieve learning. Including the professor

The knowledge can be seen as an open system that can be modified by the critical thought, seen as a closed system, it can be used to solve problems

Assessment of the process as an important vehicle for learning, sharing responsibility in its direction and assessment

Learning includes thought, discovery, research, critical reflection and creative response

Education is not only transmission, but research, selection, discovery and dialogue. The dialogue process as an inquisitive attitude about the existing knowledge, sharing meanings, ideas and feelings, it presupposes equality, openness, trust, care, commitment and mutual respect

The modality chosen for the development of the family physicians' training program was the so called "professor visits", since it had the ideal characteristics to achieve the desired goals, to influence the objects of transformation or core problems of professional practice and to induce the desired clinical learning. Because of the theory-practice integration level, it is similar to the modular structure in three respects: the epistemological, that makes use of the scientific evidence to transform a reality in which all the elements are interconnected and in process; the methodological, that compels us to consider the reality upon which the student-family physician will carry out his or her practices; and the psycho-pedagogical, because it considers the adult student to be the carrier of experience in his or her professional life, with critical attitude, creative capabilities and scientific rationality.²³

The professor visits modality is embedded in the context of continuous teaching and training. Teaching makes reference to situations where a learning process takes place and where a professor-student interaction process takes place; where there is a level of institutionality with explicit ends; in which at the end the educational action is structured and organized through technology.²⁴ The purpose behind continuous teaching within the Mexican Institute of Social Security, IMSS, is to avoid the decay of essential knowledge, skills and necessary to be competitive, as well as to prevent deterioration of the practice capacity, irrespective of the fact that it should strive for and keep a continuously increasing trend.

The connotation of continuous education entails its organization through immediate and perfectly well-defined objectives, mainly targeted towards the development of skills and dexterity for the job. In our case, the objectives were: "to analyze clinical problems in patients with diabetes mellitus" and "to propose specific criteria for the management of diagnosis, treatment or rehabilitation-related problems in patients with diabetes mellitus"; this example shows that the curriculum led to consider as the essence of the educational task that practitioners become interested in the application.²⁵ This consideration was basic to orient learning and its level of significance, and it will be significant if the learning is related to the individual's personality and daily life.

The instrumentation of the institutionalized training also responds to an obligatoriness expressed through the Collective Labor Agreement from IMSS workers, in which training is described as the educational process, active and permanent, that consists of acquiring, renewing, reinforcing, updating and increasing the knowledge, dexterities and attitudes regarded as necessary for workers' personal and collective development.

This modality was chosen for the medical training in the Family Medicine Improvement Process because it fosters participatory educational strategies that lead to debate about ideas and behaviors related to the established knowledge, as

well as to unreflective practice. Another important characteristic is that this training takes place in the student's working location, which makes it feasible for substantive knowledge-building activities to be supported by the reflexive evocation of students' experience in every-day problems, which, together with the support of critical research-articles reading, theoretical texts, and the use of algorithms designed as clinical practice guidelines to standardize working procedures between the medic and paramedic groups, will help them gather different disciplinary knowledge approaches, useful in the improvement of performance and resolution capacity.

Professor visits as considered above have students' experience and problems in practice as their main source to structure the implementation of the educational contents and the organization of learning. The additional challenge for this type of educational experience is for it to affect the organizational environment, as well as the academic lifestyle in the working environment.

The concept of clinical advisor falls inside the field of adult education, precisely because it is necessary to defeat an educational culture based on the "he who knows" idea, against the "he who doesn't know" idea; a training which, more often than not, has nothing to do with the professional experiences of students and which uses knowledge and experiences that are strange to them. One of the program's main concerns with respect to professors was that they reflect upon the role of teaching as a driver for students under advice. In this sense, students should feel the need to be trained and must get responses to their needs in the very same place where the questions are generated, the Family Medicine Unit- FMU. The training task so conceived was based on what family physician-students know, in their interests, in the knowledge derived from years of practice and with the practice's scopes and limitations; likewise, a clinical evidence-based update towards new knowledge and better methods for medical work was added. The professor-student interaction or second level physician and first level physician are a source of experience for learning and for the search of solutions.

Methodology

The objectives of the professor visits model are the following:

1. Facilitate the development of next-to-the-patient-clinical-skills teaching in the worksite, as well as of family physicians' responsibilities, generating the conditions for dialogue and academic discussion among them.
2. Apply participatory educational strategies in the health personnel that facilitate self-management actions.

3. Identify incorrect medical practice procedures in diagnosis, treatment or referral, either by means of the medical record assessment or the performance with the patient, and propose the changes that will allow for correction of deficiencies, based on a medical care protocol.
4. Encourage communication among physicians of the same or different levels and the cooperation during work to solve specific clinical or organizational problems by means of training activities.
5. Make updating of knowledge on the 12 most demanded medical conditions accessible and equal for family physicians working in urban, suburban and rural areas within the institutional medical care system.
6. Homogenize the therapeutic and non-therapeutic resources recommended in the clinical practice algorithms throughout all the medical units of family medicine of IMSS.

Administrative provisions

1. The organization, implementation and evaluation of the professor visits modality is the responsibility of zonal authorities and of the authorities of the medical unit.
2. It will be a five-day duration visit per FMU, subject and shift.
3. Visiting professors will be covered by other physicians of their same category while their commission lasts. The students will be full-time family medicine practitioners appointed to FMUs.
4. Students visited by a professor shall be most preferably from the same labor shift.
5. Visiting professors may come alone or may be several; they may be from the same or different category. In any case, they must have teaching experience and preparation in participatory education advisory.
6. Professors and students will have the right to receive a certificate as visiting professors or as attendees, respectively.

Students' requirements

1. Before the professor's visit, students must be notified that the visit is a participatory-oriented visit and they should previously prepare the relevant problems of their practice for discussion.
2. Student must be aware that the learning object will be centered in the reflexive analysis of the practice, with the aim of improving the skills and performance with the patient or the working technique.

3. The search for information is a methodological substantive activity during training. This information may be bibliographic or coming from real clinical cases and shall be based on the experience of students and questions will be also raised about different situations with the aim of developing clinical skills.
4. Design of an activity program according to the available time. Students will design a timetable together with the visiting professor regarding how many hours of personal assessment they will receive, the schedule for theoretical revision or technical procedures joint sessions and for supervision of clinical management or technology manipulation.

Professors' requirements

1. Have a profound knowledge of their professional discipline, and preferably have a background as professor or researcher or be qualified as visiting professors.
2. Design a program based on problems identified by students using educational techniques centered on students' experiences and professional problems as well as on clinical practice guidelines.
3. Know the professional performance requirements of family physicians and identify what is their level of responsibility, as well as the therapeutic resources and diagnosis auxiliaries that are available for this field, with the purpose of orienting the learning as a visiting professor.
4. Have the ability to provide advice in different skills, as is the case of: clinical and financial characterization of disease; primary level prevention, diagnosis, treatment and rehabilitation measures. Flexibility to advice in decisive interventions to improve clinical and organizational results, as well as in diseases that affect more than one organ, different age groups; fostering of critical reasoning and reflexive practice, among others.
5. Capacity to behave ethically during assistance to family physicians in outpatient services, having the utmost respect for the family physician, the professor and the student.
6. Manage teacher visits model educational techniques.
7. Have skills to apply the principles of participatory education and those of criteria-based evaluation.
8. Orient self-management actions with the advised physicians.
9. Ability to innovate and flexibility to improvise the educational program according to new needs emerging during the stay.
10. Provide critical reading for the solution of health-related problems.
11. Improve the individual learning with a multi and transdisciplinary approach.

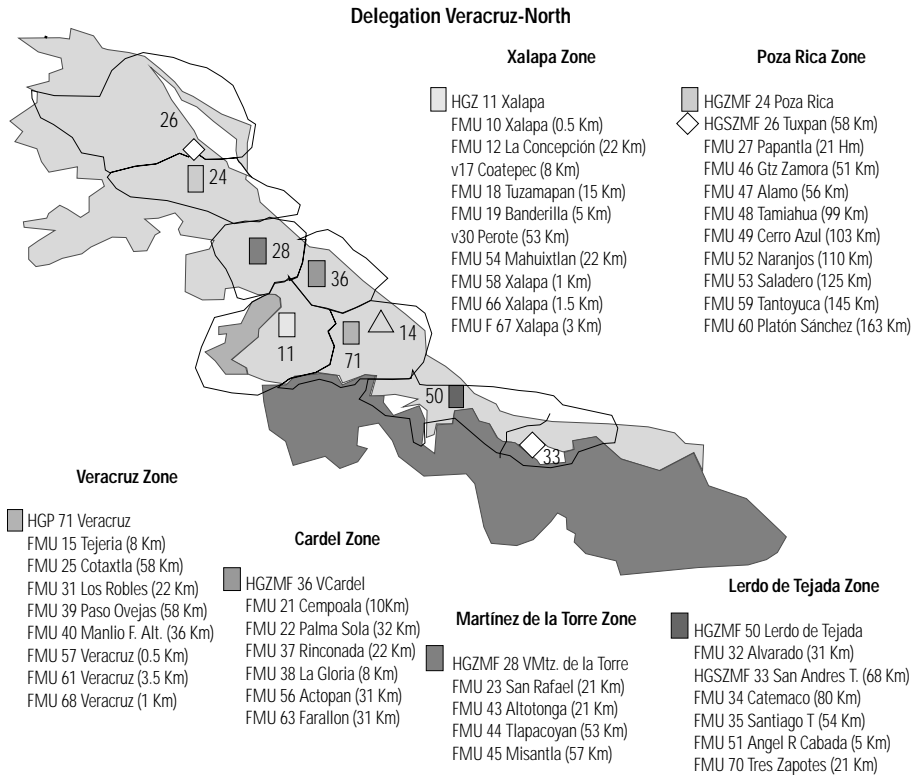
12. Foster a trusting and respectful environment.
13. At the end of the program, the professor will examine the students.

Procedures for the implementation of medical training

Activities of the National and Delegation Team

1. The Delegation Team chose specialist medical professors preferably coming from general practice, ob/gyn, medical pediatrics, orthopedics and traumatology, epidemiology, rheumatology, and family medicine. The basic criterion is their disposition for teaching and their professional capabilities, as well as their geographic location for easy reach to students. An example of this is shown in figure 1.
2. During 2003, 2004 and 2005, the National Team carried out courses to train clinical advisors in the largest number of sites possible, with the aim of bringing instructors closer and hence, reducing the traveling expenses and increase coverage, as well as to reducing groups to stimulate participatory education (table III).
3. Another requested activity was for them to deploy a delegation program according to their possibilities, taking into account the time, number and size of the units in their delegation. This has to be regarded for its definite version and be subjected to consensus by the delegation and local work teams. An initial measurement of the quality of the medical file was also requested by means of the indicators proposed by the Coordination of Medical Areas. The results coming from said measurements are shown at the end of this work.
4. National Team: The challenge of training personnel located in small 1 to 4 consulting room medical units, highly scattered geographically, required the course to be modified in 2005, adding educational strategies to the professor visits model to allow present and semi-present education to take place.
5. For the independent study, the presential and semi-presential variable was reinforced with learning tasks that involved two characteristics: knowledge analysis and synthesis or application in its own context; that is to say, improvement actions by patients themselves, which is expressed in learning and evaluation tasks shown in table IV.
6. During 2003 and 2004 the clinical practice guidelines were issued to all the country with the aim of providing the same circumstances to all the personnel for the study of each and every topic.

Figure 1
Regionalization of family physicians training.
Mexican Institute of Social Security



Training Division

Course I: Included here are six reasons for medical care: type-2 diabetes mellitus, arterial hypertension, acute infection of airways in children under age 5, prenatal care, cervicitis- vaginitis, and monitoring of nutrition, growth and development of children under five years of age.

Course II: Included six other reasons: dyspepsia, acute lumbago, traumatic hand injury in adults, lung tuberculosis, urinary tract infections and knee and hip osteoarthritis.

Table III
Clinical Advisors Training Course 2005
Mexican Institute of Social Security

No.	Date	Venue	Participant delegations	Professors
1	February 13-15	Merida Yucatan	Yucatán	19
			Campeche	7
			Quintana Roo	28
2	February 20-22	Queretaro, Queretaro	Queretaro	14
			San Luis Potosi	21
			Hidalgo	18
3	February 23-25	Morelia, Michoacan	Michoacán	22
			Guanajuato	20
4	February 27-March 1	Torreon, Coahuila	Coahuila	74
5	April 6-8	Monclova, Coahuila	Durango	14
			Zacatecas	13
6	February 27-March 1	Puebla, Puebla	Puebla	18
			Tlaxcala	5
			Oaxaca	8
7	March 2-4	Veracruz, Veracruz Norte	Veracruz Norte	18
			Veracruz Sur	17
			Tabasco	10
8	March 6-8	Culiacan, Sinaloa	Sinaloa	41
			Sonora	17
			Baja Calif. Sur	24
9	March 9-11	Cd. Victoria, Tamaulipas	Tamaulipas	41
10	March 10-11	Tlanepantla, Edo. Mex Ote.	Mexico Ote.	27
			Deleg. 1 and 2 Mexico City	24
11	March 13-15	Tapachula, Chiapas	Chiapas	52
12	March 16-18	Tuxtla Gtz., Chiapas		
13	April 3-5	Tijuana, Baja California	Baja California	25
			Sonora	8
14	April 4-5	Monterrey, Nvo. Leon	Nvo. Leon	28
15	April 6-8	Chihuahua, Chihuahua	Chihuahua	27
16	April 10-12	Mexico City Deleg. 3 and 4	Deleg 3 and 4 Mexico City	36
			Morelos	10
			Guerrero	11
			Mex. Pte	23
17	April 17-19	Guadalajara, Jalisco	Jalisco	33
			Colima	9
			Nayarit	7
			Aguscalientes	12
Total				781

6. Mention the pharmacologic treatment of choice in the non-obese diabetes patient with a BMI less or equal to 27, as well as the factors that predict a good response to the treatment.
7. Mention the symptoms that would require referring the patient to ophthalmology.
8. Mention in which patients is a carbonyl indicated

Final Evaluation Activities

1. Out of your medical practice, choose a first-time patient diagnosed with type 2 diabetes mellitus and carry out the following activities:
 - A) Design a contrast list that includes the basic principles for the diagnosis, necessary data for questioning in order to establish the initial treatment, aspects of the physical examination. The measuring scale must be: YES-NO-NOT NECESSARY.
 - B) Grade your clinical file with this contrast list.
 - C) Propose a plan for an integral management for the subsequent year that includes: metabolic control parameters and specific treatment for each patient, including short and long term goals. The plan has to involve the participation of the health team and a referral to secondary level, self-support groups or help if necessary.
 - D) Compose three pages, one per clause and deliver to professor.
2. Carry out the following tasks:
 - A) Make a contrast list to evaluate a patient, said list shall include: medical interrogation, physical examination, laboratory assessment, treatment plan assessment, control and adherence. The measuring scale must be YES-NO-NOT NECESSARY.
 - B) Apply the list to two patients after medical consultation and contrast each parameter against the practice.
 - C) With the results, propose an integral management plan that is specific for those patients; it should include the health team.
 - D) Deliver this work to the professor and share it with members of the Family Medicine Unit

Answers

1. Clinical manifestations like polyuria, polydipsia, unjustified weight loss, random plasma glucose test* ≥ 200 mg/dl (* at any time during the day)
Pre-prandial plasma glucose* ≥ 126 mg/dl (*no calorie intake during the last eight hours)
Postprandial plasma glucose test two hours after ≥ 200 mg/dl during glucose tolerance test.
2. Symptoms, previous glycemia records; eating patterns; personal knowledge for diabetes management; physical exercise habits; records of acute complications like ketoacidosis and hypoglycemia; possible complications in eyes, kidneys, feet, nerves; diabetes antecedents in family members or gestational, alcohol and tobacco consumption habits, family situation and lifestyle.
3. Calculation of Body Mass Index, measure of arterial blood pressure, eye examination with pupil dilatation, mouth and teeth examination, heart, abdomen exam, pulse assessment, especially in feet; hands and fingers examination; skin examinations looking for infectious processes, neurological examination, sensitivity exploration and osteotendinose reflexes.
4. Pre-prandial plasma glucose, glycosylated hemoglobin, total cholesterol, triglycerides, urinalysis, blood pressure and body mass index.
5. Questioning: treatment adherence, change in lifestyle, and symptoms of complications.
Physical examination: comparative somatometry, BP, feet and eyes examination. Laboratory: fast plasma glucose, glycosylated hemoglobin every three months or twice a year, lipid profile and urinalysis. Assessment of the treatment: high or low glycemia; achievement of short-term objectives, such as weight loss, routine physical exercise; family support while dieting; or in a long term: eliminate or minimize negative habits like smoking, drinking, sedentarism, omission of eating care; control of dyslipidemia, body weight and AHT; adherence to nutrition treatment, physical exercise and glucose lowering agents.
6. The sulfonylureas are the drug of choice and the factors that bring about a good response are: recent diagnosis of type 2 diabetes mellitus, 220 to 240 mg/dl hyperglycemia levels; a preserved function of beta cells in the pancreas, patients without previous insulinotherapy.
7. Decrease in visual acuteness, maculopathy, proliferating changes in the retina, clouding of the lens of the eyes, difficulty to clearly see the retina.
8. In patients over 60 with recent diabetes and mild lack of control.

Professors' view, operative instrumentation

The organization of the training activities was divided into the 5 working days and in a similar fashion for the morning and afternoon shifts, in six-hour work days; the size of the unit and the number of enrolled physicians to consulting rooms were determinant for the setting of the times in which the educational activities were to be implemented. To exemplify, we described what happened in a typical working day in a 10-consulting rooms unit:

The advisory in the consulting room took place during two hours for each of the family physicians. Advisory was programmed for consulting rooms 1 and 2 on Monday, 3 and 4 on Tuesday and so on, until reaching consulting rooms 9 and 10 on Friday.

At the end of each day and during an average of two hours, there were group activities for the revision of aspects concerning diagnosis, treatment or referral of clinical cases, all related to the same nosologic entities.

Monday: Workshop for the revising of bibliography chosen by the professor in accordance with diagnoses made by the group.

Tuesday: Discussion of a simulated clinical case, specifically designed for physicians working in the first level of care.

The application of these techniques was intentionally aimed at encouraging family physicians to reflect on their own practical experiences, thus deepening in the knowledge of the topic. Likewise, they were confronted with the theory in order to facilitate the knowledge building based on family physicians' operational reality. This is called by some authors "autonomous thinking"^{30,31}.

Wednesday: Critical reading of the medical care protocol corresponding to the subject. The diagnostic strategy represented in the clinical practice guideline in which this was used in a sequential or algorithm fashion to allow for a better educational understanding and to identify what is happening to a patient and to serve as a support during the decision making process, but with complete awareness that the clinic guide is not based in only one fashion but, according to the case, adapts and uses a combination of strategies. This technique is complimented with the previous ones so as to address problems with the evidence-based medicine method.^{29, 32-34}

Thursday: Introduction to the subject matter by using the patient-tutor or a real patient techniques; activity where professors and students exercise clinical method skills, besides assessing the clinical competence.

Friday: Evaluation of clinical files, activity where professors and students make a comparison between what is desirable and what was actually done in the actual practice; this is to say, they evaluate in a retrospective fashion to detect undesirable situations and they propose improvement strategies. This technique, used in the same manner in medical audits, was implemented this time with the purpose of learning from own mistakes³⁶⁻³⁸.

Semi-presential professor visits, operational instrumentation

The training of physicians who worked in 1 - 4 consulting rooms FMUs entails a series of challenges, since this FMUs are characterized by the following: they provide care to the population mainly in rural and suburban areas, and when located in urban areas, their services encompass population from reduced geographical areas; the number of enrolled physicians varies in a 1:12 ratio, with a minimum access to auxiliary diagnostic resources, but with a basic medication frame similar to others of the same care level; the large majority of FMUs provide outpatient care during the day and the least of them have laboratories and cabinets, as well as medical emergency services 24-7. Geographically, they are widely scattered, and are of difficult access and are far away from the physician enrollment locations. On the other hand, there is a lack of data on the number of physicians needed to carry out the coverage of those who will be trained, and there are not enough professors to implement the educational process in the working location.

In view of these circumstances, distance education was chosen as the idyllic means for the update of the family physicians, since their semi-schooling systems have the same characteristics as regular school, but student-physicians require less presence time before the professor. Distance systems are designed to provide education far from the physical learning center. The difference between semi-school and distance systems lies in the fact that they use different educational materials; they are based on self-learning, where each student carries out, in an independent manner, the academic activities contained in the study guides according to his or her possibilities.

These systems have proven their solving problem effectiveness in situation like the one we are facing, because they have been used in Mexico and in other countries ever since the 60's and 70's, as is the case of the Francesca Entente Universitaire de L'est, with permanent medical-surgical teaching initiated by the

Superior Teaching Direction and the Ministry of Health with the purpose of updating physicians; the Open University in London; The Empire State College in New York, La Universidad Nacional de Educación a Distancia in Spain. In Mexico, the Universidad Nacional Autónoma de México with the Open University System (SUA-UNAM): the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), the Instituto Politécnico Nacional (IPN) and the Universidad Pedagógica Nacional (IPN).

In Mexico, IMSS has been formally used since February 2002 as an educational alternative for the training of general practitioners who work at the institute, and who have voluntarily accepted to take the specialty course in Family Medicine through the semi-presential mode, thanks to a cooperation agreement established with the UNAM.

This educational option offers adequate strategies to tackle these type of weaknesses that are impossible to overcome in the face-to-face education, or traditional education; besides, we also count with strengths that, when correctly targeted, make successful education possible. The main ones are that students have at least a bachelor's degree; they have study skills and discipline developed during their formative stage, with a minimum professional experience of two years and have direct responsibility in medical care. The study subjects correspond to the main problems of their professional practice. Thanks to this, the theory-practice link, self-management, self-learning and self-evaluation are feasible through intentional educational strategies.

The distance education proposed by the principle universities support these activities in the following methodological features, which were the basis of our Family Physicians update course:

- Professors and students needn't be physically present in the same space and at the same time. For communication to be produced, it is necessary to create mediating elements between them.
- Voice and temporary schemes are substituted by other non-presential means, or are registered in sound and visual recordings to be transmitted in another space and time. The means are not simple educational aids, but rather, carriers of a knowledge that will take the place of the professor.
- Means like written language acquire great importance (dominant for *autonomasia*), apart from the phone, radio, television and other audiovisual means.
- The non-presential relation of those who are communicating is a way of communication that, because it is not happening right here and right now, may be called "differed dialogue". That is to say, the communicator must

send a complete message and wait a given amount of time to get feedback from that communication, in pretty much the same way as with a letter; and in our case through a computing system.

Next, we provide a description of the programmed techniques and activities for this family physician updating course, which, since its characteristics, was given the name semi-presential professor visits, because it still has some of the most important characteristics of the present activities.

Activities, prior to the beginning of the course:

- Diagnosis of the numeric characteristics and shifts for the family physicians included in the FMU and division per geographic zones.
- Plan logistics for personnel coverage.
- Report to FMU physicians about the course, and introduction of the responsible clinical advisor.
- Prior to the beginning of the course, the students learn the general activity strategy, as well as their responsibilities.
- Verify that all the students have clinical practice guidelines, complementary bibliography, reading guides, recommendations for study time as well as deadlines for deliveries.
- Agree upon and inform about dates for present reunions, time and place with available dates for advice sessions.
- For presential activities, summon specific patients for revision and clinical evaluation during meeting days.

Next we enlist the activities in chronological order. These are divided in two: the semi-presential and the presential activities; these take place within a 22 day frame. It is estimated that between the two of them, students devote an average of 30 hours to study a topic.

Day 1- Formal start of the course

Day 2 to 11- Semi-presential activities

- Reading and fulfillment of tasks and initial evaluation by students
- Phone advice by the professor, communication between the hospital and the primary level unit on day 5
- Videoconference or interactive communication through a computer network, between the professor, located in a hospital unit, and the student in his or her nomination unit on day 7

Day 12- First presential activity

- Task revision and critique of the clinical practice guide (2 hours)
- Discussion of the clinical case or bibliography (1 hour)
- Clinical performance in presence of a patient tutor (2 hours)
- Group discussion (1 hour)
- Agreement upon tasks for subsequent meetings, deadlines and delivery date for the final evaluation.

Day 15 to 21. Semi-presential activities

- Reading and fulfillment of tasks and final evaluation by students
- Videoconference or interactive communication through a computer network, between the professor, located in a hospital unit, and the student in his or her nomination unit on day 16
- Phone advice by the professor, communication between the hospital and the primary level unit on day 19

Day 22- Second presential activity:

Task revision and delivery of the final evaluation, students' presentations before the group about: clinical file evaluation and protocol for the management of a consultation case (3 hours); clinical skills evaluation with a real patient (3 hours).

End of the course

The course includes study recommendations for students in order to achieve a better performance and to decrease the stigma of the traditional school systems with one fundamental consideration: that the pupil studies at his or her own pace and in the time and place he or she chooses. The learning tasks will introduce knowledge and evaluation in two times, convergent or analytic and divergent or synthetic; the first one allows to update data and criteria offered by the evidenced-based medicine, and the second provides orientation towards the application of the knowledge in the very reality of the professional practice, with an orientation towards the continuous and integral medical attention, core of family medicine.

Results

Qualitative Experiences

The professor visits model is a modality that was developed in the institutional educational practice within many delegations of IMSS; its advantage has been proven in the PMMF, and aside from offering academic improvement. It also achieved higher cost-benefit because it required the payment for the replacement of the professor's specialized in the topic as well as the pay-for-service support of a replacing physician per every 14 family physicians. Their role was to attending the demand of the patients corresponding to those physicians while they are performing academic activities with their professors. These replacements are aimed at not discouraging physicians' efforts, so that when they return to their regular service they don't find any delays in their work, nor unhappy patients.

This type of personal coverage or personnel replacement allowed for the training of many individuals and, as we previously explained, this takes place in the working environment. With the professor visits program, instead of paying 14 physicians only two replacements are paid for.

This system where the professor is the one who travels, and not the students, allowed, for the first time in the institution, the coverage for the updating on the 12 subjects most demanded by all family-practitioners from family medicine morning and evening outpatient service shifts; there were also interpersonal and communication achievements when attaining understanding and respect for the job among professionals of different health care levels, people who in spite of treating the same segment of the population, hardly knew each other. The teaching-learning process converged in problems of the student's daily practice. This situation optimized the efforts both of students and professors. There was also a better usage of the resources, because they understood that the sharing of responsibilities that corresponded to them in common since they belonged to the same medical service geographical area, they too could share resources and adapt management procedures. In this way, new expectations arose and now it is up to the institutions to facilitate the necessary resources to achieve these expectations.

As a coverage policy, the attendance of the heads of service for every module into which the outpatient service is divided, was fully considered.

To achieve the aforementioned, a training course for clinical advisors was put in place to guarantee good results, since the previous experience of the most of the professors supported their teaching practice on techniques where there is a predominance of the lectures and "passive" teaching. In the same way, there is the general belief that the subject of learning is only the family physician and the one

who teaches is the secondary or tertiary level physician; the practice of the family physician is perceived in a simplistic and uneven fashion. Others do not conceive that not only their own experience, but also the student's experience, has to be reflected upon. Taking this context into consideration, a training program for clinical advisors was developed, which was mainly directed towards influencing the previously mentioned variables.

Professor production

During the FMIP's clinical advisors training course there was a workshop with the purpose of analyzing the specific criteria of the role played by professors and students during advisory sessions in the consulting room. The purpose of this workshop was that the visiting professor with another specialization background had a different connotation of the role he/she had to play during the clinical consultation; that is to say, during the interpersonal relationship and the "classroom". The outcome is the following and is divided into pertinent and non-pertinent situations.

Pertinent situations

1. Establish with each family physician the advisory rules in the consulting room.
2. Inform the background behind the program, explain what advisory is about and establish an action plan.
3. Make emphasis on the fact that it is a respect and face-to-face relationship.
4. Establish the time of intervention and interaction of the advising physician.
5. Inform the patient of the presence of the advising physician.
6. In the agreements, consider when to propose observations about how to manage a clinical file and how to improve information for the patient.
7. Reach an agreement with the advisor as to how to propose case analysis recommendations, aid for diagnosis definition and therapeutic recommendations.
8. Address problem cases directly with the advisor.
9. Establish a sound communication on the grounds of respect and trust.
10. Contextualize advisory according to the characteristics of each FMU.
11. The advisor shall have a solid knowledge base and face his or her deficiencies with honesty.
12. Understand education as a dialogic and dialectic act in which both parties learn from each other.
13. Use clinical practice guides as a tool during medical consultation.

Non-pertinent situations

1. Display of prepotency attitudes by any of the participants.
2. Taking over the process of patient medical attention from the family physician.
3. To have an arrogant attitude.
4. Get into controversy in front of the patient.
5. Showing up physician or IMSS's deficiencies in front of the patient.
6. Criticize previous medical cases and the way they were handled in front of the patient.
7. That both, advisor and advisee, understand the advisory process as an imposing action.
8. To mistake the purposes of advisory with those of a supervision.
9. That the parties involved take on the counseling with wrong roles (ignorant-expert).
10. Lack of educational resources by the advisor.
11. Wrong environment for the counseling.
12. Inadequate programming; that is to say, not making an appointments with anticipation.
13. Treating diseases and not ill people.
14. Not tending after the patient's demands.

Relevant experiences

During the course of the updates, in the professor visits modality, a myriad of experiences took place as a consequence of the bond between physicians at both medical care levels. Some of the most relevant experiences gathered during interviews to coordinators are shown below:

1. Sharing common experiences to the medical practice within the same medical area. This helped decrease the anxiety and insecurity and open up communication channels.
2. Better and more fluent ways of communication were established between the primary and secondary level physicians, for the benefit of the patients.
3. An academic environment in the first level of medical attention was established during training, an environment very much like the one that exists culturally within hospitals.
4. This generated incentives to foster the revision of subjects and confront them with real patients, bringing about discussion with professors or with peers of other groups.

5. Changes in the arrangements made by the physicians when providing medical consultation were done; either for medication prescription or for any diagnosis study.
6. Family physicians in the clinics found satisfactory that everyone was included in the process of medical training.
7. Physicians were able to form groups for revising the subjects and encouraged others who rejected the advisory from the start.
8. There was a reassessment of the family physician working environment by themselves and by the other physicians in the hospital.

Rejection and denial before the unknown was also evidenced in many ways:

9. The physician-professors found lack of cooperation by some family physicians for the advisory; they rejected it.
10. Some visiting professors adopted attitudes characteristic of traditional education, like vertical relationship and authoritarianism.
11. In certain FMUs, authoritarianism made the educational process a difficult task by taking importance away from it or by not planning activities prior to or during the visit.
12. The professor visits methodology was not welcome or understood by everyone, and it fell into the circle of traditional teaching.
13. There were some professors who were mistaken for visiting interconsultants to primary level, or even they mistook the role they were supposed to play.

To wrap up, the results in quantitative terms are as follow: in 2003, 5290 family physicians were trained from 114 FMUs and from more that 18 consulting rooms during course I, and during 2004, this same group received the training from course II. In the same year, 5656 family physicians form 286 5-to-8 consulting rooms FMUs were trained in course I; these same of whom will take course II in 2005. Also, 817 1-to-4 consulting rooms FMUs from FMIP will become enrolled into the program and 3004 family physicians will be trained in course I, this means that they will complete their update during 2006.

The number of professors trained in the professors visits modality during the years 2003, 2004 and 2005 was: 633, 749 and 781, respectively.

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Integrated health care and the health team

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Introduction

The evolution of medical services in the Mexican Institute of Social Security (IMSS for its abbreviation in Spanish) and the resulting organization of primary health care services –which have been influenced by social phenomena in the country, demands from beneficiaries for better services and, of course, the prevailing biologist, fragmentary, single-cause and curative ideology– have entailed different policies and actions. Those factors have been decisive, both in the past as at present, in the integrated health care delivery model.¹

The integrated health care model has undergone theoretical and practical refinements since Family Medicine specialty was first introduced at the Institute in 1971 in response to a genuine demand of population for integrated attention and solution of health problems. It also responded to a need for the development and modernization of health care organizational concepts. Specialization in Family Medicine has spread throughout the world because it has been recognized that specialists provide a more effective, satisfactory and efficient care.²

The concept of Integrated Care

As a result of the continuous growth of the population covered by IMSS and the diversification of its health needs, the primary care level proposed a Family Medicine Improvement Process (FMIP) as a priority to contribute to the improving the population's health through an integrated approach.³

Integrated health care constitutes the set of actions executed by health workers to act on health-illness problems of IMSS beneficiary population. The practice of

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integrated health care is a responsibility of the three levels of health care; however, each one provides attention to different health care needs. It is at the primary health care units where most of the opportunities to provide integrated health care are found, because family physicians are the ones responsible to provide it in coordination with the health team and other health professionals.⁴

The primary health care team is integrated by a multidisciplinary group and the interactions of its members at the Family Medicine Units constitute the main promoter of this integrated care model's organizational development, which guarantees the approach of the diverse problems involved in the health-disease process.

Characteristics of integrated care

The conceptual model of integrated health care, which was reconsidered to guide IMSS' Family Medicine Improvement Process, is based on both the medical care of beneficiaries in their family context, and on the care provided to families as part of their community. Three dimensions are clearly recognized in medical care: biological, psychological and social, and they are always associated to prevention, curing and rehabilitation coverage aspects.⁵

This model of integrated health care includes the following features:⁶

- The family physician represents the entrance to the health care process of the institution's health system and is in charge of coordinating, with the support of the health team, what is to be provided to the individual and his/her family.⁷
- The individual, the family and the community are the center of the health team's actions.
- Health care and disease management are co-responsibilities of the patient, the family and the community.

The field of action and responsibility of family medicine in the primary care or first contact level is not only the whole insured population that demands health care, but also the one not claiming these services. The family physician, with the support of the health team and in coordination with other health care levels, performs activities throughout the life of individuals ("from conception to death") and the life cycle of families, both during health and disease.

Patients and their families ask for close and personal relationship with family physicians and with health services in general.⁷ This constitutes a challenge for the physician and the institution's services, because they have to be available to provide

care to healthy individuals and to manage their diseases irrespective of age, type of medical conditions or place where the service is required, whether a doctor's consulting office, the individual's home, a hospital or an emergency room. This responsibility is not limited by the duration of the disease and it only ends when the patient or the physician so wishes to do so.

The cost-benefit of this continued health care is jointly assumed by the institution and the patient. This integrated care calls for a higher level of medical knowledge, greater support on the part of the health team and co-responsibility by the individual and his/her family. The physician is usually the one deciding when patients' appointments should be set and has to be careful not to reach the extreme of an excessively biologicistic consultation with a resulting poor patient-doctor or family-doctor interpersonal relation, on the one hand, or of a good interrelationship, but poor performance, on the other, since both are costly and bad in quality.⁸⁻⁹

This type of health care results in limited benefits and it deteriorates both individual and social wellbeing because of the improper use of resources. In contrast, a good medical attention is largely associated to professional competence and technology infrastructure for diagnosis and treatment and also to an adequate patient-physician interpersonal relation.

The integrated care model is interested in making patients feel respected and well treated by their physicians, who show interest and determination in his/her problems, calls them by their name and treats them with familiarity. Thus, patients feel that doctors are devoting time to listen to them and answer their questions or give them clear and understandable explanations. In turn, physicians expect respect and politeness on the part of the patient and they expect no different treatment on the part of other members of the health team. If medical care takes place under these circumstances and once patients are satisfied with the level of awareness reached with regard to their health status, it is feasible for them to assume the so desired co-responsibility, since they now have more elements to decide whether to incorporate the medical treatment or not in their daily life.^{10,11}

In order to comply with its mission, the practice of medicine requires the horizontal and vertical participation of diverse health professionals and technicians. Family physicians are the entrance to the institutional health care process and should define and coordinate the health-disease care plan. Once a health problem is identified, they determine what specialist or specialists could offer their knowledge in diagnosis and treatment. This so-called "reference" responsibility represents one of the most complex and conscientious tasks associated to mobilization of human and material resources, and demands the highest level of professionalism and acknowledgment of the value of multidisciplinary and interdisciplinary medical care.^{6,12}

IMSS primary health care team is mainly formed by a family physician, an epidemiologist, a labor health practitioner, a stomatologist, a physical medicine and rehabilitation specialist, a nurse, a nutritionist and dietitian, a physical therapist, a social worker, a medical assistant and the administrative staff. This is, therefore, a multidisciplinary team whose professional competence put in practice different methods, techniques and procedures that together offer a heterogeneous interdisciplinarity to health care services. This, again, is what constitutes Family Medicine at IMSS, the primary health care level. The practice of family medicine requires the collective, coordinated and effective efforts of the health team in order to facilitate each team member's responsibilities in patient care.

In the integrated care model, the members of the health care team recognize their scopes and limitations, so they need to favor patient, family and community's co-responsibility in health care and disease management.¹⁴ In this context, the self-help group is an example of how the civil society takes care of itself and offers the opportunity to achieve the goals that the health team cannot meet.

Identification of an integrated health care: the preventive approach

Integrated care in Family Medicine (FM) involves a prevention-oriented approach. Hence, through PREVENIMSS, FM directs actions towards modifying health risks. This approach implements early promotion, health education and specific protection actions, and is involved in determining damage and procuring rehabilitation to stimulate and help patients to recover their wellbeing and capacity. This preventive approach implies interventions at any stage of disease's natural history, from the sub-clinical to the clinical horizons and at both individual and family levels.

The conceptual model of integrated health care in Family Medicine should contribute to the organizational operative development of institutional health services. Therefore, the Norm that sets forth the Provisions for Family Medicine Health Care Service Delivery, issued by IMSS Medical Benefits Directorate in December of 2003, defines the set of criteria or rules that allow regularization and harmonization of policies, behaviors, tasks and activities that should be followed.

Under the foregoing background, the Department of Family Medicine, through its area of Integrated Health Care, summoned IMSS Delegations' Medical Directors, head-professors of the Family Medicine Residency and family physicians to first-stage working meetings that were followed by a workshop held at the National Training Forum for Health Coordination, where Delegations' Health Care Coordinators, Family Medicine Assistants, Nursing and Social Work were required to identify and describe the health care model in effect at their corresponding Delegations. Four main topics were considered for discussion: health-disease

process; approach of family physicians, patient involvement and intervention of the Head of the Family Medicine Service.

Results

Characteristics of the health care model

- Individualistic: health care is primarily focused on the individual requesting the service, in spite of the fact that integrated medicine field of study is the family within its community context.
- Curative: perhaps the service in this model is provided from a welfare perspective resulting from a professional training bias. Hence, prescription and/or intervention become the focus of medical practice and also patients' expectation. Early prevention and rehabilitation, which are part of the basis of integrated care, are not given the same importance.
- Biologic: the health care process is usually focused on an organic origin of illness and does not consider psychological, family or social environments.

Characteristics of family physicians' approach

- Authoritarian: historically, a physician's decision has been imposed on the patient and he/she is not offered diagnostic or treatment options. It is the physician who decides what, how and when diagnosis and treatment are performed and often times this affects the physician-patient relationship and patient's satisfaction.
- Paternalistic: the physician assumes the responsibility of the illness and its cure. This situation limits the involvement of patients in their own health care and hinders their co-responsibility awareness in the management of their condition.
- Fragmented care: in this model, attention is only focused on the condition the patient is requesting care for.
- Individualistic work: the physician assumes the responsibility of the patient's motive for care in a paternalistic manner and the intervention of the health care team is limited.

Characteristics of patients

- Passive/receptive: patients passively receive and assimilate information and indications given to them by physicians, so there is poor interaction between

them. Patients don't assume any responsibility on the follow-up of their condition or on their own health care.

- Individual: in most cases, it is the patient who seeks medical care. Quite often neither the patient nor the physician will involve the family, so patients “live” their disease inside a medical unit or at their home and there is little, if any, family participation.

Characteristics of the Head of Family Medicine Services

- Insufficient training to respond to current demands made by both personnel under his responsibility and the beneficiary population.
- Heterogeneous knowledge on the institution's current regulations and because of the multiplicity of functions they have been appointed to do, they have difficulties in clearly and objectively identifying their substantive functions.
- Limited management autonomy and multiple administrative tasks that absorb most of their working hours.
- Heterogeneous supervision of goal accomplishment.
- Limited advisory, identification and follow-up of improvement processes.

Based on the above-mentioned characteristics, we can conclude that could not identify a model as such, but more a series of characteristics which pose areas of opportunity to work on with the health care team.

In order to provide care for health problems, a Family Medicine Improvement Process has been developed which includes the extension of actions and activities aimed at improving quality and delivering integrated care. They include, among others, medical-technical training on the main motives of family medicine consultation; the development of the Family Medicine Information Systems (SIMF, for its abbreviation in Spanish); use of leading edge technology for primary health care, which will be discussed in other chapters of this book, and Essential Action Strategies for the Health Care Team, which is the subject matter herein (figure 1).

Essential actions of the health care team

As a result of the workshop described above, one of the areas of opportunity identified was the need to strengthen team work and search for strategies aimed at establishing a setting in Family Medicine Units where work could be performed in a coordinated fashion.

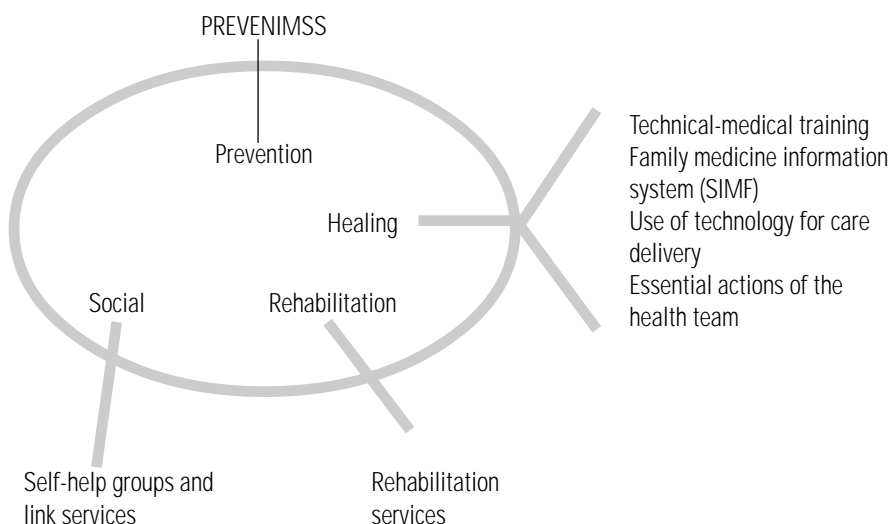
With the integration of representatives from different disciplines to the team work, we are expecting to foster a health culture for the benefit of the insured

population; increase the problem-solving capacity; achieve greater care opportunities and greater relation among health services, and most of all, to achieve patient satisfaction and health provider satisfaction.

The members of the health team identified the actions that define the purpose of their professional existence –which we have called essential actions. They can be found in Annex 1.

Medical assistant: this is the patients' first contact who will provide them with guidance on the benefits they will obtain by going to the health care team for health care; in this sense, the medical assistant's task is to build patients' awareness on the essential activities of health team members and informing them of the administrative requirements they would regularly have to fulfill, such as validity of their rights, medical consultation schedules, adequate use of outpatient and emergency services, request for appointments, hospital referrals. Likewise, the medical assistant is the team member with the greater opportunity to verify patient's compliance of appointments.

Figure 1
Essential actions for the health team,
Mexican Institute of Social Security



Stomatologist: his/her responsibility is to assess the status of the oral cavity and to identify whether it is healthy or if there is any specific pathology that requires integrated management depending on its origin.

Social worker: this health team member carries out medical-social surveys of patients that they include in their medical files. This health worker also identifies relevant living and working conditions, family conditions and type of family in order to establish a favorable or unfavorable prognosis of patient's treatment and will recommend a patient-by-patient plan of action.

Nutritionist-dietitian: it is this team member's responsibility to measure weight and size of patients and determine, through body mass index, whether the patient is overweight, obese or malnourished. Identification of eating habits is important, so they obtain information of meal schedules, number of times patients eat and amount of food eaten. This information will help the nutritionist-dietitian to jointly determine with their patients a diet plan and explain the need for changes in types of food and measures that will help them control food intake. It is important to have demos on the size of rations so patients see what they can eat with each portion.

Nurses: these health workers are not available at the family medicine office, but as they are present in other services, it is necessary to consider them as part of the multidisciplinary team and include them in health education and self health-care activities.

The actions of health team members must be coordinated and integrated by the family physician, who, as the driving element of health care provision, will plan meetings with the health team to discuss selected cases based on each patient's particular needs.

Family physician: it is this health worker's responsibility to verify, through the clinical records, compliance of patients' appointments with each of the health team members, as well as the fulfillment of the corresponding essential actions.

Head of the Family Medicine Service: He/she is responsible for assessing health team members' implementation of essential actions on the patients referred to them and shall also evaluate the family physicians' verifying of these tasks (Annex 2).

Unit Director: this health worker has to analyze reports on integrated health care from Family Medicine Units and evaluate the health team's productivity through the proportion of meetings held versus the ones scheduled; the ratio of patients on

whom essential actions were implemented by the health team from the number of patients who were referred to one or more Unit services, and the impact of these essential actions, which is obtained through the number of cases solved by the health team from the total number of problems identified (Annex 3).

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Annex 1
Essential actions that have to be implemented by the members
of the health team for the delivery of integral health care.
Mexican Institute of Social Security

Nutritionist-dietitian

Diagnosis

- Anthropometrics (weight, size) = obesity, overweight, normal, malnourished
- d.C. nutrition. Eating habits

Management

- Diet plan
- Information necessary to achieve an exchange of food types
- Identification of rations
- Nutrition control (change of eating habits and anthropometrics)

Social Worker

Prognosis

- Medical social survey= relevant housing and working conditions, family income, type of family, support networks, physical activities= favorable or unfavorable for medical control

Management

- Action plan
- Appointment or discharge

Stomatologist

Diagnosis = oral status = healthy or specific diagnosis (cavities, partial or total absence of teeth, malocclusion)

Management

- Integral oral treatment
- Appointment or discharge

Medical assistant

Guidance

- On the benefits of consulting health team members = translation of the members' essential activities
- On the administrative requirements (valid rights, transcription of medications, appointments, referral to hospitals)

Follow up

- Verifies compliance of appointments with health team

Nurse

Health education

- Self health-car
- Co-responsibility

Family physician

- Coordination of health team actions
- Follow up and control of these actions on patients = verification of health team implementation of essential actions through clinical records and interviews with patient during consultation

Head of Family Medicine Services

- Supervision of health team actions
- Evaluation of health team performance
- Management

Annex 2

Guideline for the evaluation of health team essential actions

Person/activities	Evaluation*	
	Yes	No
Nutritionist-dietitian		
Established the nutrition diagnosis (weight, size, eating habits).		
Nutrition management (dietary plan, information necessary to achieve exchange of food types)		
Social Worker		
Medical social survey (recorded relevant housing and working conditions, family income, type of family, support networks, physical activities)		
Established a prognosis		
Management (recorded action plan)		
Stomatologist		
Established a diagnosis (cavities, partial or total absence of teeth, malocclusion)		
Management (recorded integral oral treatment)		
Medical assistant		
Guidance (recorded guidance provided on the benefits of consulting health team members)		
Follow-up (recorded verification of compliance of patient's appointments with health team)		
Nurse		
Health education (registered self health-care and co-responsibility actions)		
Family physician		
Coordination of health team actions (records compliance of health team essential actions on clinical file)		

* Evaluation performed by Head of Service

Annex 3
Report and analysis of outcomes of integral care delivered by health teams*

Report of outcomes of integral health care at Family Medicine Units

Indicators	Evaluation %
Health team meetings (No. of meetings held / No. of scheduled meetings x 100)	
Patients who received integral care (No. of patients with health team essential actions / Total number of patients sent for health team care x 100)	
Impact of health team (No. of cases solved by health team / total number of problems identified by health team)	
Analysis of results	

* Performed by the Family Medicine Director or officers in charge.

Suggested strategies

For the proper performance of the health team in essential actions the following strategies were recommended: a) dissemination of health team essential actions among its members; b) instruction to the health team members for the compliance of essential actions; c) identification and discussion of problem cases; d) health team meetings.

With the purpose of complying with the health team working meetings the following strategies are recommended and others that might help fulfill this purpose are left to the discretion of other units: a) reorganization of health team activities; b) modular meetings; c) meetings at the family physicians' office, d) other.

Integrated health programs. Development of a preventive service provision and evaluation strategy

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Background

The success of health programs is greatly related to specific disease prevention and control programs which are increasingly effective and further-reaching in coverage, thanks to the development of effective and safe preventive, diagnostic and therapeutic techniques, as well as the broadening of health services. Actually, the appearance of any preventive program is preceded by a technological breakthrough: the campaign against smallpox, by Jenner's vaccine; the one against tuberculosis, by streptomycin and isoniazid; the one against malaria, by the development of effective, residual-effect insecticides; cervical uterine cancer control and prevention, by the Papanicolaou technique. These examples are but a sample of the numerous programs that have appeared especially during the second half of the 20th century and which have resulted in better health standards.

However, the number and complexity of the programs have often complicated the practice of public health and, especially, the work of health teams in primary health care level units. Likewise, it is not uncommon for some actions to be fostered to the detriment of others, according to the emphasis and the influence of the directives responsible for each program.

On the other hand, active participation by the population has been limited by the difficulty to understand and perform the tasks related to their health care as

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& Dirección de Prestaciones Médicas, IMSS.

proposed by numerous and varied programs offered to them, as well as by a paternalist attitude, common in health institutions.

For the reasons previously set out, in the last few years there have been initiatives to reorganize health programs by means of groupings known as integrated programs,¹⁻⁷ meant to facilitate the labor of workers in the primary care level and to stimulate the participation of the population they are aimed at, but also to heighten its impact, concentrating previously dispersed preventive actions in well-defined population groups.

By the end of last decade, the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) was developing activities related to over 30 public health programs. As of 2002 and with the purpose of facilitating their fulfillment, they were grouped into five integrated programs: Children's Health, Adolescents' Health, Women's Health, Men's Health and the Elderly Health. For diffusion purposes, these programs were identified with the acronym PREVENIMSS, which refers to the institution's prevention programs.

The PREVENIMSS strategy compelled the modernization of institutional health information systems in order to obtain data which would allow the building of indicators to evaluate coverage and impact.

The purpose of this work is to inform about these health programs, the modernization of information systems and the achieved coverage and impacts.

General strategy

PREVENIMSS general strategy consisted in shifting the focus of programs oriented at preventing diseases and specific risks, towards protecting the health of population groups: children under age 10, adolescents between 10 and 19, women between 20 and 59, men between 20 and 59 and elderly population over age 59.

In 2003 the number of people with a right to IMSS services (beneficiaries) that had attended the Family Medicine Units (FMUs – first level of health care) to be assigned to a doctor was 32 989 006. From that, 19.8% were children, 13.9 adolescents, 28.5% women, 24.9% men and 12.9% elderly of the aforementioned ages (table I). This population is in full demographic transition with a decrease in the number of individuals of lesser age, a moderate increase in adults and an accelerated increase of elderly people (figure 1). This demographic transition has been accompanied by the corresponding epidemiological transition, as shown in figure 2.

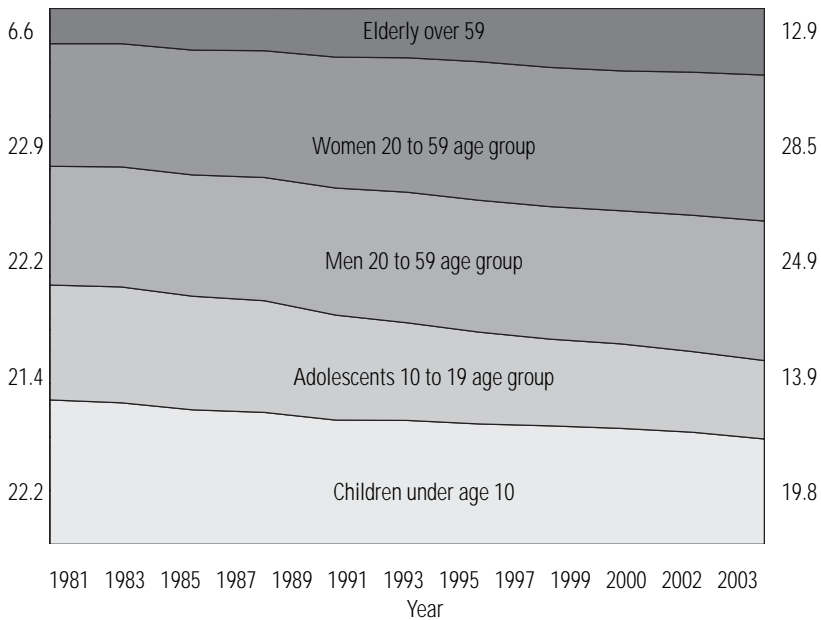
Lines of action

In the following pages, the various lines of action will be addressed, which were determined in relation with the objectives of the PREVENIMSS strategy.

Table I
Beneficiary population assigned to a family physician
Mexican Institute of Social Security, 2003

Age groups	Number	Percentage
Children: under 10 years of age	6 539 842	19.8
Adolescents: 10 to 19 years	4 594 450	13.9
Women: 20 to 59 years	9 397 820	28.5
Men: 20 to 59 years	8 193 265	24.9
Elderly: 60 and over	4 263 629	12.9
Total	32 989 006	100.0

Figure I
Beneficiary population assigned to a family physician by age groups.
Mexican Institute of Social Security, 1981 - 2003



Objective 1: Grant every beneficiary, according to his/her age and gender, a group of health promotion and protection actions.

Design of health programs

The first task was designing the programs. Preventive actions in each age group were classified into five processes: health promotion, nutrition, disease prevention, disease detection and reproductive health. The components of each process were selected based on magnitude, transcendence, vulnerability and feasibility criteria. This last one was sometimes the decisive factor, because it care was taken that all the actions offered to beneficiaries could be fulfilled with available resources.

For the design of these programs we had the participation of national regulatory personnel responsible for public health and reproductive health programs, the corresponding personnel in the 37 IMSS delegations throughout the country, as well as one of the selected FMUs. The main participants were public health teachers, epidemiologists, family physicians, pediatricians, internists, obstetricians/gynecologists, nurses, nutritionists and social workers. This task was performed in 2001, the first year of the current administration.

The main elements of each of the five health programs are shown in tables II-VI.

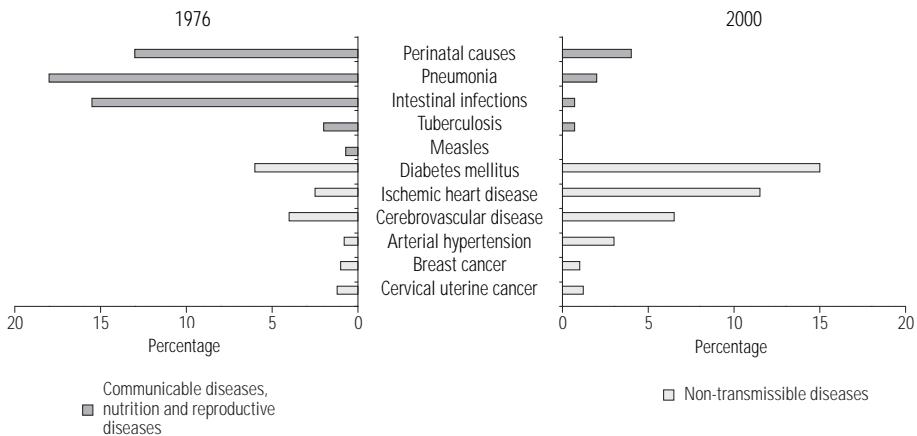
Incorporation of beneficiaries into health programs

For this purpose, Health and Medical Appointments Cards were designed for each age group. In them, beneficiaries identify the components of their health program, the periodicity with which they have to visit the FMU to comply with them, the dates in which they attended and the scheduled dates for future actions. These Cards also have space for doctor's appointments. Traditionally, these were recorded in a document known as Appointment Carnets, which the beneficiaries took care of because they confirmed their appointments in family medicine outpatient services. The Cards substitute Carnets.

In order to incorporate beneficiaries formally into health programs, they are given the Health and Medical Appointments Cards through a procedure we have denominated "informed delivery" and which consists of an explanation of the program, its processes and components. The required preventive actions are begun and the future ones programmed on that same day.

Between August 2002 and June 2004, 22 699 250 beneficiaries have been incorporated into their corresponding age group health programs, which represents

Figure 2
Proportionate mortality for selected causes, 1976 and 2000.
Mexican Institute of Social Security



a coverage of 68.8%. This coverage was smaller in adolescents and men, since these groups are the ones with less demand for service in primary care units (table VII).

Objective II: Encourage co-responsible participation of beneficiaries in health care.

Health care guides

The encouragement of a co-responsible participation by beneficiaries in health care begins when they are incorporated into the corresponding program.

At that moment, aside from the Card, they are given a Health Care Guide in accordance with their age group and gender. These guides explain, in the same order as the Cards, the program’s components, their purpose and the way in which every beneficiary must participate. Special care has been taken as regards graphic design and content, both in Cards and Guides, for they are aimed at becoming reference material for the whole family. They are color-coded, by age group, as well as the Technical Guides which will be described subsequently.

Table II
Components of the Children's Health Program.
Mexican Institute of Social Security

Health care education	Disease prevention
<ul style="list-style-type: none"> • Promotion of Integrated Health Programs • Newborn care • Growth and development; early stimulation • Breastfeeding; complementary nutrition • Accident prevention • Family violence • Incorporation into support groups: <ul style="list-style-type: none"> - Family violence 	<ul style="list-style-type: none"> • Averted through vaccination: <ul style="list-style-type: none"> - Tuberculosis, poliomyelitis; diphtheria, tetanus, whooping cough, hepatitis B, infections from H influenzae, influenza • Diarrheic diseases: <ul style="list-style-type: none"> - Training the mother in prevention, oral hydration therapy and identification of alarm signs • Acute respiratory infections: <ul style="list-style-type: none"> - Training the mother in prevention and identification of alarm signs • Caries: <ul style="list-style-type: none"> - Training in tooth brushing technique - Dental bacterial plaque detection and removal, topic application of fluoride
<p>Nutrition</p> <ul style="list-style-type: none"> • Promotion of healthy diet and physical exercise • Observation of growth, development and nutritional condition • Incorporation into support groups: <ul style="list-style-type: none"> - Malnutrition - Overweight and obesity • Anemia prevention 	
	<p>Disease detection</p> <ul style="list-style-type: none"> • Congenital metabolism errors <ul style="list-style-type: none"> • Visual defects

The Health Care Guides can also be used as supporting documents for educational actions to be performed in every consultation by physicians, nurses, social workers and in general the whole personnel working in first level of attention units.

Table III
Components of the Teenager's Health Program.
Mexican Institute of Social Security

Health care education

- Promotion of Integrated Health Programs
- Nutrition, oral health
- Physical activity
- Sexual health with gender focus
- Addictions and violence
- Accidents
- Training of voluntary promoters
- Incorporation into support groups:
 - Family violence
 - Addictions

Disease prevention

- Avoidable through vaccination:
 - Measles, rubella, tetanus, diphtheria and hepatitis B.
- HIV/AIDS and sexually transmitted diseases
 - Condom supply
 - Protected sex training

Disease detection

- Visual defects

Nutrition

- Promotion of healthy diet and physical exercise
- Overweight and obesity detection
- Incorporation into support groups:
 - Overweight and obesity

Reproductive health

- Information on contraception, prenatal and puerperal observation and alarm sign identification
- Granting of contraceptive methods
- Prenatal and puerperal attention
- Prescription of folic acid and ferrous sulfate

Educational sessions

Every family medicine unit, according to its resources, creates a weekly program for educational sessions in small groups. The descriptive tables and technical contents of these sessions were elaborated by a group of experts.⁸ The corresponding technical document was distributed to medical units. It is noteworthy to say that nearly all of them benefit from experience in the development of these kinds of educational sessions. The following videos were created and distributed to provide audiovisual aid: PREVENIMSS, early stimulation, breastfeeding, complemen-

Table IV
Components of the Women's Health Program.
Mexican Institute of Social Security

<p>Health care education</p> <ul style="list-style-type: none"> • Promotion of Integrated Health Programs • Oral health • Sexual health • Addictions and violence • Accidents • Incorporation into support groups: <ul style="list-style-type: none"> - Smoking - Alcoholism - Family violence 	<p>Disease detection</p> <ul style="list-style-type: none"> • Cervical uterine cancer • Breast cancer • Diabetes mellitus • Arterial hypertension • Pulmonary tuberculosis • HIV/AIDS and sexually transmitted diseases
<p>Nutrition</p> <ul style="list-style-type: none"> • Promotion of healthy diet and physical exercise • Overweight and obesity detection • Incorporation into support groups: <ul style="list-style-type: none"> - Overweight and obesity 	<p>Reproductive health</p> <ul style="list-style-type: none"> • Information on contraception, prenatal and puerperal observation and alarm sign identification • Granting of contraceptive measures • Prenatal and puerperal attention • Prescription of folic acid and ferrous sulfate • Climacteric and menopause care
<p>Disease prevention</p> <ul style="list-style-type: none"> • Avertable through vaccination <ul style="list-style-type: none"> - Measles, rubella, tetanus, diphtheria • HIV/AIDS and sexually transmitted diseases <ul style="list-style-type: none"> - Condom supply - Protected sex training 	

tary nutrition and integration into the family diet, oral health, addictions, healthy diet and physical exercise, unexpected pregnancy, sexually transmitted diseases, cervical uterine cancer, breast cancer, diabetes mellitus, accident prevention, sexuality and old age, etc. Existing videos are improved and new videos are created on a permanent basis.

Table V
Components of the Men's Health Program.
Mexican Institute of Social Security

Health care education	Disease prevention
<ul style="list-style-type: none"> • Promotion of Integrated Health Programs • Oral health • Sexual health • Addictions and violence • Accidents • Incorporation into support groups: <ul style="list-style-type: none"> - Smoking - Family violence 	<ul style="list-style-type: none"> • Avoidable through vaccination <ul style="list-style-type: none"> - Measles, rubella, tetanus, diphtheria • HIV/AIDS and sexually transmitted diseases <ul style="list-style-type: none"> - Condom supply - Protected sex training
Nutrition	Disease detection
<ul style="list-style-type: none"> • Promotion of healthy diet and physical exercise • Overweight and obesity detection • Incorporation into support groups: <ul style="list-style-type: none"> - Overweight and obesity 	<ul style="list-style-type: none"> • Diabetes mellitus • Arterial hypertension • Pulmonary tuberculosis • HIV/AIDS and sexually transmitted diseases
Reproductive health	
<ul style="list-style-type: none"> • Granting of contraceptive measures 	

Support groups

For a better control of some diseases, the Institute has been organizing support groups in its medical units for the last few years. The most experienced ones are those related with overweight-obesity, diabetes and hypertension. The PREVENIMSS strategy has fostered the creation of other groups, in their own medical units, in other public organizations and in non-governmental organizations (alcoholics anonymous). With the help of experts from other institutions, we have begun training personnel to organize family violence support groups. A technical guide on support group creation was edited to reinforce all of these activities.⁹

Table VI
Components of the ElderlyHealth Program.
Mexican Institute of Social Security

Health care education	Disease prevention
<ul style="list-style-type: none"> • Promotion of Integrated Health Programs • Oral health • Sexual health and prostatic disease • Addictions and violence • Accidents • Incorporation into support groups: <ul style="list-style-type: none"> - Smoking - Alcoholism - Family violence 	<ul style="list-style-type: none"> • Avoidable through vaccination <ul style="list-style-type: none"> - Pneumonia, influenza, tetanus, diphtheria • HIV/AIDS and sexually transmitted diseases <ul style="list-style-type: none"> - Condom supply - Protected sex training
Nutrition	Disease detection
<ul style="list-style-type: none"> • Promotion of healthy diet and physical exercise • Overweight and obesity detection • Incorporation into support groups: <ul style="list-style-type: none"> - Overweight and obesity 	<ul style="list-style-type: none"> • Cervical uterine cancer • Breast cancer • Diabetes mellitus • Arterial hypertension • Pulmonary tuberculosis

Social communication

A social communication campaign has been implemented through television, radio and press to promote PREVENIMSS, as well as the way in which the population must participate in the prevention, detection and control of different diseases. Until now there have been campaigns related with overweight/obesity, diabetes mellitus, arterial hypertension, cervical uterine cancer, AIDS, and children and senior citizens vaccination, among others. These messages are disseminated both in national coverage media and in local and regional coverage media. The number of messages and their impact are shown in table VIII.

Table VII
Beneficiary population assigned to a family physician,
incorporated into integrated health programs
Mexican Institute of Social Security, August 2002-June 2004

Age groups	Number	Coverage* (%)
Children: under 10 years of age	4 638 987	70.9
Adolescents: 10 to 19 years	3 115 791	67.8
Women: 20 to 59 years	6 744 746	71.8
Men: 20 to 59 years	4 960 814	60.5
Elderly: 60 and over	3 238 912	76.0
Total	22 699 250	68.8

*In relation with the population assigned to a family physician

Objective III: Integrate provision of preventive services into family medicine units.

Integration of preventive services in first-level units

One of the main problems the PREVENIMSS strategy faces is the fragmentation and bureaucratization of service provision at FMUs.

It is convenient to point out, in the first place, that IMSS primary care level is integrated by a wide network of 1 071 FMUs throughout the country, located in the 37 delegations the Institute has set up for their management. They employ 12 833 family physicians, 3 532 nurses, 7 520 nurse aides, 183 nutritionists, 1 140 social workers, 11 703 physician assistants, 1 455 data capturers and 994 analysts, as well as administrative and cleaning personnel. There is a preventive medicine service at every FMU.

The fragmentation of FMUs preventive medicine services is related to their own history. They were initially conceived and designed fundamentally as vaccination cubicles; later, the "timely cancer screening" other disease-detection cubicles appeared, as well as the mother-child care consulting rooms. More recently, the health promotion areas appeared, with independent physical spaces as well. This

Table VIII
Social communication: number of messages and impact, 2002-2003
Mexican Institute of Social Security

Medium	1st stage Nov-Dec 2002	2nd stage Mar-Apr 2003	3rd stage Sep-Dec 2003
Television			
Messages	5	5	7
Channels	99	102	89
Impacts	7 666	8 792	7 545
Radio			
Messages	5	5	7
Channels	1 100	1 470	1 051
Impacts	160 489	221 063	150 150
Press			
Messages	5	5	7
Channels	413	432	275
Impacts	2 160	3 101	2 511

caused fragmentation in service provision. For example, a child could go to one appointment for nutrition observation, and to another one to get vaccinations; a woman could also go to a cervical uterine and breast cancer screening appointment, to another one for vaccinations, to another one if she was pregnant, and yet to another one if she was ill. Even the term line care was coined.

The PREVENIMSS strategy promotes integrated attention of preventive services: going from the "specialized" cubicle concept to the preventive medicine consultation office, where every beneficiary must receive all preventive actions from the same worker. This has entailed an enormous effort to redesign and furnish physical areas: renovation of refrigerators, exploration tables, scales, stadimeters, etc. Moreover, the 82 pap-smears laboratories were renovated and 64 new colposcopy clinics which, together with the 51 already existing, make up a total of 115. During 2003, 205 mammography equipments were installed. The challenge now is to strengthen and widen the personnel continuous training program.

Personnel training

The first task was elaborating the Technical Guides, one for each health program. These guides describe the procedures related to every process and its components. Throughout the years, IMSS has created several procedure manuals which due to their characteristics and extension are difficult to consult, especially when they want to be consulted during service provision. The Technical Guides are documents which synthesize the content of these manuals; they are easy to consult, continuously improved and updated (three editions were made between 2001 and 2004). Their presentation is similar to that of the Health Care Guides, with the same order and color code mentioned before.

The next step was to develop a “cascade” permanent training program: from the national to the delegational level, and from this to every FMU, with an emphasis on physicians, nurses, physician assistants and social workers. On their part, every medical unit must develop its own training program. Supervision between all levels and within every medical unit was also intensified. The intensive phase of the training program was done during 2002 and the first stage consisted of incorporating the very workers of the FMU into the health programs before incorporating other beneficiaries. The best way to get to know a health program is to benefit from its actions.

With the counseling from the Pan American Health Organization and the Catalonia Open University, a distance training program for directors was initiated this year on the topics of epidemiology and health services management, based on the integrated programs and the new information system.

Objective IV: Heighten the coverage and impact of health programs.

Modernization of the information system

In order to heighten the coverage and impact of PREVENIMSS, as in any other intervention, it is necessary to systematically measure and evaluate them in the first place. Hence, it is necessary to rely on relevant, timely, complete and reliable information on population, health damage, available resources and service provision. For every one of these aspects, IMSS has been developing different information systems for a few decades now. Nevertheless, there were some limitations in the evaluation of coverage and impact that made it compelling to develop a wide modernization program. The aspects of this program related to the PREVENIMSS strategy are the following:

- Establishment of an automated nominal record of preventive actions.
- Automation of epidemiological surveillance and death certificate analysis systems.
- Creation of databases for every FMU consultation offices and medical unit and for delegation and national directors.
- Automated production of information on coverage,¹⁰ morbidity¹¹ and mortality,¹² and its distribution to all medical units.
- Annual probabilistic population surveys to validate or correct the information provided by systems with continuous records, related with the use of health services, PREVENIMSS coverage, the prevalence of some diseases and risk factors, diet and physical exercise.
- Information technology infrastructure reinforcement and personnel training: 2 847 Pentium 4 computers have been acquired for the statistics departments in medical units, delegations and regulatory levels. Four hundred FMUs have connected to the institutional network and have access to the internet, intranet, e-mail and videoconference services. A virtual campus is being developed for continuous education, which can be accessed by all first-level personnel. The national database is managed from the National Center of Information Technology (*Centro Nacional de Tecnología Informática*) based in Mexico City and with mirror facilities in the city of Monterrey, both with high storage and processing capacity servers (Sun Ultra 15K) and Data Warehouse and Business Intelligence tools.

The design of this ambitious modernization program was begun in 2001, implemented in 2002 and consolidated during 2003. To evaluate our programs, therefore, information from traditional systems has also been used, especially to measure coverage from 2002 and 2003. These were estimated from data obtained from the non-nominal numeric record of preventive actions¹⁰ and the Census of Population Assigned to Family physicians¹² and validated or rectified through the 2003 National Coverage Survey.

Indicator selection and report preparation

For every component of PREVENIMSS, coverage and impact indicators were selected, which are constructed with the same methodology in all medical units and made public monthly through automatically produced reports, detailed up to population assigned to every medical unit and every family physician. Table IX shows two examples of these reports.

Table IX
Monthly coverage evaluation, women's health.
Integrated Health Programs, Mexican Institute of Social Security

Campeche Delegation		January-December 2003			
		Nutrition			
		Weight and size record			
Medical Unit	20 to 59 year-old assigned population	Records*	Coverage (%)	Prevalence %	
				Overweight	Obesity
FMU no. 1	20 021	16 337	81.6	28.4	45.6
FMU no. 2	2 482	1 896	76.4	31.4	48.2
FMU no. 3	932	919	98.6	24.6	38.2

Campeche Delegation January – December 2003
 Family Medicine Unit 1

		Nutrition			
		Weight and size record			
Family physician	20 to 59 year-old assigned population	Records*	Coverage (%)	Prevalence %	
				Overweight	Obesity
Díaz González Gustavo	596	395	66.2	26.8	46.3
Díaz Salas Emma	500	470	94.0	25.6	42.4
Hernández Nieves Saúl	519	417	80.4	34.2	39.6

*At least once during 2003

On the other hand, emphasis has been given to personnel training and inducing them to carry out systematic analysis of the statistical information contained in these reports. Health personnel did not seem motivated to do this analysis, since the traditional statistical reports were generated late and were not as detailed as they are today. Establishing the habit of statistic information analysis is a task to be completed over several years.

Extending health program coverage and impact

The PREVENIMSS strategy must extend its coverage and impact through at least two mechanisms: a) integrated care, and b) systematic evaluation.

As was established in previous paragraphs, integrated care consists of offering preventive actions simultaneously and in a package. This must lead to coverage extension by diminishing lost opportunities, which were very numerous because actions were offered in different cubicles and often on varying dates.

The systematic and comparative evaluation of coverage in populations assigned to every family physician and every FMU has stimulated competitiveness and favored the advance of the programs. We have always held that when evaluation is honest and timely, performed with adequate indicators and publicized to all the people responsible of programs, it becomes the best tool to boost them.

Table X records the coverage found in the National Survey carried out in 2003,¹³ taken between the months of July and September. This is a probabilistic, national survey on beneficiary population, in which delegations are represented, taken for each Integrated Health Program age group. It was undertaken in influence areas of 180 FMUs and included 34 610 homes and 79 797 beneficiaries: 15 289 children between ages 0 and 9; 13 356 adolescents between 10 and 19; 22 165 women between 20 and 59; 16 275 men between 20 and 59, and 12 712 elderly over 59.

In general, attained coverage was below the previous estimations that were based on non-nominal numeric records in relation to action goals, and not related to coverage or impact. The result was that achievements were almost always over 100%. The 2003 ENCOPREVENIMSS showed a very different reality. Coverage found in this survey is the result both of actions started several years ago and of actions begun or fostered in the last 12 months with the implementation of PREVENIMSS. Thus, for example, the vaccination coverage found was heightened thanks to the Universal Vaccination Program begun in 1990. In other cases it came as a result of actions fostered by PREVENIMSS, like the case of cervical uterine cancer, for the first time or in the last three years, which was 40%. The coverage of actions initiated in the months prior to PREVENIMSS was generally low, as in the case of iron supplements for one year-old children, which was 17.8%. There was also coverage which is the sum of actions begun several years ago and those recently started. This is the case of the coverage of beneficiaries informed on basic issues established by PREVENIMSS.

Table XI shows health impacts achieved in the 2000-2003, that is, the corresponding to this administration. It is impossible to distinguish clearly the impacts attained by PREVENIMSS from those due to previous programs, as well as from those related to other factors like socio-economic and educational level and those

Table X
Coverage of selected components. Integrated Health Programs, Mexican Institute of Social Security, 2003 National Coverage Survey

Program / component	Indicator	Coverage
Children's health – under 10 years		
• Congenital hypothyroidism detection	Newborns with newborn screening test*	98.1
• Health information	Informed mothers [†]	56.4
• Diet surveillance	Measure of weight and size according to the standard	85.9
• Anemia prevention	Children under one year who received iron	17.8
• Vaccination	Complete schemes (children between 1 and 4 years)	91.4
• Topic application of fluoride	5-year old children who have received topic application of fluoride	47.8
Adolescents' health – 10 to 19 years		
• Health information	Informed adolescents [†]	61.9
• Excess weight and obesity detection	Measure of weight and size in the last year	67.4
• Vaccination		
- Tetanus, diphtheria	Vaccinated adolescents	68.0
- Measles, rubella		52.4
• Use of contraceptive measures	United female-adolescent users	88.4
Women's health – 20 to 59 years		
• Health information	Informed women [†]	36.9
• Excess weight/obesity detection	Measure of weight and size in the last year	84.7
• Vaccination (measles, rubella)	Vaccinated women between 20 and 44 years	28.5
• Pulmonary tuberculosis detection	Women between 20 and 59 years with direct examination of sputum smears for acid-fast bacilli	1.1
• Cervical uterine cancer screening	Women between 20 and 59 years with Papanicolaou smear test in the last year	40.0
• Users of contraceptive measures	United 15-49 year-old women users	76.5
Men's health – 20 to 59 years		
• Health information	Informed men [†]	34.4
• Vaccination (measles, rubella)	Vaccinated men	21.9
• Pulmonary tuberculosis detection	Men with direct examination of sputum smears for acid-fast bacilli	0.9
• Arterial hypertension detection	Non-hypertensive men with AT measurement in the last year	48.4
Elderly' health – 60 and over		
• Health information	Informed senior citizens [†]	27.2
• Pneumococcus vaccination	Elderly vaccinated in the last year	13.2
• Influenza vaccination	Elderly vaccinated in the last year	12.6
• Pulmonary tuberculosis detection	Elderly with direct examination of sputum smears for acid-fast bacilli	1.9
• Cervical uterine cancer screening	Women between 60 and 64 years with Papanicolaou smear test in the last year	31.9
• Pulmonary tuberculosis detection	Elderly with direct examination of sputum smears for acid-fast bacilli	1.9

* Congenital hypothyroidism epidemiological observation system

[†] In the themes included in corresponding programs

Table XI
Selected impacts. Integrated Health Programs.
Mexican Institute of Social Security. 2002 - 2003

Indicator	Year	
	2000	2003
Deliveries (number)		
• Adolescents	73 893	57 148
• Women 20 and older	575 696	517 933
Diseases preventable through vaccination (number of cases)		
• In newborns		
- Tetanus	0	1
• In children under five		
- Tuberculose meningitis		
• In all ages		
- Poliomyelitis	0	0
- Diphtheria	0	0
- Tetanus	9	9
- Whooping cough	12	25
- Measles	17	14
- Rubella	7 478	1 063
- Parotiditis	8 563	2 889
- Meningitis - H. influenzae	7	1
- Hepatitis B	497	437
AIDS (number of cases)		
• Newborns	33	15
• Adolescents	69	45
• Women between 20 and 59	567	636
• Men between 20 and 59	2 874	3 079
• Elderly over 59	125	183
Mortality		
• Infant (for every 1 000 born alive)	12.2	11.6
• In children under 5		
- For diarrheic disease (for 100 000 under 5)	6.3	3.3
- For acute respiratory diseases (for 100 000 under 5)	8.2	5.9
• Maternal (for 100 000 live births)	39.2	29.0
• Cervical uterine cancer (for 100 000 25-year old and older women)	13.0	10.3
• Tuberculosis		
- Cases	4 096	3 600
- Mortality (for 100 000, 20-year old and older beneficiaries)	2.0	1.7
• Influenza and pneumonias (for 100 000 elderly over 59 years)	36.7	40.4

related to the environment, to name a few. It is now convenient to emphasize the following:

- The number of deliveries decreased, particularly in women under age 20 due to the promotion of specific actions in this age group.¹⁴⁻¹⁵ The global fertility rate continues to decrease: in June 2003 it was estimated in 1.9, finally under the replacement rate.
- In relation to diseases preventable through vaccination,¹⁶ poliomyelitis eradication and diphtheria elimination have been maintained. In 2003 there were 14 cases of measles, all of which were related with a non-endemic virus of Asian origin. Whooping cough had a slight increase in 2003 (25 cases), mainly in non-vaccinated children under two months. That year there was a case of neonatal tetanus, the son of a non-vaccinated migrant field worker, recently registered in the IMSS. Nine cases of tetanus were recorded, mostly in senior citizens with injuries not treated at the Institute's facilities. Rubella, parotiditis and meningitis - *H. influenzae* are markedly descending; there was only one case of the latter in 2003. The number of cases of hepatitis B recorded in 2003 had not decreased significantly yet; in the first semester of 2004 the decrease was greater.
- The number of cases of AIDS¹⁶ in newborns and adolescents decreased in 2003. This is most probably related to specific actions carried out in these age groups. On the contrary, AIDS in people over 20 continues to rise.
- Infant mortality¹⁷ and mortality in children under five years keeps decreasing due to the continuity of actions started in 1990 and 1991, with the Universal Vaccination Program and those derived from the introduction of cholera in 1991,¹⁸ which contributed to a significant decrease in pneumonia and diarrheas mortality in these groups.
- Maternal mortality and cervical uterine cancer mortality decreased significantly between 2000 and 2003. Both cases are related with the support given to specific actions as of 2001 and 2002. Due to the relevance these have for us, both trends will be the reason for independent publications.
- Tuberculosis morbidity and mortality decreased. However, the low detection coverage and the global resurgence of tuberculosis force us to improve our detection, prevention and control actions.
- Lastly, pneumonia mortality in the elderly increased in 2003, as was observed in other countries too. We attribute this to low coverage of influenza and pneumococcus vaccinations, as well as to the global change in the epidemiology of this disease.

The PREVENIMSS strategy has been well received by the institution's beneficiaries. It has fostered a co-responsible participation in their health care and has caused to heighten coverage and impact, but has also identified lagging components. We relate the attained progress, among them the timely identification of lags, both with health programs integration and with information system modernization, which have made it possible to analyze coverage and impact systematically.

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Self-help groups of obese or overweight, hypertensive, and diabetic patients

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Background: Epidemiological Outlook and Provision of Medical Services in the Mexican Institute of Social Security

At the beginning of the XXI century, obesity has been considered the most important metabolic disease in the world and referred to by the World Health Organization (WHO) as a global epidemic. In fact, obesity is a common disease that not only affects developed countries but developing countries as well. In 2002, the international Obesity Task Force estimated that worldwide approximately 1 billion (6%) people are overweight or obese. More than 700 million people are considered overweight and 300 million were classified as obese, due a trend increase in the prevalence of this disorder. This figure could double in 2025 if no actions are taken to deal with this threat.¹ In terms of health, the importance of obesity also lies in the risk it represents as a precursor of other diseases, namely metabolic and cardiovascular diseases, and more specifically, diabetes mellitus and high blood pressure.

The higher the body mass index (BMI) in people, the higher the risk of type 2 diabetes mellitus increases, especially in people with family history of diabetes. This risk goes down when weight is lost. The probability that obese women develop type 2 diabetes is 12 times higher than in women with normal weight.

Prevalence of high blood pressure in overweight adults is three times higher than in adults with normal weight, and the risk of high blood pressure in overweight people between 20 and 44 years of age is almost six times higher than in adults with normal weight. The number of people with diabetes has increased not

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only as a result of a higher prevalence of obesity and physical inactivity but also due to growth of population, life expectancy, and urban development. Prevalence of diabetes in adults throughout the world was estimated in 4.0 % in 1995 and it will amount to 5.4% in the year 2025. This incidence is higher in developed countries than in developing countries. The number of diabetic adults in the world will increase from 135 million in 1995 to 300 million in the year 2025. At present, there are at least 171 million diabetic people in the world; 40 million in the American continent, 20 million in Latin America, 5 million in Mexico and, of these, 3 660 838 beneficiaries of the Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish).

Significant increase in the number of patients with diabetes will occur in developing countries (42%), with an approximate figure from 51 to 72 million, and of 170%, going from 84 to 228 million, in developed countries. Thus, for the year 2025, more than 7.5% of people with diabetes will live in developing countries, as compared with 62% in 1995. The countries with the greatest number of people with diabetes are and will be for 2030, India, China, and the United States. In 1995, Mexico ranked ninth among the countries with the highest number of patients with diabetes (3.8 million); for the year 2025 estimates indicate that it will be ranked seventh, with 11.7 million. In the developing countries, most of the people with diabetes are between 45 and 64 years of age, and in the developed countries, 65 and over. For 2030, it has been estimated that the number of people with diabetes over 64 years of age will be of more than 82 million in developing countries and of more than 48 million in developed countries.

The prevalence of diabetes is similar in men and women, but slightly higher in men under 60 years of age and in women, at older ages. In general, diabetes prevalence is higher in men, but there are more women with diabetes than men, especially in developed countries. The most likely explanation for this observation is the existence of a higher number of women over 65 years of age than the number of men in most of the populations, explained by the increase of diabetes prevalence with age. In the future, diabetes will increase and will be concentrated in urban areas.^{2,3}

In the year 2000, 26.4% of the adult population had high blood pressure, 26.6% of men and 26.1% of women, and projections indicate that 29.2% will suffer high blood pressure in 2005; 29% of men and 29.5 % of women. The total number of adults with high blood pressure in the year 2000 was of 972 million, 333 million in developed countries and 639 in developing countries. Forecasts indicate that for 2025, the number of adults will increase approximately 60% to reach a total of 1.56 billion people.^{4,5}

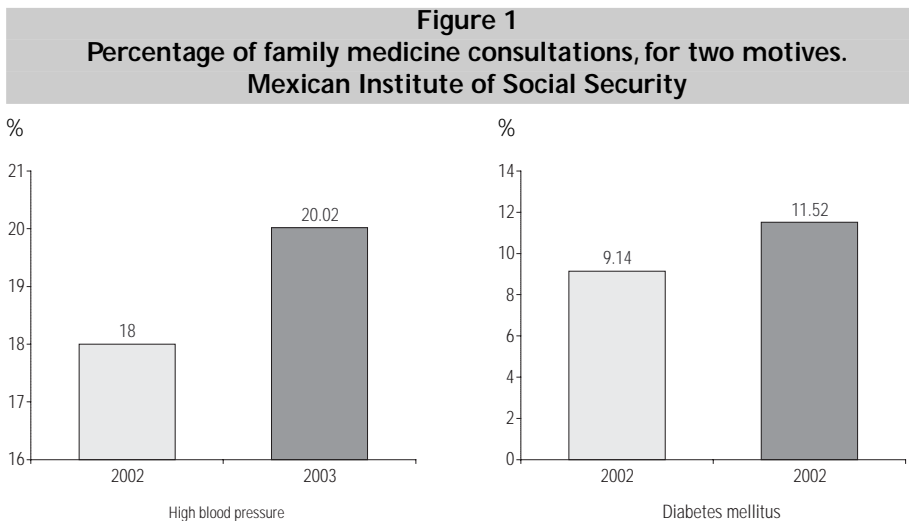
This prevalence varies around the world, being the lowest observed in the rural area of India (3.4% in men and 6.8% in women) and the highest in Poland (68.9% in men and 72.5% in women).⁵

High blood pressure prevalence in Mexico has been estimated in 30.05%. A well-known fact is that it is associated with age, dyslipidemias, obesity, and disorders in the carbohydrate metabolism, including glucose intolerance and diabetes.⁶

At IMSS, 18% of the total family medicine consultations in the year 2002 corresponded to patients with high blood pressure, and this figure increased to 20.02% in 2003. In the specialty consultation, the figure in 2002 amounted to 1.67% and in 2003, to 1.73%. In the emergency services, the percentages were of 2.13 to 2.19% in 2002 and 2003, respectively.⁷

Attention demand for diabetes mellitus for outpatients in 2002 was of 9.14% and in 2003, of 11.52%, with a percentage difference of 2.38, representing an increase of 124 992 consultations, as compared with the previous year (figure 1).

Diabetes mellitus, as a motive for medical consultation, was ranked third in Family Medicine, and second in specialty consultation. It was the ninth motive for hospitalization, and second, in hospital mortality, with 7.8% of total deaths in 2002 and 15%, for 2003.⁷



Source: References 7 and 8.

High blood pressure, as a motive for medical consultation in Family Medicine was ranked second, in specialty consultation, tenth, and deaths as a result of hypertensive diseases, 13%, with 2.6% of the total deaths in 2002 and 4% in 2003.^{7,8}

By virtue of the relevance of these, the Family Medicine Improvement Process (FMIP) implemented in IMSS, considers training of family physicians in 12 relevant diseases a primary component, including among them diabetes mellitus and high blood pressure. In these disorders, a baseline measurement conducted found out that the performance of physicians in the correct management of the former was of 70% and three months after the training process, it had gone up to 78%. Concerning high blood pressure, the baseline measurement reported 76% and the post-evaluation, 84% (figure 2).

Along the training process, the ratio of diabetic patients with glycemia lower than 140 mg / dl within the last three months was measured, resulting in a baseline measurement of 51%, and in the three-month evaluation, 55%. For high blood pressure, the baseline figure was of 78% and the post-evaluation number, of 81% (figure 3).

Chronic degenerative diseases associated with obesity, such as diabetes mellitus and high blood pressure, have gradually increased in recent years, affecting a high number of people of all the different social and economic levels. This is strongly associated with changes in lifestyle derived from the consumption of diets with high contents of saturated fats, accompanied by the reduction of physical activity and longer life expectancy in the population.

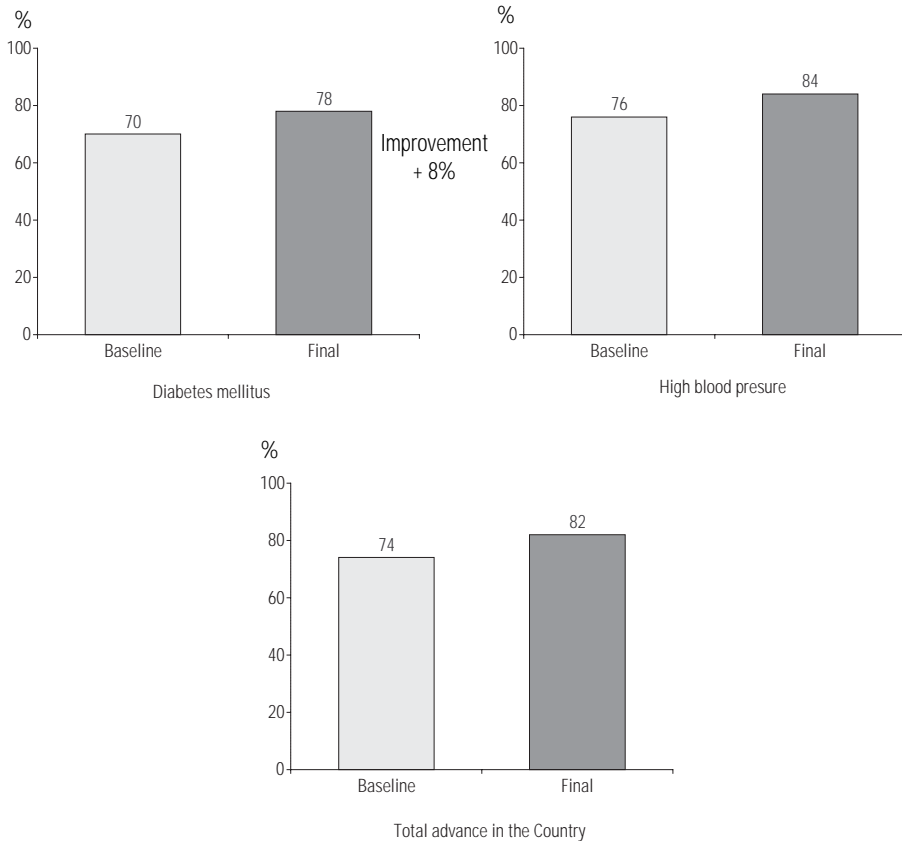
At IMSS, increase of these disorders in its beneficiaries force the institution to define new operative strategies to integrate self-help groups for people who suffer of overweight, obesity, high blood pressure, and diabetes, based on educational programs for adults and a psychosocial approach, in order to promote changes in their lifestyle.

Strategy creation methodology

To define the substantial elements for the self-help group strategy in these patients, a documentary revision of the topic and interviews with service providers and patients were required in order to provide its implementation in the Family Medicine Units (FMU) of the system with operative feasibility.

The documentary research was focused on identifying operative strategies followed in Mexico and in other countries that could orient us to define the substantial elements that had to be integrated in a strategy as that proposed. According to the Wagner model⁹ (figure 4), medical care of chronic diseases includes support for self-management, redesign to grant health services, support to deci-

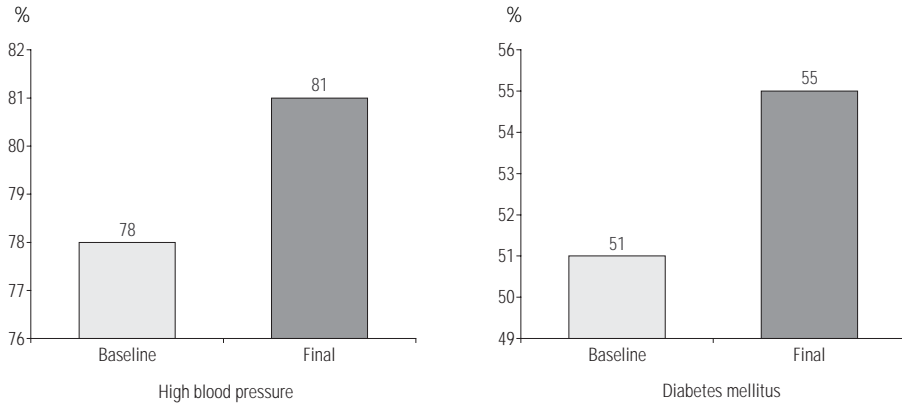
Figure 2
Quality measurements of the performance of domestic family physicians, by clinical entity. Mexican Institute of Social Security, 2004



Source: clinical records of patients with high blood pressure and diabetes

sions, and application of clinical information systems, with the inclusion of the family members of the patients in the change strategies and the involvement of representatives of the health team trained for this purpose. Various international experiences confirm that properly trained members of the community can per-

Figure 3
Percentage of clinical control in two motives for medical consultation.
Mexican Institute of Social Security, 2004



Source: clinical records of patients with high blood pressure and diabetes

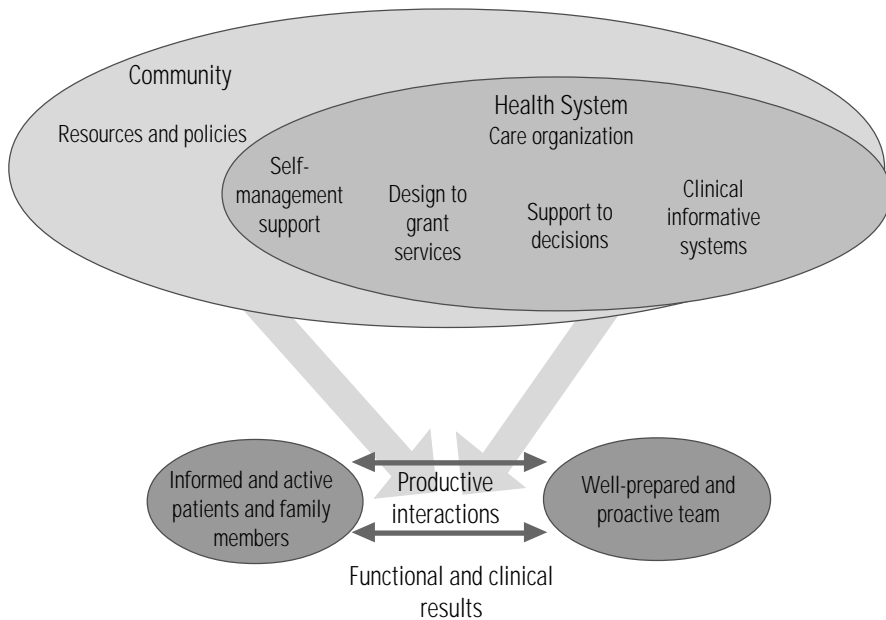
form educational and behavior change promotional activities to encourage self-care and prevent or control chronic diseases, like obesity, high blood pressure, and diabetes.¹⁰

Likewise, the need to keep medical control in these patients is proposed, through the incorporation of information associated with clinical issues, diet, exercise and management of emotional status, such as depression and anxiety. All this is done under the premise of the self-help groups where the patient has to become aware of his/her responsibility in lifestyle change and in his/her disease control, based on the approach focused on adult education.¹¹

Interviews were also made with experts of the health team at the district and medical unit levels, who had applied operative strategies to manage groups of diabetic, hypertensive, obese, or overweight patients with successful results. From these interviews, the following conclusions were drawn:

- In the medical units, a lot of activities are carried out whose effects are not assessed.

Figure 4
Chronic disease attention model (Wagner)



- The health team provides different messages to the patients, which results in confusion.
- Difficulties to integrate the health team in the educational activities.
- Important work loads and organizational problems to carry out educational activities.
- High abandonment percentage of patients during the activities.
- High level of frustration among health workers.
- Reduced incorporation of family members in activities.

Likewise, work was performed in some FMUs with existing groups of patients, with the intention to learn their needs and expectations with regards to the

information quality and type received by them and, in general, about their experience lived when they attended these groups. The following was identified:

- The times when the group activities are performed are not consistent with the needs of patients.
- There is a significant number of patients with visual, auditory, motor disabilities, and of other types.
- Patients who work have problems to access the group activities.
- The physical facilities are not adequate to perform the activities.
- During the medical consultation, there are many unresolved questions.
- There are problems to incorporate the family members to the groups.
- Depression and anxiety not treated in patients.
- Anxiety because the feeling of hunger cannot be controlled.
- Little motivation to work out.
- Different clinical conditions to work out.
- The inclusion of a patient that acts as the leader is considered as a possibility.
- They identify the need of assistance to their families.

The information obtained was analyzed and the substantial elements that should be considered to define an operative strategy that favors lifestyle changes of obese, overweight, hypertensive, and diabetic patients were defined.

Components of the project

The objective of the project is that obese, overweight, hypertensive, and diabetic patients change their lifestyle to achieve a better health level, through the implementation of self-help group strategy, so that the following is promoted:

- The modification of dietary habits in terms of food exchange and serving management.
- The modification of the physical activity with regards to type, frequency, and duration.
- Increase the ratio of controlled hypertensive and diabetic patients.
- Reduce the ratio of obese or overweight patients.
- Improve the psychosocial well-being of obese, overweight, hypertensive, and diabetic patients.
- Satisfaction of users through the development of the self-help group strategy.

- Satisfaction of service providers with the development of the self-help group strategy.

Premises

The project is based on six premises that sum up the substantial elements of the strategy proposed.

Self-help groups

As a result of the increase in the incidence of different chronic diseases, group work has become a cost-efficient alternative, complemented by individual interventions. The group is a practical way to communicate educational messages to sets of people who have common information needs.

Self-help groups are useful to improve the motivation of a person in the search for his/her problem solution. It is a group of people who share a single problem; some individuals act as a positive stimulus for others and everybody gets benefits from this dynamics.¹²

Self-help groups try to link and support communication among group members and the health team, in such a way that feedback is possible, experiences are shared to help overcome fears, that each member gets to know himself/herself and makes his/her own evaluation, and that stimulus is achieved and the group activity is strengthened.¹³

Besides, they also promote the possibility of collective reflection to solve shared problems, support and pressure of peers to promote change to healthier behaviors, and exchange of experiences among members with different levels of knowledge and time lived with a given disease.¹⁴

What is important of these groups is that patients go to the sessions with full conviction, that they maintain their autonomy, that they learn to be independent to the greatest extent possible, because when their self-esteem is enhanced and their support networks are identified –their family and the team–, their active participation will be reflected in their own health care.

Help groups are guided by professionals and almost always provide directions, whereas self-help groups are not made up by professionals and do not provide directions. Both types of group work are not excluding, but complementary, and they can be part of the ongoing care that favors results and the possibilities of access and self-management in the community.

The purpose of this operative strategy is to favor the social rehabilitation of the patient, so that he/she can achieve his/her development and the relationships among patients, family members and representatives of the health team are easier.

This is achieved because they all get in contact to exchange experiences, to become stronger, and to provide mutual support.

Adult education

The traditional medical model is not the most adequate one for the management of patients with chronic diseases, because patients perform 95% or more of their daily disease care, affecting each and every aspect of the life of the person who is asked to substantially modify his/her lifestyle.¹⁵

Many patients are unable or do not wish to follow the difficult, and frequently, unreal recommendations given in terms of working out and losing weight, which results in failure to comply with the medical management.¹⁶

In the activation or empowerment model,¹⁷ education is focused on the acquisition of knowledge about the clinical management of diabetes, behavioral change skills, assertiveness, and necessary communicational skills to participate in their care in an effective way, a high level of social awareness so that informed judgments can be made whether a given plan is realistic, relevant and sustainable or not.

In the detailed revision of the impact that education has on diabetes, made by Glasgow and Osteen,¹⁸ the conclusion reached is that education mainly focused on terms of knowledge transfer is totally inadequate and inconsistent with what is known about human behavior. Their suggestion is that diabetes education must not limit itself to improving knowledge and metabolic control. They have determined that “the last decade has witnessed the dramatic change of models focused on knowledge/attitude/belief to outlook based on the patient/self-efficacy/self-management, and activation, the latter focused on helping the patients to develop and improve their capacity to set up goals, to solve problems, to deal with the reality they have to live, and other skills.”

The practice is based on a methodology supported by research and by the participation where two actors interact: the patient, a family member or normal caregiver and the representative of the health team who acts as a coordinator/facilitator. The latter has to become an efficient tutor who evidences the practical importance of the issue, who knows how to focus enthusiasm on problem resolution, and who is recognized as a person with sufficient knowledge and who will make a difference.

The groups represent a rich source of consultation when all the experiences of patients are added up. This source can be explored through different methods based on personal experienced, such as the narration of the personal story and learning based on problems, among others. These activities make it possible to

share the existing knowledge some have, to reinforce the self-esteem of the group, and to facilitate the definition of individual and group objectives and goals.

It is necessary to clearly understand that physicians can become experts in the management of chronic disorders, but only patients can be the experts in the direction given to their own lives.

Management of emotions for change

Emotions frequently play an essential role in the experiences of patients who live with diabetes and are interested in taking better care of it, according to Bob Anderson and Martha Funnell.¹⁷ However, in the medical practice, emotions are frequently ignored for several reasons. These same authors state that this ignorance limits the relationships that the patient has with the health team and the effectiveness of educational interventions. Emotions can inhibit or promote the self-care behaviors.^{19, 20}

Application of the empowerment model

Based on the narration of the personal history with diabetes, the group integration is proposed and the recognition of the person as a whole, so that thanks to this knowledge goals can be set.^{12, 13}

Once patients have been able to express their emotions and experiences living with chronic diseases, and based on better knowledge of the relationships between behaviors and health results, goal setting is promoted so that knowledge is applied.^{21, 23} Group work also promotes the development of skills for problem resolution. For goal achievement to be possible, the successful solution of various problems is required, where the group knowledge and experience is essential.

Based on the fact that behavioral change seeks the attainment of new lifestyle through habit modification followed until adult age, we consider that the family participation is highly relevant to provide support and to extend these changes to other members who are also at risk.²⁴

Considering that chronic diseases demand long-lasting behavioral changes, maintenance of the advance achieved, and updating of the patient with the physician, the group is proposed in the work model as an element to maintain motivation and the support relationships focused on diabetes, looking for the development of self-management capacities of the communities and their collaboration with the health system.^{25, 27}

Nutritional aspects

Diet is a part of our daily life and a clear fact is that adequate feeding habits are one of the essential lifestyle pillars that make it possible to maintain a good health condition.

For diabetic patients, blood glucose control is a fundamental goal and an important element that delays the onset of complications and of other concomitant disorders, such as high blood pressure.

Low carbohydrate diets are not recommended in diabetes management, because they are the main contribution of post-prandial glucose concentration. Besides, carbohydrates represent an important resource of energy, vitamins, and minerals soluble in water and fiber. The National Academy of Sciences Food and Nutrition Board recommends that 13 gr per day of carbohydrates are consumed, which represents between 45 and 65% of the total daily calorie intake, because the brain and the central nervous system require glucose as an energy providing element.²⁸

Studies conducted by Allison showed that diets with high contents of carbohydrates with low glycemic index and rich in fiber can reduce the risk of type 2 diabetes onset. White bread was the food most significantly associated with diabetes incidence for its high glycemic index. Therefore, the simple change in diet of white bread for whole grain bread with high fiber content can reduce the risk of suffering type 2 diabetes.²⁹

On the other hand, studies conducted by Simin et al to identify the correlation between type 2 diabetes onset and fruit and vegetable consumption, proved that the biological mechanisms responsible of the beneficial effects of fruits and vegetables with regards to having diabetes, are multiple. Besides their low calorie contribution, high fiber content, and low glycemic index, fruits and vegetables are rich in anti-oxidant vitamins, magnesium, potassium, and vegetal proteins. In conclusion, results suggest that high intake of dark green and yellow leaf vegetables can be beneficial to prevent type 2 diabetes in overweight women.³⁰ Therefore, the recommended diet must contain approximately 55% carbohydrates, 25 fats, and 20 proteins, considering in the diet plan considerable amounts of fruits and vegetables, as well as fiber-rich foods.³¹

It is necessary to create awareness in obese, hypertensive, and diabetic patients that weight control is important for the adequate management of these disorders, because it has been proved that moderate weight losses in type 2 diabetic patients reduce hyperglycemia and the risk of developing cardiovascular diseases.

The definition of a dietary plan must also consider environmental, psychological, and social factors, which makes it necessary to visualize obesity as an un-

balance that requires a practical nutritional orientation, with a comprehensive approach on the family. Therefore, the nutritional plan must be explained to the patient, providing him/her with efficacious alternatives to concrete situations, making it easier for patients to make decisions and preventing that the dietary standards become a rigid a compulsory code.

Self-control is included as part of the self-help groups, considering the responsibility that the patient has as the main actor to follow the dietary treatment, through the identification of overweight or obesity using two practical indicators: the body mass index, and the waist girth. As part of this control, the patient must record the evolution of his/her body weight and the characteristics of the food intake with times of meals, servings of carbohydrates, proteins and fats, as well as the management of the nutritional equivalences in his/her dietary plan.

Also important is that the patient identifies the environmental circumstances associated with lack of compliance with the dietary plan associated with compulsion, hunger episodes, etc., because this will allow him/her to take actions to block these mechanisms through the stimulation of the following attitudes:

- Make three daily meals.
- Make the meals at the same time and place.
- Always eat sitting down.
- Eliminate distractions that avoid the patient from being aware of what he/she is eating in each meal.
- Use small plates.
- Assess the different level of satiety after eating each dish.
- Never take second servings.
- Eat at least 1 ml/kcal of water in hypocaloric diets.

Not less important is the social support with the direct involvement of the family member or common caregiver, who must also receive nutritional education. Besides, awareness must be created on this person about the role he/she performs as support for the compliance with the dietary plan. Likewise, the other members of the self-help group will contribute their experiences to solve the relevant and daily problems present to comply with the diet.

Physical exercise

For several decades, exercise has been considered as a cornerstone in the management of patients with diabetes or high blood pressure, along with the diet and the drug management.

The latest revision made by the American Diabetes Association³² on effects of exercise and diet on diabetic patients has shown that:

- Longitudinal clinical assays with interventions focused on modifying lifestyles of patients (diet and exercise) have identified the reduction in the incidence of type 2 diabetes in populations with disorders in the glucose tolerance curve.
- Systematic revisions that consider interventions with planned exercise in type 2 diabetes patients showed their effectiveness to improve the concentration of HbA1C, regardless of body weight, as well as its association with exercise intensity.
- Longitudinal studies showed that low levels of physical activity and aerobic capacity predict an increase, both in the risk of having cardiovascular disease and in mortality caused by diabetes.
- Clinical assays have shown the effectiveness of physical fitness with resistance (weight lifting) to improve the glycemic control in type 2 diabetes patients.
- There is recent information available about the benefits of physical fitness with resistance in population at high risk of developing cardiovascular disease.

Before starting an exercise program that considers intense physical activity or vigorous jogging, several aspects must be assessed in patients, like age, years of having diabetes and hypertension, cardiovascular risk factors, and the concomitant presence of dyslipidemia, smoking, proliferative retinopathy, peripheral vascular disease or neuropathy. These latter clinical conditions can counterindicate physical exercise so long as their control is not achieved.³³

Recent clinical trials and some longitudinal cohort studies have shown robust evidence about the value of physical activity in the reduction of type 2 diabetes incidence, as well as the risk of leading a sedentary lifestyle, such as spending too much time watching television.³⁴ Pan *et al* conducted a study to assess an intervention in the lifestyles with 577 patients who showed disorders in the glucose tolerance curve and who were included in four study groups; one was the control group; in the second one the only intervention was with the diet; the third group had to work out; and the fourth group included diet and exercise. After six years, the type 2 diabetes incidence was of 68% in the control group, 44 % in the group only with diet; 41% only with exercise, and 46% with diet and exercise. This study provides evidence that lifestyle changes, considering diet and exercise can be effective in the prevention of type 2 diabetes.³⁵

With regards to exercise frequency, the U.S. Surgeon General's recommends for the population in general the practice of exercise of moderate intensity for 30 minutes at least, ideally every day of the week. However, most of the clinical trials that study interventions with exercise in type 2 diabetic patients have shown that it is easier for patients to follow longer exercise programs three times a week than complying with daily shorter physical activity sessions.³⁶ The effect on insulin sensitivity depends on exercise intensity and duration; besides, as its effect does not last beyond 72 hours, the time recommended between one exercise session and another should not exceed this same period of time.³⁷

Most of the long-term successful programs for weight control include combinations of diet, exercise, and behavioral modifications. When the intervention considers these three aspects, weight loss can be between 9 and 13.6 kg after 20 weeks, and 60% of this weight loss is maintained until one year later. When the interventions only include physical exercise, weight loss is modest, around 2 kg.³⁸

To improve glycemic control, help maintain weight, and reduce the cardiovascular disease risk, what is recommended is at least 150 minutes a week of aerobic physical activity of moderate intensity (50 - 70% of the MHR) or at least 90 minutes a week of vigorous aerobic exercise (more than 70 % of the MHR). The physical activity must be performed at least three times a week and not two consecutive days must elapse without it.³⁹

Aerobic exercise can have some inconveniences, such as monotony, it is counterindicated in patients with peripheral neuropathy, and it is difficult for patients with severe obesity to carry it out. Training with resistance exercise can increase the muscular mass and the physical capacity; often, it causes faster changes in the functional condition and in the body composition, as compared with aerobic exercise, having the same effect in terms of insulin sensitivity improvement.⁴⁰

Due to the increase of evidence surrounding the benefits of exercise with resistance within the last 10 to 15 years, the American College of Sports Medicine (ACSM) has recommended it to be included in the training programs of healthy young people, in middle-aged adults,⁴¹ in older adults,⁴² and in adults with type 2 diabetes.⁴³ With age increase, there is greater trend in reduction of muscular mass, the functional capacity, the metabolism at rest, increase in adiposities, and increase in insulin resistance. Therefore, exercise with resistance can have positive impact on each of these issues.⁴²

The American Diabetes Association suggests that physical activity must be avoided in patients with glucose levels higher than 250 mg/dl with presence of ketosis, and that they must be made with caution when there are figures of 300 mg/dl, without ketosis,⁴⁴ which probably represents caution rather than an indication in type 2 diabetes patients.

Multiple benefits have been seen in patients who incorporate physical exercise as part of their daily activities and who maintain it throughout time. Worth of mention is the reduction of long-term complications, such as acute myocardial infarction, and increase in life expectancy. Physical exercise has a direct effect to reduce the blood pressure figures, improve the metabolic functioning, reduce the glucose figures, and contribute to weight loss, all these aspects convenient in these patients. On the other hand, there is evidence about increase in self-esteem of patients, which also improves their mood. Likewise, it is also interesting to mention that exercise practices in accordance with the guidelines recommended reduces fatigue and helps to sleep better.⁴⁵

Ten actions that can be performed to overcome the obstacles observed when there is the intention to start a physical exercise program:

1. Motivation: convince through understanding and emotions.
2. Propose real, concrete, and short-term goals.
3. Prepare a defined working plan (make an individual prescription).
4. Make appointment with the patient for periodic and frequent follow-up of his/her advance.
5. Identify and recommend pleasant activities.
6. Integrate the family in the activity.
7. Understand the circumstances and points of view of the patient (empathy).
8. Find together solutions to specific problems.
9. Keep a written record of personal progress.
10. Provide feedback on progress, goal attainment, stressing the satisfaction for the goals achieved.

During the exercise dynamics, certain signs or symptoms of alarm can occur, such as the presence of excessive fatigue, chest pain or dizziness, among others, which must be considered by the physical instructor for their attention. Obviously, this must be communicated to the patients.

Clinical aspects

A well-known fact is that growing urbanization and economic development produce changes in living conditions and lifestyles. These changes can generate diet modifications and in the physical activity patterns of the population, thus increasing the risk of obesity and other chronic degenerative diseases, such as diabetes mellitus and high blood pressure. We must also consider that scientific and technological advances have made it possible to increase life expectancy in these patients.

The usual process is that, before any other member of the health team, the Family Physician establishes the first contact with overweight, obese, hypertensive, and diabetic patients to receive attention in the medical units. Therefore, it is his/her responsibility to give recommendations and advise related to the clinical aspects, diet and physical exercise, which have become essential elements in comprehensive medical management. There are certain topics that are not discussed and that have to do with side or undesirable effects of the medications taken or given to patients for their disease control, as well as others associated with the family functionality, sexual activity disorders, and the couple relationship. These topics are seldom discussed for reason of cultural, religious, and social aspects. This lack of information often results in treatment discontinuation or irregularity in following it.

The cultural, religious, and social aspects tend to be a communication barrier and patients do not clarify their questions about topics related to functionality. Based on this, we consider that:

- The information received by patients with these diseases is heterogeneous and depends on the knowledge of the health professional and on his/her capacity to explain it.
- The language used to communicate the clinical aspects to patients tends to be highly technical, resulting sometimes in confusion. Consequently, patients resort to non-medical options that offer them the hope to be cured.
- The information we offer is that which we, as health professionals, consider they need, without identifying whether patients are interested in it.

In the United States of America (USA), reference is made in the literature to the fact that most of the patients with chronic diseases do not receive an adequate or effective management. Therefore, they have poor control of their disease.⁴⁶ For involvement in self-help groups, before giving information or training about what the working group considered relevant for patients with these diseases, work was performed to identify the most frequent questions and thus present the clinical aspects in a clear, simple, and concrete way to avoid confusion or rejection for cultural or religious aspects. In this way, there could be the possibility to open communications and approach and clarify all types of questions and awaken the personal and family interest for the adequate disease control.

In the approach of diabetes mellitus with patients of the self-help groups, we take into account that this disease represents a heterogeneous group of metabolic disorders characterized by chronic hyperglycemia, the result of defects in the secretion or in the action of insulin, or both. In the long run, this situation produces chronic complications in different organs and tissues.⁴⁷

Something worth of mention is that the Expert Committee on Diabetes Diagnosis and Classification in the USA considers 126 mg/dl (7.0 mmol/l) as the maximum glycemic value after a fasting night. A value between 110 and under 126 mg/dl of glycemia indicates glucose intolerance. The values considered normal are those under 110 mg/dl.^{48, 49} However, for the self-help group strategy at IMSS, we consider that levels < 140 mg /dl (7.8 mmol/l), as was indicated by this Committee in 1997, can be the first goal to be reached.

Obesity is defined as a multifactorial disease in terms of its etiology, characterized by the excessive storage of fatty tissue in the body, accompanied by metabolic disorders that condition the occurrence of conditions that degrade the health status. Considering its magnitude and significance, in Mexico it is considered a public health problem.⁵⁰

Although excessive weight is identified as a pre-morbid condition, it will be considered in the self-help groups, because just as obesity, it conditions people to develop insulin resistance, type 2 diabetes, high blood pressure, dyslipidemias, and some cancer types more frequently (WHO).

The NOM -174-SSA1-1998 determines that adults are obese when they have a BMI higher than 27 and in short height population (adult woman less than 1.50 m high and adult man less than 1.60 m) higher than 25.50.

For effects of this strategy, the working group considers the WHO classification in the following way: low weight with BMI < than 18.9; normal, BMI from 19 to 24.9; overweight, BMI from 25.0 to 29.9; obesity I, BMI from 30.0 to 34.9; obesity II, BMI from 35.0 to 39.9; obesity III, BMI > than 40.

The high blood pressure classification, according to the Seventh Report of the Joint National Committee, on prevention, detection, evaluation, and treatment,⁵¹ includes:

BP classification	Systolic BP (mmHg)	Diastolic BP (mmHg)	Lifestyle modification
Normal	<120	< 80	Encouraging
Pre-hypertension	120 to 139	80 to 89	Yes
Stage I hypertension	140 to 159	90 to 99	Yes
Stage 2 hypertension	≥160	≥100	Yes

For patients with high blood pressure who join the self-help groups, the goal to be reached are figures under 140 mmHg for systolic pressure and 90 mmHg for diastolic pressure, besides seeking positive impact on risk factors, such as smoking, obesity, lack of physical activity, among others.

The information given to patients in the self-help groups will enable them to know:

- What their disease is.
- What the main symptoms are.
- What the normal values are and the clinical control goal to be reached.
- The importance of practicing physical activity and following an adequate diet.
- That diabetes mellitus and high blood pressure are diseases that are controlled but not cured.
- That overweight and obesity are diseases that can be cured.
- That lack of control of the disease can disrupt their sexual function.
- That complications arise when there is not a good control of the disease.
- That good discipline in the pharmacological treatment and changes in lifestyle make it possible to lead a normal life and delay complications.
- That the involvement of the family is important, and particularly, that control is in their hands.

Mention must also be made that countries with highly recognized health systems recommend to offer the greatest amount possible of information to patients with diabetes and high blood pressure, in the understanding that the more they know about these disorders, the better they will understand the way to identify signs of alarm. However, for the development of this strategy, we consider convenient and reasonable to deal with and provide clear and accurate answers to the most common questions asked by our patients, so that this information enables them to make better decisions.

Strategy of self-help groups

Some of the characteristics of the strategy of self-help groups are to respond to the needs of patients, be based on adult education technique, provide uniform information to patients, optimization of the work of the health team in the FMUs, and that their operative design makes their application feasible.

The patients included in these groups are those with clinical lack of control; diabetic patients with glycemia over 140 mg/dl, hypertensive patients with BP over 140/90 mmHg, and second and third degree obese patients in the FMUs that have 10 medical offices or more. The clinically controlled patients are referred to the Social Service Units, where educational, recreational, and physical exercise activities are performed.

The groups are made up by 10 to 15 patients. A lower number does not make it possible to optimize the health team work and a higher number hinders the dynamics followed during the sessions scheduled. In the case of patients who have a job and cannot attend the sessions, or of patients with auditory, motor, visual disabilities, a family member or the usual caregiver who supports them in their medical control and in change of habits is included.

A member of the health team, preferably the social worker, will act as the coordinator /facilitator within the dynamics of the self-help groups, with some relevant activities like:

- Coordinate the activities during each group session.
- Strengthen and support the leading patient in the coordination and direction activities with his/her group colleagues.
- Identify the patients who do not follow their diet and set an appointment with the nutritionist/ dietitian for individual attention.
- Report the results of the evaluations made in the self-help group to the different entities.
- Act as the permanent link with the leading patient and the other members of the health team for problem resolution.

In addition to the activities performed in the self-help group, the patients continue with their periodic control with their family physician, who must reinforce the information provided during the group sessions.

Leading patient

The leading patient is a key player to achieve good results in the strategy of the self-help groups, because his/her role is to direct the group, be the facilitator of activities, and be responsible of the group work continuity, after the four working sessions in the FMU are completed. Therefore, it is very important that the health team representative strengthens him/her during the development of the self-help group strategy, in such a way that he/she is recognized by the group members as the person who will support them to achieve their goals.

The patient is appointed by the self-help group members in the second working session, and from that moment on, he/she becomes the contact with the health team representative responsible of the activity organization. At the end of the fourth session, the leader will have a program of activities to be performed with his/her group members for the next months, before they are called again in the FMU for their follow-up and control session.

Working sessions

The self-help group strategy in the first stage consists of four weekly sessions with an approximate duration of two hours each. Their development considers short periods of time for video projection that support the information provided and time for the development of group activities that strengthen the contents presented in the videos.

The purpose of this work dynamics with the groups is to provide uniform information to patients and to provide the health team representative with the necessary elements to lead the groups and thus optimize the work of the other health team members. In this way, if any of them is not available, the information can be provided during the session and then the patient can go to his/her individual consultation.

First session

The first session is focused on promoting self-analysis that the patient must perform, considering the emotions involved in the decisions made, and on providing also the tools that allow him/her to define objectives to establish the clinical control goal. The topic of this session is based on:

- Handling of emotions for the decisions made
- Presentation of the personal history of each group member
- Goal setting
- Problem resolution
- Importance of family support
- The role of the health team
- Continuity of the group work in an autonomous way

The session has four capsules that will be used at the choice of the health team representative, in accordance with the characteristics of the self-help group members so that the development of the group dynamics is eventually facilitated through the presentation of the experiences of patients and/or their family members.

Second session

The intention in this session is to train the patient in his/her overweight or obesity self-diagnosis as clinical entities precursors of diabetes and high blood pressure,

so that later on he/she knows the technical elements that influence on the definition of a nutritional plan, without neglecting the recommendations that lead him/her to achieve the control of hunger feelings, which was one of the problems frequently identified during the interviews conducted to these patients and that prevents them from following the nutritional plan defined by each of them. The contents are:

- Management of nutritional foundations
- Menu preparation in accordance with the likes, habits, foods of the region, and nutritional needs
- Messages focused on how to eat everything in a delicious way
- How to manage food groups
- Recommendations for the management of hunger
- The importance of good nutrition applied to the family

The session consists of four video capsules. After they are shown, the corresponding workshop is carried out with the group members. At the end of the session, the leading patient of the group is appointed.

Third session

This session is focused on providing the patient with substantial information associated with the effects of exercise, clinical conditions when it is counterindicated, exercise routines recommended, and advise to practice it in a safe way. The contents of this session are:

- The effects of exercise on the disease control
- The benefits of exercise on the control of hunger feelings
- Visual routines of exercise plans
- Physical and clinical conditions to practice exercise
- Recommendations to solve the main problems that prevent exercise from being practiced

The session considers the projection of four video capsules and after each of them, a specific group dynamics is defined. Besides, some exercise routines are practiced.

Fourth session

Its objective is to provide the patient or family member included in the self-help group with substantial and clear clinical information concerning the clinical aspects of the disease, the responsibility that the patient has on the disorder control, and the health team activities to support him/her in goal achievement. The topics covered are:

- Epidemiological overview of diabetes, hypertension, and obesity
- Basic clinical aspects of each disorder
- Activities of the health personnel for the comprehensive care of patients
- Substantial and clear medical contents
- Answers to frequently asked questions by patients
- Active involvement of the patient and his/her family in self-care
- Clinical control figures as goal

The session consists of two video capsules. After each of them is shown, there is a question and answer session, and the session concludes when the leading patient prepares the activity plan for the following months with his/her self-help group members, outside the facilities of the medical unit.

Follow-up sessions

After the four sessions described above are completed, the self-help group members get together every three months for the development of the following activities:

- Evaluation of weight, blood pressure, glycemia, cholesterol, and tryglycerides of patients, depending on their disease.
- Evaluation of individual and group goal attainment.
- Group dynamics so that successful patients share their experiences, as well as those who did not achieve their clinical control, who will mention the difficulties encountered.
- Definition of individual and group commitments to achieve the goals established for the next quarterly meeting.
- The health team representative identifies the patients who require individual support from the other health team members and makes the necessary arrangements for their attention.

Evaluation

The approach of the evaluation program of the project is oriented to measure the changes expected in lifestyles associated with the psychosocial well being, nutrition, and physical activity, as well as the acceptance level of the self-help group strategy by patients and the health personnel of the FMUs. The indicators that must be taken into account for the evaluation are:

- Attendance frequency to the activities scheduled in the strategy.
- Degree of continuity of the group activities under the direction of the leading patient.
- Level of modification of dietary habits with regards to food exchange and serving management.
- Level of modification of physical activity with regards to the type, frequency, and duration of the physical activity.
- Percentage of hypertensive patients controlled (BP under 140/90 mmHg).
- Percentage of diabetic patients controlled (glycemia under 140 mg/dl)
- Percentage of obese patients who reduced their BMI and are rated as overweight patients.
- Percentage of overweight patients who reduced their BMI and are rated as patients with adequate weight.
- Level of psychosocial well being of obese, overweight, hypertensive, and diabetic patients.
- Level of satisfaction of users with the development of the self-help group strategy.
- Level of satisfaction of the service providers with the development of the self-help group strategy.

The baseline evaluation will be conducted before the strategy is implemented and measurements of all the above-mentioned indicators will continue at three, six, nine, and 12 months.

Future outlook

A clear fact is that obesity and overweight epidemics is increasing, as well as their close relationship with disorders like diabetes and high blood pressure. Therefore, the definition of health programs that consider a comprehensive approach of the problem through different strategies is required.

The comparison between similar race groups with different disease prevalence stresses the predominance of psychosocial factors over genetic factors, and

stresses the contradictions of a society that induces bad lifestyle habits to then condemn them.⁵²

The strategy of self-help groups for obese, overweight, hypertensive, and diabetic patients attempts to carry out feasible actions that favor changes in the lifestyle of these patients, based on adult education programs and psychosocial approach, with the optimization of the institutional resources. At the same time, in its design the importance of developing the patients within a group that strengthened them through the exchange of experiences of its members was considered, supported by a representative of the health team and a patient with the same needs and experiences, who is promoted as the group leader, to achieve the continuity of the group work outside the medical facilities, in a different place chosen by the group itself.

The operative development of the strategy depends not only on the integral conception and design, but also on the commitment and the technical capacity of the social worker as the group responsible, as well as on the leadership role exercised by the patient who has been chosen as the leader.

Upon the implementation of the self-help group strategy, plans are to train at least one social worker for each FMU of 10 medical offices or more. This means the participation of approximately 220 social workers, who are responsible of the operation of the groups in terms of their creation, development, and follow-up. In this same process, the delegational teams are included, who will be responsible of the strategy dissemination to the other health team members of the Family Medicine Units and of training the social workers who were not included in this first training stage.

Derived from the evaluation results, the relevant adaptations will be made to increase the operative feasibility of the self-help groups and extend the project to the FMUs with less than 10 medical offices.

The intention to modify the natural history of these disorders poses a truly difficult scenario, less for certain patients in particular than for public health in general.

Only those who have the discipline, education, and resources can lead their lives with successful diabetes. This positions diabetes as a social problem of the developing countries and an economic problem of poor families.⁵²

A clear fact is that overweight, obesity, high blood pressure, and diabetes are a group of diseases that represent the expression of many social variables, that foster the manifestation of genetic predispositions and the biological changes they can produce. Therefore, plans and programs directed to changing lifestyles, not only of a group of patients but of the families and of the entire population as a whole are required.

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Rehabilitation Services in Family Medicine Units

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Introduction

Around 600 million people live with different types of disability; 80% of this population lives in low income countries with limitations in access to basic health care and rehabilitation services. This figure is increasing due to multiple factors such as war wounds, ground mines, HIV/AIDS, malnutrition, chronic diseases, occupational risk, drug abuse, accidents, deterioration of the environment, population growth and, paradoxically, medical progresses that prolong life. This last situation has also increased the demand of rehabilitation services.

Several international organizations such as the World Health Organization (WHO) and the United Nations have issued recommendation on policies aimed at ensuring equality of opportunities and promotion of people's human rights for disabled persons, especially the poor ones. Health, education, work and social participation directives have also been defined.

At both national and international levels the attention put on disability and rehabilitation topics has been evident. In our country, the epidemiological transition has created the need for health services to study not only the health impacts from a biological stand point, but also the social, legal, ethical and economic significance of disability on individuals, their families and society.

The perception of disability as a social phenomenon that may be studied from different private and governmental approaches has created a need for statistical information inputs to support the planning, programming and decision making processes.

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From international efforts coordinated by WHO, we are familiar with some characteristics of disability worldwide. For example, there has been a direct age-related increase in the prevalence of disability; in contrast to urban areas, disability is predominant in rural areas; service provision to this population is mostly offered by the government and its coverage is generally insufficient. WHO estimated in the 1990's that approximately 10% of the world's population is afflicted by some type of disability.

The Mexican Institute of Social Security (IMSS, for its abbreviation in Spanish) also provides health care and rehabilitation services to disabled patients as part of its continuous medical care. IMSS had 105 rehabilitation services in secondary and tertiary care levels in 2002. That same year, an analysis of the Institute's existing rehabilitation services was conducted, which reflected the need to increase the offer of these services. At the same time, the analysis identified the need to improve the access and quality of rehabilitation services.

This chapter presents the situation of rehabilitation services at IMSS and the proposal –under the Family Medicine Improvement Process (FMIP) framework of activities– set up to respond to this problem. It also describes the organizational design of the new Family Medicine Units' (FMUs) rehabilitation services, the project's main processes and procedures, including the drawing up of clinical practice guidelines and family practitioners training program. Lastly, it sets out the evaluation strategy to measure the impact of these services.

Rehabilitation Services from the perspective of the Family Medicine Improvement Process

The FMIP is directed towards the enhancement of primary health care quality and performance. Its basic premise is the integrated health care that includes preventive, curative and rehabilitation care. Integrated health care is defined as the timely attention and satisfaction –through a technically correct sequence– of the beneficiary population's health needs and expectations, and the active participation of families and proper articulation of health services.

The integrated rehabilitation care of people with disabilities requires the continuous and coordinated work of a multidisciplinary team responsible for carrying out diagnostic and therapeutic actions. The main objectives of this integrated rehabilitation care is to limit damage and recover individuals' function in such way that they be re-incorporated to their family, labor and social environments.

FMUs must put into practice actions for the detection, prevention and management of disabilities. A significant percentage of consultation motives in these units demand rehabilitation.

The main family medicine rehabilitation actions are presented below.

1. Attention to occupational risks. In the year 2001, the most frequent occupational accidents were injuries to the wrists, hands, lumbar region, feet and ankles. They sum up 70% of all cases. Most of these injuries are managed at the primary care level, and from a clinical stand point, rehabilitation can start at FMUs.
2. Rehabilitation services in chronic-degenerative conditions and other motives of medical care. High blood pressure, diabetes mellitus, pregnancy, arthrosis, arthritis, lumbago, traumatic injuries to wrists, hands, lower limbs and neck are among the most frequent causes of medical care demand at FMUs' outpatient services.

Chronic-degenerative diseases, such as diabetes mellitus and high blood pressure, require preventive measures, physical condition programs and therapeutic exercise programs.

In bone and joint associated conditions, the implementation of specific medical attention and the adequate prescription criteria for joint mobilization will reduce complications and will facilitate functional recovery in shorter periods of time.

Posture defects and misuse of body mechanics, especially of the cervical and lumbar regions, constitute two of the main motives for medical consultation; therefore, a proper posture-hygiene program and correct weight-bearing management should contribute to the prevention of these conditions, the avoidance of relapses and the prompt recovery of the patient.

In pediatric departments, timely identification of alarming neural damage signs in those children that experience risk factors at birth is the basis for the prescription of early psycho-motor stimulation, which will contribute to a proper and free-of-delays growth and development.

Objective

Design and implementation of rehabilitation services in FMUs so that services may be provided with quality and timeliness.

Methodology

Design of rehabilitation services

A group of rehabilitation and occupational health specialists, orthopedists, traumatologists, heads of physical and rehabilitation medicine units, heads of family medicine units and health systems researchers was formed. This group determined the structure (including personnel, architectural and equipping), the motives for rehabilitation consultation that may be attended by family medicine, the clinical practice guidelines and the information and evaluation of service systems.

Location of rehabilitation services

The delegations with the highest demand for rehabilitation services were analyzed. These services were determined to be instrumented throughout the country. Table I describes the delegations and locations where the services will be installed.

Description of the rehabilitation services

Family medicine rehabilitation services are aimed at providing timely care to low complexity diseases that may be resolved in the short term and with the technology available in FMUs. The functions of FMUs' rehabilitation services are as follow:

- Prevention of impairments, functional limitations or disabilities caused by physical, sensorial or mental limitations.
- To early and integral detection, evaluation and diagnosis of disabling processes caused by the diseases included in the therapeutic-diagnostic guides.
- Prescription, direction, supervision and evaluation of programs and procedures used in the adaptation and re-adaptation of people with limitations with the purpose of restoring or re-establishing their functions and contributing to their psychological and social recovery.

Rehabilitation services include: a) personnel and functions; b) medical care processes; c) equipping; and d) architectonic-medical model.

Rehabilitation services' health personnel is composed of:

Table I
Delegations and localities with rehabilitation services.
Mexican Institute of Social Security

State	Locality
Aguascalientes	Aguascalientes
Baja California	Tijuana M. Otay
Baja California Sur	La Paz
Campeche	Ciudad del Carmen
Chiapas	Tuxtla Gutiérrez
Chihuahua	Chihuahua
	Ciudad Juárez
Distrito Federal	Azcapotzalco
	Cabeza de Juárez
	Cuajimalpa
	Iztapalapa
	La Teja
Estado de México	Chalco
	Higuera
	Metepec
	Tequesquahuac
	Atizapán
	Villa de las flores
Guanajuato	León
Jalisco	Guadalajara
Michoacán	Morelia
Nayarit	Tepic
Nuevo León	Garza García
	Monterrey (2)
Querétaro	Tintero
Puebla	Puebla
San Luis Potosí	San Luis Potosí
Sonora	Hermosillo
Veracruz	Veracruz
Tabasco	Cárdenas
Quintana Roo	Cancún

- 1 physician specialized in rehabilitation medicine
- 4 physiotherapists
- 1 registered nurse
- 1 social worker
- 2 office assistants
- 1 maintenance person (janitor)

Functions of the rehabilitation services' personnel

Physician specialized in rehabilitation medicine. This specialist is responsible for the care of people with some type of limitation, disability or inability in order to help them cope with and adapt to the demands of their surrounding setting. Following are the main functions of this professional:

- Direct and coordinate the rehabilitation team.
- Provide medical attention.
- Perform an integral examination of the patient in order to make a diagnosis and determine a prognosis from a medical perspective and with the view of reintegrating the patient to his/her social and labor environment.
- Prescribe the rehabilitation treatment plan.
- Evaluate the evolution of patients seen at the service and prepare their discharge.
- Encourage the disabled person to work and perform their maximum productive functionality according to their physical and psychological capacities.
- Provide guidance to the disabled person on the diversity of common activities they may perform in their environment so as to integrate them from a social, family and labor perspective.
- Formulate rehabilitation programs for patients to perform at their own household.
- Carry out the follow-up of cases.
- Refer the patients to necessary services, including social benefits.
- Counter-refer patients being discharged from the rehabilitation service to the family medicine and occupational health services with prescriptions and specific recommendations.

Physiotherapist. This professional studies the physical demands throughout individuals' life stages: childhood, adolescence, adult life and old age. Through careful assessment, guidance is provided to patients with regard to their physical,

psychological, family and social capabilities. The physiotherapist has the following functions:

- Evaluate the disabled person to establish, after considering the biological, psychological, family and social features, the capacities that will allow them to perform activities.
- Apply a therapeutic plan in a logical sequence in order to achieve improvement of their performance.
- Encourage the disabled person to work and achieve a maximum productive functionality according to their physical and psychological capacities.
- Reduce the distance between incapacity and capacity to perform an optimal functioning level that will give them independence and autonomy.
- Determine the physical condition of the disabled person and their ability to adapt to the current situation in a competent manner.
- Foster quality-of-life improvements in the disabled person.
- Train patients with disabilities through the implementation of walking programs, the use of prosthesis and orthosis or functional aids in order to achieve independence and autonomy.
- Formulate rehabilitation programs for patients to perform at their own household.

Registered nurse. The nursing process seeks to satisfy patients' needs. It includes four basic components:

- Initial evaluation of the patient.
- Planning of patients' medical attention.
- Execution of plan.
- Evaluation of the plan's efficacy.

This process requires nurses to make a nursing diagnosis; to define priorities, which have to be determined in conjunction with the patient and their relatives; to establish actions to attain the immediate objectives; to define expected results within the term period determined, which have to be expressed in terms of patients' behavior; and finally, to evaluate results through which the effectiveness of the process is measured.

An active participation of the disabled person is an essential element of the nursing process, since the objectives set out are based on patients' capacities. Another aspect that should not be neglected is patients' feelings of belonging to families and communities, where they have roles and duties to perform.

In rehabilitation, nursing actions start the moment that the first contact is established with the patient, and they are aimed at:

- Preventing complications.
- Promoting and teaching patients and their families to become and maintain independence.
- Facilitating patients' reintegration to their social environment.

Social worker. Throughout the process of rehabilitation, it is essential for social workers to become acquainted with patients' social environment; to identify their thoughts, feelings and hopes; their limitations and capacities; their role and their expectations. This will allow them to identify to what extent social conditions favor or hinder patients' reintegration.

As members of the interdisciplinary rehabilitation team, social workers are in charge of conducting socio-family studies and evaluations; of detecting, learning about and attending the social-in-nature problems that interfere with an integral rehabilitation; of identifying social lacks and social needs that have an impact on their medical treatment; of knowing patients' family structures and dynamics, their life styles, education and economic levels. Likewise, these professionals have to be acquainted with the civil society's rehabilitation-process related institutions and organizations.

All of the above will facilitate the diagnosis process, the identification of possible resources to reintegrate patients to their socio-family settings and the establishment of social treatment.

Social workers should recognize family participation as an essential element. Integrated and organized families have a higher likelihood of facing crisis in an adequate manner and of facilitating the rehabilitation process. The following are these professionals' functions within the team:

- Conduct research and make socio-family diagnosis.
- Interpret and analyze diagnosis with the team.
- Attend social problems interfering with an integral rehabilitation. This implies helping patients in their becoming familiar with and accepting their disease.
- Promote training in rehabilitation of patients and their families.
- Identify with patients and their families the medical, social and welfare resources that may provide support during their treatment.
- Administer the welfare and social attention programs aimed at disabled persons.
- Participate in the rehabilitation team during the implementation of prevention programs.

- Participate in the rehabilitation actions results evaluation process.
- Participate in the qualification of patients according to the International Classification of Health Functionality and Disability (FIC).

Equipment specifications

The equipment list includes the following inputs:

- Rolling equipment
- Consultation offices
- Electrotherapy
- Cervical traction
- Paraffin and dressings
- Mechanotherapy

Clinical practice guidelines

Consensus meetings through workshops with management level personnel directly involved in patient health care were held to define the first 10 motives for healthcare at FMUs susceptible of providing short-term rehabilitation. Ten clinical practice guidelines were drawn up using the evidence-based medicine methodology with the purpose of unifying diagnostic and treatment criteria.

These guidelines address: lumbar pain syndrome, hand trauma, hip osteoarthritis, knee osteoarthrosis, facial palsy, radius distal-third-fracture sequela (Colles fracture); cervical sprains, ankle sprains, neural damage detection in children under age two, and prevention of falls in the elderly.

Diffusion and training

Diffusion is directed mainly to directives and IMSS health personnel, whereas training is mostly focused on family practitioners, health personnel with direct relation with rehabilitation services and the new personnel to be integrated to the services. Table II describes the diffusion and training components of the program.

Ten videos corresponding to the clinical practice guidelines were formulated. This material will be used to support the training program. The FMUs rehabilitation services must continuously and coordinately interact with the following services: outpatient, emergency, occupational health and social work; it must also interact with rehabilitation services of secondary and tertiary level hospitals, as well as the social benefits operational units.

Table II
Diffusion and training in rehabilitation services.
Mexican Institute of Social Security

Teachers	Participants	Topic
Central level: members of the working team	Directors of Family Medicine Units, delegation directives and regional authorities	Sensitization for the implementation and operation of the rehabilitation program at the primary care level
Physician specialized in rehabilitation	Rehabilitation services health team; heads of family medicine, family practitioners, full-time emergency room physicians; social benefits	Rehabilitation care processes, utilization of clinical practice guidelines and videos
Physiotherapist	Rehabilitation service therapists	Care processes and utilization of clinical practice guidelines and videos
Registered nurse	Rehabilitation service nurses	Care processes and utilization of clinical practice guidelines and videos
Social worker	Family medicine units social workers and social-reference benefits operative units	Care processes and utilization of clinical practice guidelines and videos

Information system

IMSS is modernizing and implementing a health information system and a technology platform to respond to institutional needs. It is essential to rely on statistical information to obtain an actual overview of the characteristics of the growing population and its needs. FMUs rehabilitation services will have a Rehabilitation Information Subsystem which during the first stage will collect the information of these services. This model is intended to be useful at the Institute's three health care levels.

The system has a nominal registry per patient that includes different variables, such as: type, nature and time of disability; socio-demographic information –education level, for instance–, social reintegration, patients' participatory characteristics and social setting in which he/she works or carries out activities. This information will allow an estimation of the number of years lost due to premature death and disability.

The rehabilitation information subsystem is integrated by several elements that facilitate the identification of the disability features in terms of their nature, cause, type, temporality, severity, results of attention, i.e. the conditions in which patients are discharged after medical attention and their re-incorporation to their usual social role.

The information produced by IMSS through this registry integrates both the national and international classifications in the subject of disability and rehabilitation, so that these classifications may be congruent with the health sector information systems nationwide.

The International Classification of Functioning, Disability and Health was incorporated in the System. This Classification is one of WHO's family of classifications and it is at the same level as the ICD-10. It will provide with an integral overview of the disability repercussions, health status and environments of people with and without disabilities.

Evaluation

The evaluation of rehabilitation services comprises its four aspects of performance:

1. Access to rehabilitation services by users, including acceptance and satisfaction.
2. Technical competence regarding the proper use of clinical practice guidelines on the specified diseases. This evaluation will include the proper application of reference criteria from family medicine outpatient service to local rehabilitation services.
3. Effectiveness of rehabilitation services measured according to timeliness, expected solving capacity and impact on reducing the demand for secondary and tertiary level rehabilitation care.
4. Rehabilitation services cost-effectiveness, particularly with regard to the care provided to beneficiaries attended for occupational accidents. The evaluation criteria will include impact on care costs and impact on duration of disability (health results and sequela).

For evaluation purposes, the following strategies will be used:

At the managerial level:

- Design information and evaluation systems
- Drawing up of evaluation instruments

- Documentary periodical analysis and evaluation (quarterly is proposed) of the actions put into practice and the impact obtained with the implementation of a program.
- Periodical reports on the results and impacts obtained addressed to the corresponding regulatory and operative levels.
- Evaluation and advisory to selected personnel, through supervision and evaluation visits to participant's units, for the development of the program at the national level.
- Diffusion of results and feedback to the participating areas.

At the operative level:

- Diffusion and coordination of the program development at participating units.
- Supervision of program progress.
- Evaluation of program's goals compliance progress.
- Evaluation of users' satisfaction, acceptance and access.
- Evaluation of health personnel's technical competence.
- Evaluation of rehabilitation services performance.

Expected benefits

The expected benefits of the rehabilitation process are in two directions: the patients and the institution. With regard to patients, an improvement in accessibility, service timeliness and effectiveness is expected. Effectiveness is measured through the prevention of irreversible sequela, recovery of functionality and improvement in quality of life.

With regard to the institution, the expectations are: an improvement of services reflected in positive cost-benefit ratios resulting from a reduction of temporary leave of absence days, reduction of average costs spent on the item of leave of absence, and a care-costs reduction in general.

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Evaluation of the Family Medicine Improvement Process

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Introduction

One of the elements of the Family Medicine Improvement Process (FMIP) is the introduction of tools that allow physicians to improve their clinical practice.

Often times the volume of patients that physicians have to attend makes them perform some process in a routinely and rapid manner, thus neglecting basic aspects that are essential for a good health care.

It is unquestionable that many aspects need to be changed, from the patient-doctor interactions to the technical-medical management of medical conditions that afflict the population under the care of the institutional health system.

The purpose of this chapter is to present an evaluation of the results derived from the implementation of the FMIP. Since these multiple implementation interventions have been carried out in stages, this chapter focuses on the evaluation of those interventions with the highest degree of progress. It also concentrates on those units where an appropriate period of time has elapsed after the training process and standardization activities may be put in practice. These units have adequate information for an objective evaluation and the interventions on which a result evaluation will be performed are the implementation of the electronic file and the technical-medical training.

The technical-medical training for the FMIP includes 12 motives for consultation at primary care level services for chronic and acute diseases, and also of a prevention nature. However, in this chapter the training process is described through the use of scientific-evidence-based clinical practice guidelines, management of six conditions where starting and final evaluations are available. Also described here are the costs of implementation of this part of the FMIP, the evaluation of adherence to guidelines through the use of basic indicators for each

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condition and the implementation and use of the electronic file and the Family Medicine Information System (FMIS).

This preliminary evaluation is centered in the compliance of basic actions, whether diagnostic or therapeutic for each one of the six entities under evaluation. The result measures are the rates of use of the FMIP and the rates of adherence to evidence-based indicators for the management of patients with the conditions under study.

Electronic file and family medicine information system: evaluation of the rate of use

The electronic file is a fundamental element of the family medicine improvement process. The purposes of setting up this electronic clinical file/medical record for all the population affiliated to the Mexican Institute of Social Security (IMSS for its abbreviation in Spanish) were, on the one hand, to increase the quality of the medical record, as well as strengthening integrated health care by preserving the principles of availability, integrity and confidentiality, and on the other, to facilitate the flow of information among all the levels of medical care, as well as counting with useful information for scientific research and decision-making. The need to maintain a flow of updated information and knowledge has been considered in the international literature.^{1,2}

In this sense, IMSS, in coordination with the Office for Governmental Innovation of the Presidency of Mexico, the Ministry of Health and the e-Mexico Program, decided in 1998 to incorporate a patient electronic file where all the information on the affiliated patients' medical events will be available on line in each medical unit of the Institute.

The advantages of this new tool are: higher availability of information (24 hours); homogeneity, order and more transparency of medical information inside IMSS; better management, administration and safety of information in the hands of the physicians requesting for it.

It should be noted that the electronic file is inseparable of the FMIS, which is aimed at implementing a model in the primary health care level of IMSS that will enable the recollection, storing and use of information generated in the Family Medicine Units (FMU), to later integrate it to each patient's electronic file. In like manner, this novel system will provide physicians with an effective tool that will facilitate their job and reduce the use of resources inside the institution. An example of the latter can be seen in the primary health care level's in-advance/forehand telephone appointments, with which the long waiting queues at outpatient-services were reduced.

The FMIS is integrated by the following modules: appointment book, integral attention, integrated health programs, stomatology and diagnostic auxiliary services. One of the advantages of this system is the support to the integral approach of medical care that enables service providers to have immediate and timely information (health care to the population who is entitled to receive the service; real-time knowledge of drug stocks and supply in each unit).

Family medicine information system and electronic file results

In the year 2003, 429 369 consults were offered where the FMIS and electronic files were used. The use of this new information system represented an average of 7.9% rate of use in all IMSS nationwide delegations. These consults were offered and recorded by the FMIS over the total number of consults given during that same period in the units participating in this process of family medicine improvement. The regions where the System was most often used were: West region (37.1%), followed by Center Region (29.5%), North region (28%) and finally, South region (4.8%).

During 2004, there were 10 219 141 medical consults given in the 296 FMU participating in the program using the FMIS and the electronic file. This represented a rate of use of 34.2%; that is, the number of medical consults to the beneficiary population using this new System increased 2000%. This evidences how quickly the program was implemented in the FMUs during the second year of operation of the FMIS and electronic file. In the same year, the highest number of electronic file accesses was recorded in the West region (31.5%), followed by the Center region (30.2%), North region (27.8%) and South region (10.5%).

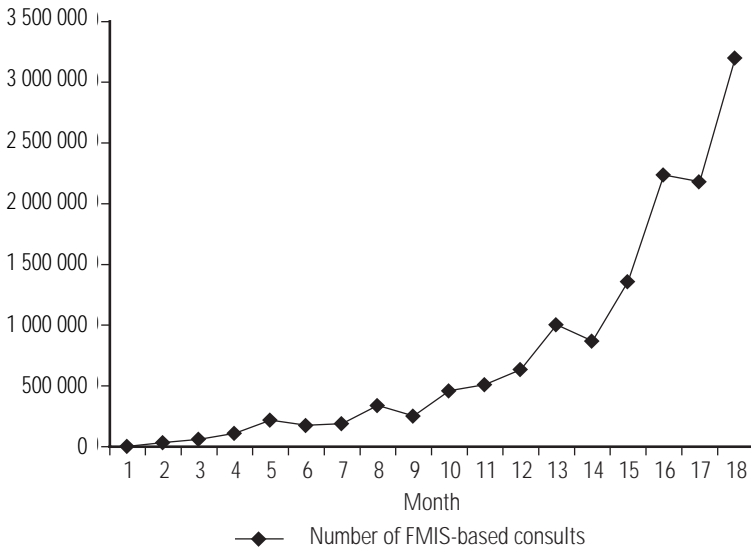
Figure 1 shows the sustained increase of FMIS-based consults during the first 18 month period of the program (August 2003 / January 2005). An exponential increase in the number of consults that accessed this System was also observed.

Figure 2 also shows the increase in the rate of use during this 18 month period (number of consults with electronic file / number of actual consults). There is clear evidence of a sustained increase in the use of the system throughout the program, from a 1.3% during the first month, to 78.1% in month 18, which demonstrates that the electronic file is widely used since its installation in FMUs.

Evaluation of the technical-medical training

Two major aspects are considered in the program evaluation. The first has to do with the measurements of the intervention outcomes; the second, with the costs associated to their implementation.

Figure 1
Number of consultations using the family medicine information system during the first 18 month period.
Mexican Institute of Social Security

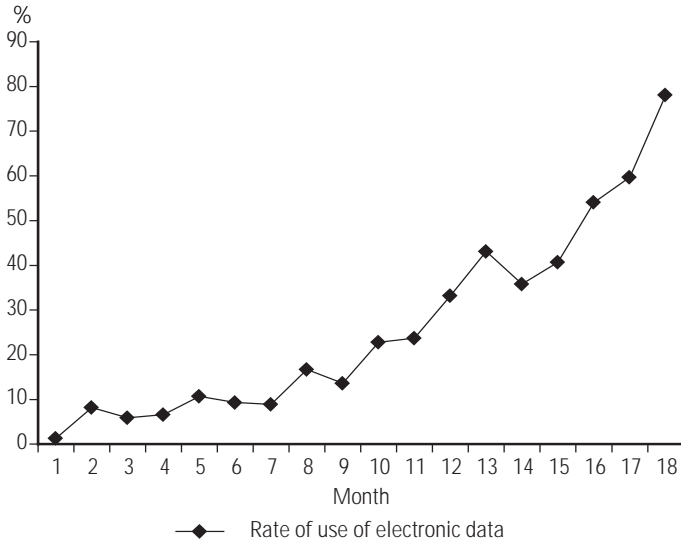


Technical-medical training

The indicator monitoring information system developed expressly for the follow-up of the program was used for the analysis of results. Although the technical-medical training was divided in two phases to address the 12 motives for consultation, in this study only the indicators corresponding to Phase 1 six motives for medical care were considered: attention to diabetic and hypertensive patients; prenatal care; acute upper respiratory tract infections (ARI) in <5 year old children; cervicitis-vaginitis, and evaluation of nutritional, growth and development status of children 5 years old or under (NGD).

In all cases, the source of information was the clinical file/medical record. The Family Medicine Delegation Coordinators and the Heads of Family Medicine of each FMU were responsible for Phase I and Phase II retrospective recovery of data respectively. For evaluation purposes, five clinical file/medical records of each

Figure 2
Electronic file rate of use during the first 18 months
of program operation. Mexican Institute of Social Security



nosologic condition, randomly selected from all medical consultation offices, had to be reviewed.

Table I shows the selected indicators for each condition; all variables are nominal. Evaluation of indicators was performed in two moments:

1. before the initiation of the training course (baseline measure), and
2. a month after ending of course (final measure)

The percentage difference in each indicator's value, considered as the summary measure, was estimated dividing this value by the baseline measure and the final measure in each FMU. This difference was later compared among the delegation, regional and national settings. At present, only Phase I initial and final evaluation are available, so the results presented hereunder only refer to this evaluation.

Table I
Indicators per motive for medical care.
Mexican Institute of Social Security

Motive for medical care	Indicators
Type 2 diabetes mellitus	Recording of body weight Recording of blood pressure Request for a glycemia Glycemia < 140 mg/dl Feet revision Measures taken when glycemia > 150 mg/dl Patients with proteinuria and indications of ACE inhibitors
Systemic high blood pressure	Recording of body weight Recording of blood pressure Blood pressure < 140/90 mm Hg Changes in treatment if BP > 150/90 mm Hg Initial treatment on thiazides or beta blockers in hypertensive non-diabetic patients
Acute upper respiratory infections tract in children <5 years of age	Recording of respiratory rate Search for lower respiratory tract infection Guidance on alarm signs to person in charge of child No antibiotic prescription in patients with viral rhinitis or rhino-faringitis
Prenatal care	Recording of body weight Recording of blood pressure Examination of fetal heart rate in 24-week or more gestating women Urine test Recording of obstetric risk
Cervicitis-vaginitis	Recording of vaginal exam findings Indication of treatment for couple Treatment of bacterial or trichomona vaginitis with metronidazol
Nutrition, growth and development surveillance in children <5 years of age	Recording of body weight and size Recording of nutritional status Recording of psychomotor development evaluation Recommendation of maternal breast feeding in < 6 month age infants Assessment of vaccination scheme

Results of technical-medical training

A total of 392 units were included in Phase I evaluation, corresponding to 39.2% of IMSS total Family Medicine Units.

At baseline evaluation, 95 812 clinical files/medical records, whereas 56 021 during final evaluation. This data show that the response rate in the final evaluation was 58.47%. Most of the clinical files pertained to type II diabetes mellitus patients (27% of the total number of files reviewed on both measurements), followed by patients attended for prenatal care (21%), systemic high blood pressure (19%), acute respiratory infections in children under five years of age (16%), assessment of nutritional, growth and development status in children under five years of age (11%) and cervicitis-vaginitis (6%).

The national global rate of adherence to the six indicators compliance criteria was 72% for baseline measure and 84% for final measure, with a 12% baseline/final ratio.

Table II shows the national compliance rate for each medical care motive. There was a clear significant improvement in all conditions with regard to the actions set forth in the Clinical Practice Guidelines after the training course; however, the following were the most relevant: cervicitis-vaginitis change rate of 28.16%, assessment of nutritional, growth and development status in children under five years of age almost 18% and consults for acute respiratory infections of children under five years of age, which showed an adherence baseline/final ratio of 15.17.

The North region shows the highest figures of improvement behavior indicators for all motives of medical care, except in NGD and ARI, which are second in place (table II). Except for cervicitis-vaginitis, the South region is the one showing the lowest percentage of the four regions.

When analyzing indicators for each motive for consultation, it was evident that indicators with high figures of compliance at baseline, such as somatometry and blood pressure records, didn't show significant change rates, whereas the opposite occurred with the low-criteria compliance rates at baseline, which showed a significant change after the training course. This is applicable especially to those indicators associated to an intentional search for specific clinical data (table III).

Economic evaluation

The following two sections discuss the elements of the family medicine information system and the technical-medical training.

Table II
Global compliance rate per condition per region.
Mexican Institute of Social Security

Motive for medical care	Region	Baseline compliance rate %	Final compliance rate %	Difference %
Type II Diabetes Mellitus	Center	72.16	81.94	9.78
	North	70.23	82.67	12.44
	West	71.08	76.93	5.85
	South	71.27	78.02	6.75
	National	71.21	80.17	8.96
Systemic High Blood Pressure	Center	77.72	85.29	7.57
	North	74.90	87.62	12.72
	West	79.09	84.48	5.39
	South	80.65	84.16	3.51
	National	77.74	85.45	7.71
Cervicitis-vaginitis (CVG)	Center	47.14	77.17	30.03
	North	48.78	82.25	33.47
	West	44.92	67.26	22.34
	South	38.57	64.45	25.88
	National	45.52	73.58	28.16
Prenatal care (PC)	Center	89.29	94.92	5.63
	North	88.77	96.20	7.43
	West	89.40	95.74	6.34
	South	89.95	95.52	5.57
	National	89.29	95.51	6.22
Nutrition, growth and development surveillance in children < 5 years of age (NGD)	Center	64.29	84.78	20.49
	North	70.9	90.62	19.72
	West	67.21	84.66	17.4
	South	68.9	82.38	13.48
	National	68.02	85.5	17.48

Continues...

Continuation

Acute upper respiratory tract infections in children < 5 years of age (URTI)	Center	58.38	75.27	16.89
	North	56.42	72.65	16.23
	West	59.46	72.55	13.09
	South	62.52	74.98	12.46
	National	58.8	73.97	15.17

Economic evaluation of the family medicine information system

Costs of the family medicine information system development and the electronic clinical file

It was in 2002 that the development and planning of the family medicine information system started. A \$21 890 000 (Mexican currency) budget was allocated for this program, including the pilot tests. For 2003, the budget was \$13 301 804 and in 2004, it was increased to \$20 700 000. If the budget had been proportionally allocated to all FMUs participating in the family medicine information system program, the cost per unit would have reached \$185 687, and if they had been annually adjusted, the amount would have increased to \$126 683 per unit in 2003 and by 2004, it would have been an average of \$105 612 per unit.

The family medicine information system included three stages: installation, training and support. This program was implemented in 105 family medicine units in 2003 and the cost amounted to \$71 447 618.10; by 2004, 296 additional units had the program, with a cost of \$99 550 967.7. Hence, the implementation cost per unit in 2003 was \$680 453 and it decreased to \$336 321 in 2004.

As part of the family medicine information system development program, in 2004 the services of medical disabilities consultants were hired for an amount of \$1 955 000; likewise, administration and application support services for \$15 080 154, and local area network services for \$79 818 165. If these costs were to be distributed among all the units, the average cost per unit would amount to \$494 149, although if these costs would have to be distributed according to local network' useful life and the future units that would benefit from these new developments of the system.

Table III
Global change rate in compliance per indicator.
Mexican Institute of Social Security

Indicator	Baseline compliance %	Final compliance %	Difference %
Type II Diabetes mellitus			
Recording of body weight	94.24	95.11	0.87
Recording of blood pressure	93.42	96.23	2.81
Request for a glycemia	88.18	95.62	7.44
Glycemia < 140 mg/dl	48.25	59.07	10.82
Feet revision	49.37	74.46	25.09
Measures taken when glycemia > 150 mg/dl	52.52	79.12	26.6
Patients with proteinuria and indications of ACE inhibitors	55.43	90.54	35.11
Systemic high blood pressure			
Recording of body weight	92.48	96.06	3.58
Recording of blood pressure	96.69	97.19	0.5
Blood pressure < 140/90 mm Hg	48.91	88.76	39.85
Changes in treatment if BP > 150/90 mm Hg	52.48	80.13	27.65
Initial treatment on thiazides or beta blockers in hypertensive non-diabetic patients	51.67	70.73	19.06
Acute upper respiratory tract infections in children < 5 years of age			
Recording of respiratory rate	50.61	66.29	15.68
Search for lower respiratory tract infection	77.48	83.33	5.85
Guidance on alarm signs to person in charge of child	46.22	71.09	24.87
No antibiotic prescription in patients with viral rhinitis or rhino-faringitis	60.99	80.4	19.41
Prenatal care			
Recording of body weight	97.56	98.31	0.75

Continues...

			Continuation
Recording of blood pressure	96.57	98.31	1.74
Examination of fetal heart rate in 24-week or more gestating women	91.88	96.4	4.52
Urine test	84.7	93.71	9.01
Recording of obstetric risk	76.11	96.52	20.41
Cervicitis-vaginitis			
Recording of vaginal exam findings	37.91	70.03	32.12
Indication of treatment for couple	36.61	66.86	30.25
Treatment of bacterial or trichomona vaginitis with metronidazol	68.94	87.13	18.19
Nutrition growth and development surveillance in children < 5 years of age			
Recording of body weight and size	93.39	98.05	4.66
Recording of nutritional status	65.6	87.95	22.35
Recording of psychomotor development evaluation	59.57	82.79	23.22
Recomendation of maternal breast feeding in < 6 month age infants	63.43	80.97	17.54
Assessment of vaccination scheme	55.99	76.27	20.28

Costs of family medicine information system and electronic file implementation

During 2003, the FMIS was implemented in 105 IMSS family medicine units as they were the largest, with more that 15 consult offices. Together, they covered 39.2% of the total beneficiary population. For 2004, 296 smaller units were incorporated, so the FMIS was operating in almost 400 units, reaching 63% coverage of IMSS total beneficiary population.

The training program developed for the FMIS was aimed mainly to family physicians, medical assistants, laboratory personnel, X-ray staff, stomatologists and administrative personnel of units, resulting in more than 70 000 users nationwide during 2003 and 2004.

The implementation cots of the family medicine information system are divided in three major items: personnel replacement costs, training costs and equipment costs.

Personnel replacement costs

During 2003, 15 234 people were needed to replace personnel involved in training activities, such as family physicians, epidemiologists, nurses, social workers, clinical laboratory auxiliary staff. The replacement personnel was hired to avoid interruption of daily activities at the FMUs (concept 08,37), which represented a total coverage cost of \$15 275 246 that year and an average \$1 000 cost per employee replaced.

Most of the coverage took place in Center region (4 984 individuals), followed by the West region (3 964), the North region (3 667) and finally the South region (2 619).

The average cost per unit was \$113 933 and it was the Center region the one with the highest cost per unit. In average, 40.7% of these coverage corresponded to the replacement of family physicians and around 10% to personnel from Medical Information and Clinical Archive areas (ARIMAC, Spanish acronym). With regard to costs, replacement of family physicians represented 62.1% of coverage costs.

In the year 2004, training courses were implemented in 296 units nationwide and this figure includes secondary health care hospitals. Sixteen thousand one hundred and twenty four professionals, both medical and technical, were replaced, which meant a coverage cost of \$10 040 283 for the Institute. That same year average costs per worker covered decreased to \$622.7 (a reduction of around 38%). The highest coverage was for the Center region (28.9%). However, the most significant costs per region occurred in the Center region (29.1%), followed by the North region (27.7%), the West region (24.2%) and the South region (19%).

The average cost per unit during 2004 was reduced to \$45 023.7. Finally, 72.5% of the coverage costs in average corresponded to family medicine practitioners; 4.6% to emergency room physicians and 3% to nurses in the emergency service.

Cost per personnel trained

During 2003 personnel trained was provided in four phases and five modules comprising the August - December period of that year. During the first phase; 716 courses were offered in 15 FMUs; 1 883 courses at 35 FMUs during the second phase; 1 518 in phase three at 31 FMUs, and 1 270 at 24 FMU in the last phase. Thus, the average number of courses per FMU during 2003 was, 51.4. In 2004, a total of 41 255 people were trained, which 20.4% more that the previous year.

Equipment costs

In 105 FMUs, 6 474 personal computers (PCs) were budgeted in 2003, of which 4 479 were delivered (69.2%). These computers were mainly distributed in consultation offices (37.4%), medical assistants (11.9%) and community health (4.7%). Each PC cost an average of \$11 000, amounting to \$71 214 000 at the end of the year. Likewise, the cost per unit increased during this same year to \$678 228 in average.

For the year 2004, the budget for the 296 FMUs participating in the FMIS was \$8 273. The global value of these new budgeted computers amounted to \$91 003 000. During that same year, 273 servers, 5 364 printers, 8 273 UPS for PCs were budgeted, with total annual costs of \$11 895 184 for servers, \$5 644 500 for printers and \$95 354, 222 for PCs UPS. Hence, the average total cost per unit equipping amounted to \$688 840.

Finally, as observed in Table IV, if all the above-mentioned costs are added up, the total cost for the development and implantation of the FMIS reached \$171 238 668 in 2003, and \$227 118 234 in 2004. When dividing these amounts by the total number of consults provided within the FMIS and the electronic medical record programs, the average cost was \$398.81 for 2003 and 22.22 for 2004. That is, each consult offered within the new program during the first two years had a cost of \$37.40.

The low costs for each consult resulted in a high rate of use of the electronic file. Likewise, in the years 2003 and 2004 each additional percent point in the rate of use of this file costs IMSS \$2 121 689.31. It is expected that during the next few years, the cost per consult of this new program will decrease even more as the rate and number of electronic consults increase with this new system.

Economic assessment of the technical-medical training

As was mentioned before, for the implementation of the educational strategy it was necessary to:

1. Develop of clinical practice guidelines for the management of the 12 primary motives for medical attention. In terms of costs, the drawing of these guidelines was a different program from that of the Family Medicine Improvement Program, and since the degree of use in terms of time and beneficiaries, the cost attributable to the technical-medical training was not considered relevant.

Table IV
Total cost and cost per consult of the family
medicine information system
(expressed in Mexican currency)

	2003	2004
Cost of personnel replacement	\$ 15 275 246	\$ 10 040 283
Cost of equipment	71 214 000	91 003 000
Cost of FMIS development and implementation	84 749 422	126 074 950
Total cost	171 238 668	227 118 234
Total consults (FMIS)	429 369	10 219 141
Average cost per consult in FMIS	398.81	22.22

2. Develop a two phases, step-by-step educational strategy according to the number of consultation offices. The first phase would deal with six motives for medical consults; the second, with the remaining six. Physicians of 106 units were trained the first year; of 286 the second, and it is planned to finish by the end of 2006 in the 817 remaining units.
3. Start the training of the clinical advisors. Specialist physicians from selected hospitals were invited to this training. The relevant costs of this step were associated basically to the transfer of the consultants and physicians to the sites where training took place, which are further described.
4. Train family physicians of the participating FMUs by the clinical advisors from the reference hospitals. The relevant costs in this step were related to the replacement of both consultants and family physicians in their clinical tasks during educational activities.

Following is a description of the educational strategy costs for the training of both clinical advisors and family physicians.

Costs of clinical advisors training

The reference hospital's specialist physicians of the participating units were offered training to become clinical advisors of family physicians. This training was given

by IMSS investigators (regulatory staff) and took place nationwide at IMSS different regions. The training costs entailed two relevant expenditures:

1. Transfer costs of physicians to regional sites for training.
2. Transfer costs of the regulatory staff to each region's training sites.

In Table V, some of the most relevant aspects of the educational strategy in terms of logistics and costs are summarized. Because of project organizational factors, not all medical units were incorporated to the program at the same time; therefore, Phase 1 includes 106 units and Phase 2, the remaining 286.

In Phase 1 each regulatory staff member trained an average of 20 clinical advisors, with an average cost of \$1 876. Efficacy apparently decreased in Phase 2 because the number of advisors trained per regulatory staff member was 10, and the cost was \$1 886. However, the variability of the regions where the training was given must be taken into account; the average cost per training of a clinical advisor in a medical care motive was \$941.

The useful life of training depends on the reinforcement of information needed and this will be measured through indicators of patient treatments per pathological condition; a preliminary three year periodicity has been discussed. In this case, the estimated cost per physician trained to become an advisor would be \$314 per year.

The *number of trained advisors per regulatory staff member* indicator is proposed as the input for the evaluation of the training process.

The relevance of this indicator in terms of costs is evident, since the higher the number of advisors trained per regulatory staff member, the lower the average cost; nevertheless, from a certain point on, quality (effectiveness) will be reduced as the number of advisors per regulatory member increases. This is based on the notion that the level of attention and communication between the two parties involved will be reduced as the number of advisors-to-be increases.

As part of the more global evaluation, the optimal number of advisors trained per member of the regulatory staff could be determined through the association of this indicator to those indicators for impact on the pathological condition studied during training, which though indirectly, a relevant impact should be seen.

Costs of family physicians trained

Once the specialist physicians are trained as clinical advisors, they will be responsible for training the family physicians of the participating units, following the aforementioned strategy. As was mentioned, the workshops were two-weeks in duration and all the physicians had to be trained in this period. As the training

Table V
Training of clinical advisors. Family Medicine Improvement Process. Mexican Institute of Social Security

Regional site	Delegations trained	Advisors trained	Travel costs		Regulatory staff	Total	Number of advisors per regulatory staff member	Average cost per advisor
			Regulatory staff	Clinical advisors				
Phase 1								
Baja California, Mexicali	1	14	2	\$15 858	\$14 117	\$29 975	7	\$2 141
Campeche	3	24	2	\$36 215	\$12 593	\$48 808	12	\$2 034
Chiapas, Tuxtla	1	8	2	\$4 361	\$21 945	\$26 306	4	\$3 288
Distrito Federal	10	126	4	\$61 746	\$0	\$61 746	32	\$490
Jalisco	8	118	4	\$264 613	\$17 611	\$282 224	30	\$2 392
Monterrey	7	98	4	\$251 514	\$26 186	\$277 700	25	\$2 834
Veracruz Boca del Rio	5	46	4	\$64 463	\$22 851	\$87 315	12	\$1 898
Total phase 1	34	434	22	\$698 771	\$115 302	\$814 073	20	\$1 876
Phase 2								
Baja California Tijuana	2	36	4	\$100 102	\$27 888	\$127 990	9	\$3 555
Monclova Coahuila	0.5	36	4	\$54 052	\$26 609	\$80 661	9	\$2 241
Torreón Coahuila	2.5	53	6	\$92 484	\$38 250	\$130 734	9	\$2 467
Chiapas Tapachula	1	13	4	\$12 318	\$25 192	\$37 509	3	\$2 885
Chihuahua	1	30	4	\$46 032	\$25 991	\$72 023	8	\$2 401
DF 1-2	3	114	7	\$0	\$0	\$0	16	\$0
DF 3-4	5	93	8	\$118 974	\$0	\$118 974	12	\$1 279
Jalisco	4	102	8	\$140 695	\$42 583	\$183 278	13	\$1 797
Michoacán	2	77	8	\$141 696	\$45 144	\$186 840	10	\$2 426
Nuevo León	1	28	4	\$0	\$23 502	\$23 502	7	\$839
Puebla	3	50	7	\$67 557	\$14 100	\$81 657	7	\$1 633
Querétaro	3	52	6	\$86 902	\$12 452	\$99 353	9	\$1 911
Sinaloa	3	86	8	\$196 976	\$57 583	\$254 559	11	\$2 960
Tamaulipas	1	48	6	\$91 088	\$35 010	\$126 098	8	\$2 627
Veracruz Ver	3	77	8	\$135 211	\$48 984	\$184 195	10	\$2 392
Yucatán	3	62	6	\$62 669	\$34 487	\$97 156	10	\$1 567
Total phase 2	38	957	98	\$1 346 756	\$457 774	\$1 804 530	10	\$1 886
Total phases 1 and 2	38	1 391	120	\$2 045 527	\$573 077	\$2 618 604	12	\$1 883

workshops were conducted at each FMU, family physicians had to transfer to the sites.

Three relevant items were considered in the estimate of family physicians training costs.

1. Coverage of specialist physicians in their own hospital while performing the training.
2. Coverage of family physicians while receiving their training.
3. Supplies and supervision expenses.

The coverage requirements are estimated under the following criteria: in Phase 1, for the training of clinical advisors of units with < 25 consultation offices, one physician of each of the participating specialty per shift. In units of > 25 consultation offices two physicians of each specialty were covered per shift. For Phase 2, in units > 25 consultation offices, two physicians per shift were required, but in units with less than 25 consultation offices, only one physician had to be covered.

Coverage of family physicians was the same in both Phases according to the following scheme:

5 to 12 offices: 1 replacing physician per shift
13 to 22 offices: 2 replacing physician per shift
23 to 32 offices: 3 replacing physician per shift
33 to 40 offices: 4 replacing physician per shift

For the evaluation of the family physicians training process, the *number of family physicians trained per clinical advisor* is proposed as the analysis indicator.

In table VI, a summary of the most relevant results and training costs are shown. Since this was performed at each the 392 FMUs, only the average costs per unit per size are shown.

In terms of costs, there is a reduction in average cost as the number of physicians trained by advisor increase. Again, it is expected that the quality will diminish as the number of physicians per advisor increases.

Variability in the indicator ranges from 3 to 17 physicians trained per advisor, while average costs variability in Phase 1 is within the range of \$5 215 to \$10 811 per physician in units under 12 medical consult room. In contrast to the training of clinical advisors in Phase 1, 2 the logistic strategy of Phase 2 is observed, it is evident that the average cost per family physician was 6% lower. Likewise, the average number of trained family physicians per advisor was higher in Phase 2.

Table VI
Training of family practitioners

Type of clinic	Clinical advisors	Family Medicine Units	Average number Trained physicians	Physician per advisor	Clinical advisors	Replacing physicians	Total Coverage costs	Cost per physician trained
Phase 1								
5 to 12 offices	6	11	17	3	\$91 890	\$91 890	\$183 780	\$10 811
13 to 22 offices	6	47	41	7	\$91 890	\$183 780	\$275 670	\$6 724
23 to 24 offices	6	10	46	8	\$91 890	\$275 670	\$367 560	\$7 990
25 to 32 offices	12	31	56	5	\$183 780	\$275 670	\$459 450	\$8 204
33 to 40 offices	12	7	74	6	\$183 780	\$367 560	\$551 340	\$7 451
Total Phase 1	876	106	4 856	6	\$13 415 940	\$23 340 060	\$36 756 000	\$7 569
Phase 2								
5 to 14 offices	2	246	16	8	\$57 360	\$57 360	\$114 720	\$7 170
15 to 21 offices	2	39	33	17	\$57 360	\$114 720	\$172 080	\$5 215
25 offices	4	1	50	13	\$114 720	\$172 080	\$286 800	\$5 736
Total phase 2	574	286	5 242	9	\$16 462 320	\$18 756 720	\$35 219 040	\$6 719
Total phases 1 & 2	1 450	392	10 098	7	\$29 878 260	\$42 096 780	\$71 975 040	\$7 128

These costs and productivity results will have to be assessed according to the results in patients' health. This will be broadly analyzed further on. Considering the total cost spent in both Phases, the average cost per family physician trained was \$ 7 128; on the other hand, if a three-year period is considered and a proportional cost between the six motives for training, the average annualized cost per motive per physician would be \$396.

Total cost of technical-medical training

In addition to the travel costs for training of clinical advisors and the coverage costs of family physicians, the items of inputs (clinical guidelines) and supervision were included, which amounted to approximately 1 million pesos at both Phases. Thus, the average total cost per family physician trained –including the supplies costs– was \$ 7 491.

Generally speaking, technical-medical training had a global cost of 75.6 million pesos; approximately 10 098 family physicians were trained in six motives for medical attention. Assuming a three-year useful life of the information and skills acquired, the annualized cost per trained physician in one motive for medical care would be \$416 (table VII).

Economic evaluation of technical-medical training

Based on the results of the health status of the population attended by the participating units, a cost-effectiveness analysis was considered taking into account the average cost per unit of change-in-health-results partially attributable to educational strategies. Table VIII shows this analysis derived from the results presented in tables II and VII. When considering only the average change in the health results, it is evident that the higher a percent change, the lower the cost per unit of change. Cervicitis-vaginitis problem represents the highest in cost-effectiveness ratio, while diabetes, systemic high blood pressure and prenatal care show the lowest rates of change and the highest cost per unit of change.

In general, these ratios are interpreted as the average cost per each percent point of improvement in result indicators of patients treated by a trained physician. In terms of decision making, the cost could be compared to the one avoided by a 1% improvement in the management of patients attended for each specific pathology by a family physician.

Table VII
Cost per unit result of technical-medical training.
Mexican Institute of Social Security

		Total cost	Average cost per physician	Cost per physician per pathology	Annualized cost per physician per pathology
Phase 1					
Physicians trained	4 856				
Training to clinical advisors		\$814 073	\$168	\$28	\$9
Training to family physicians		\$36 756 000	\$7 569	\$1 262	\$421
Total phase 1		\$37 570 073	\$7 737	\$1 289	\$430
Phase 2					
Physicians trained	5 242				
Training to clinical advisors		\$1 804 530	\$344	\$57	\$19
Training to family physicians		\$35 219 040	\$6 719	\$1 120	\$373
Total phase 2		\$37 023 570	\$7 063	\$1 177	\$392
Phases 1 y 2					
Physicians trained	10 098				
Supplies		\$1 046 179			
Total phases 1 and 2		\$75 639 823	\$7 491	\$1 248	\$416

Conclusions

In many countries of the world it has been quite evident that primary health care, despite the great importance it entails, has suffered from neglect for a long period of time on the part of health care systems, which very often privilege the more costly and sophisticated medical care –i.e. the tertiary level– and overlook family medicine –the foundations supporting the health system– as the first contact of the population with the health care services.

Table VIII
Cost per unit result of technical-medical training.
Mexican Institute of Social Security

Motive for medical care	Annualized cost per physician per pathology	Rate of change in compliance (%) [*]	Cost per result unit (%)
Type II Diabetes Mellitus	\$416	8.96	\$4 644
Systemic High Blood Pressure	\$416	7.71	\$5 397
Cervicitis-vaginitis	\$416	28.16	\$1 478
Prenatal care	\$416	6.22	\$6 690
Nutrition, growth and development surveillance in children < 5 years of age	\$416	17.48	\$2 381
Acute upper respiratory infections tract in children < 5 years of age	\$416	15.17	\$2 743

* Assuming a uniform change in medical units and physicians trained.

Health services reforms, particularly those regarding the primary care level, are evident everywhere throughout the world; different models and strategies are used, for instance, in the United States, the New Model of Health Care includes several novel aspects: open appointments scheduling, internet appointments, electronic file, group visits, internet consults, chronic disease management, health team approach, use of clinical practice guidelines and outcome research)⁴ IMSS FMIP shares the use of electronic file with North America and other countries' models. Both physicians and patients want to have more time for a more thorough examination. This can be attained by introducing an information system that includes an electronic file to facilitate the administrative and clinical tasks, thus achieving higher medical efficiency. Additionally, the electronic clinical file is the input for the institutional information system and clinical and administrative data may be obtained in practically real time and from anywhere in the world. This enables the possibility of timely analysis for macro, meso and micro-decision making.

According to our results, there is clear progress in the use of the FMIS and there has been a rapid increase from one year to the next in the use of the system: a 20 fold increase of use from 2003 to 2004. Nonetheless, indicators to measure evolution and improvements on the quality of medical care within the primary care level attributable to the use of the electronic file are still limited. This is why, despite the monthly increase of patients with electronic files, the benefits of this new system cannot be yet measured. On the other had, it is presumed that the improvements generated with the use of the electronic file and the FMIS will be observed in the mid and long terms, not in the short term, since both family physicians and other primary health care professionals are still under a learning process. In the long term, we hope that the FMIS will allow a reduction in the current load of work, eliminate some duplicity, prevent loss of patients' files and improve the supply of drugs, among many other benefits.

The FMIP also incorporated a training element to improve medical care through the adherence to 12 motives for primary health care practice guidelines. This training program is designed to provide support to the family physicians in transforming their practice into a better one. The initial approach is to achieve the implementation of relatively simple actions aimed at compliance of minimum health care attention criteria for diagnosis, treatment and follow-up of these 12 medical conditions. The evaluation approach in this initial phase is focused on determining the level of improvement in complying with these criteria after finishing the training course. It is the intention that in a second phase the impact on the population health status be evaluated. The evaluation was conducted through the review of the clinical file and by establishing the degree in which clinical practice complied with the criteria evidence-based criteria of 29 indicators for the first six motives of medical consult and 32 for the six remaining.

It might be thought that it is not realistic to expect a significant change in clinical practice after just one course based on clinical practice guidelines for the management of only some motives of medical attention; however, our results show that through the medical education method use surprising results are achieved –12% improvement of global compliance criteria adherence to the good management of the first six motives and 17% of the six remaining ones. Thus, the most important goal of continuous medical education, which is a change in physicians' behavior in terms of their medical practice, was met. The higher improvement figure found in the second six-motives could mean that once physicians were sensitized during the first course, their response is stronger during the following course.

When analyzing each pathological condition through the rate-of-change assessment of each indicator, it was found that those in which the register was high at the beginning (80%), the change rate is low, reaching even 1% at some

points. This is common especially in cases where general indicators are routinely obtained in all patients of the IMSS, such as weight, size and blood pressure. Yet, the benefit is greater in the case of specific indicators for the condition under evaluation, which reflect that the training course has an important positive impact on the behavior of physicians in their clinical practice. Similar results have been reported in studies conducted in other parts of the world. For instance, a review of the Cochrane group that comments 41 studies demonstrated that the management of diabetes mellitus patients in primary health settings improved after the intervention: positive effects were observed with respect to feet and eyes examination, whereas no consistent results were found in blood pressure and body weight measures.⁵

According to the results obtained, there is a broad variability among regions; the range goes from 3.5% to 33.5%. This evidences the existence of certain characteristics in the units and the regions as such and/or of the educational strategies that could be associated to such variations.

It may be assumed a priori that not only the implementation of an educational intervention that will affect health results, but aspects related to medical staff profile (personal and professional), to characteristic of the medical units (infrastructure, demand, productivity, presence of other continuous improvement programs), characteristics of the communities (socioeconomic and epidemiological conditions, availability of other services). Therefore, all these variables should be taken into consideration when performing future analysis aimed at exploring the possible causes at the unit and patient levels, and hence, areas of opportunity for the improvement of results and costs.

The transition towards this new model has its costs, but the evidence of other countries who have implemented similar changes suggest that costs will have a reduction tendency with time and, most important, there will be a rapid return on investment as a consequence of the quality of health care and the health status of the population to whom it is provided.^{1,6,7} An example of this last comment was observed during the last two years, when implementation and development costs of the FMIS per consult decreased from \$398.0 to \$22.2. Additionally, not all the potential benefits derived from the new family medicine improvement system have been assessed; therefore, a more significant profit would be expected for the institution in the next few years as a result of its operation. In general, it may be concluded that the training cost for the smaller units was high; this will have to be considered for future training schemes so that more efficient models may be identified.

The optimum number of physicians trained by clinical advisor should be determined through a monitoring of the impact indicator associated to the pathologies that were the subject matter of the training courses.

The analysis of the different logistic strategies for training purposes will generate evidence for decision making on the most cost-effective strategies; i.e. not only in terms of feasibility and costs, but considering the cost per each health unit where the intervention is having an impact. A time will be reached in which the most cost-effective strategy may be established based on the characteristics of medical staff, the unit and the community.

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Section I



The Mexican experience
on improving Family
Medicine

C. Perspectives

Perspectives in Family Medicine

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Introduction

Family Medicine is essential for a successful healthcare system. Family Medicine is among many things, a way to provide Primary Care services. Primary Care's most important strengths derive from placement close to the patient, broad perspective, the disciplinary, flexibility and adaptability of its methods.¹

Given the pervasive inequalities and quality gaps in the Mexican Health Care System and looking to the advances obtained through the Improvement Process in Family Medicine, it is clear that we should preserve and strength not only social security, but mainly, the family medicine within the scheme of social security health services. Economic and social costs of the major complications of chronic illnesses are on the rise. Ischemic heart disease, cardiac failure, end-stage renal disease, cerebrovascular disease, among others, represent a tremendous burden to the finances of a "hospital centered" medical care system. Effective and flexible services of family medicine providing prevention for infectious and non-infectious diseases, early detection of chronic illnesses and appropriate management of existing chronic conditions in order to delay or prevent the complications are a key to overcome this overwhelming financial and health outcomes scenario.

Over the last years social security has invested a huge amount of resources in the training of physicians both on clinical and managerial aspects, and have created information systems to make possible an electronic medical record and the use of a single clinical file for each patient in every clinical facility throughout the country. The potential of information systems as described in the previous chapters is diverse.

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We should keep investing in Family Medicine because it is a key to provide health services to prevent diseases, to prolong life and to reduce the burden of chronic illnesses to society.² Family Medicine is the way to provide health services to different family members in a single visit and continually over time.

In this chapter we intend to provide a view on some of the tasks that Family Medicine needs to confront in the near future in order to fulfill its potential. We have identified three main tasks for Family Medicine in Mexico: a) a professional transformation of the healthcare team, b) systems transformation to provide a new model of care, c) a new relationship between health services providers and the population.

Professional transformation of the health care team

A new profile of the family physician

For Turabian, "Family physician is the professional that provides integral care to any type of patient without differentiating among problems, age, sex, disease or system. Family Medicine is centered on the group. This focus is not determined by diagnosis or procedures but by human needs".³

A traditionally idealized view of the family physician includes a professional that knows every single member of the family, has taken care of several generations of the family and is available to visit the family's house at every time it is needed. The design of health care services, workload and demographic pressures over family physicians has made this view difficult to materialize. Particularly, if we keep looking at family medicine interventions as reactive, visit-based and physician-centered. Family physicians can rely now on information systems, decision-support systems and team-based care that can make possible a new promise of care to the family. Along with new therapeutic relationships, the continued and well planned delivery of evidence-based care is the goal.

New skills for the family physician and the health care team

Some of the new skills needed in order to construct new therapeutic relationships include the development of teamwork skills,^{4,5} communication skills within the team and with the family, to maintain avenues for professional development with an emphasis on the sciences of quality and safety. Chronic conditions require a particular emphasis on the roles of team members including family physicians, nurses, nutritionists and social workers, as educators. The development of educational skills is critical in the process of improving the outcomes of patients

with diabetes, obesity and hypertension to a few. Cultural sensitive educational material has been developed reflecting an empowerment educational philosophy for chronic conditions.⁶

Family Medicine leaders

While a manager mainly makes plans, budgets, organise staff, control and solve problems of the services, the real leader sets a direction, align and motivate people to achieve the goals.⁷

A new leadership of Family Physicians as teachers and researchers is required to cultivate new generations of residents aware of the professional profile that society is demanding, more open to accountability, quality improvement and health services research. The liaison between universities and medical institutions needs to reflect this purpose. Lord claims for a tithe (10%) as an absolute minimum of professional time to be used in self/team development.⁸

Another relevant issue relates to Family Physicians recognised as a potential guidance for patient and family members to navigate a complex health system. The role of physicians as gatekeepers needs to be reoriented to a scheme of collaboration and communication with other specialists. Family Medicine Improvement Process has demonstrated that a better collaboration between family physicians and other specialists is possible, beneficial and promotes the development of both sides of the interaction.

New incentives as a professional

Information systems and evidence based care are providing the setting to think in new schemes of incentives already taking place in developed countries (see references 9 and 10). Economical and non-economical incentives are regarded as useful means to promote and increase quality of care.

Ownership of health services can contribute to commitment of providers to improve quality. In the developing world there is a need to explore the design of environments where the sense of ownership is reinforced. This ownership can also stimulate a more efficient use of resources and better organization of services. Family physicians, also try to expand their knowledge and skills on several areas both surgical and non-surgical. Some degree of specialization on procedures or conditions is desirable also as a way to stimulate references within a clinic and the sense of advancing the frontiers of family medicine practice. Particular family physicians can obtain specific skills for the management of imaging techniques, management of mental illness, dermatologic procedures, diabetes management, minor surgical

procedures, and so on. This practice is capable of reducing monotony. The gamut of activities should be analysed in terms of their contribution to health economics in institutions.

Collaboration among nurses, social workers, dietitians, informatic professionals, managers and physicians

Health care, traditionally has been physician centered. Physicians assume a role of authority, then, they are the responsible for the patient's care and at the same time work relatively isolated from the rest of the health care team. It has been demonstrated that nurses can provide education and case management effectively and efficiently.¹²

Social workers are reinforcing their roles as educators in chronic disease and experts to care for psychosocial issues such as family violence, isolation, mental health disorders including addictions, anxiety and depression.

Information technology professionals are getting critical in the retrieval, analysis and presentation of data used for clinical purposes. Better planning and evaluation of medical services will rest on the adequate interaction and collaboration among health professionals, information technology experts and managers.

To develop effective teams it is needed an adequate training on teamwork skills, human communication and the science of quality of care. A better knowledge of human factors in medical services and culture transformation is also important.

The development of ethical reasoning, provider-patient relationship and health economy are also knowledge and skills required for professional development of all members of the team.

Systems transformation to provide a new model of care

What kind of transformation is expected from the development of information systems? Now, when we are starting information on the performance of physicians, clinics, districts and regions comes the caveat of how will be the best use of this information. Trying to develop a more patient-centered care leads us to another question: How this information is going to be used to support a personalized relationship-centered care?¹³

Several authors has proposed that a transformation in the delivery of health services, including family medicine is needed in order to provide a better quality and more reliable care, this means that the perspective is to get to a patient centered and information based care.

New Model

Table I provides a picture of what would be a new model of Family Medicine Services reflecting the current concepts of quality improvement,^{14,15} compared with the predominant model. A new model must be patient centered, knowledge based, and systems minded.

Of all the attributes of primary care valued by patients, continuity ranks among the highest.¹⁶ Part time family physicians is not what patients usually expect about their care.

The traditional model for acute illnesses is based on brief unplanned encounters. This model for chronic illness is ineffective and obsolete. Mc Glynn work demonstrates that patients received only half of the care they needed.¹⁷

Applying different alternatives to patient's visits Kilo^{18,19} has achieved 20% of his interactions with patients as in-person visits, 40% via Web-based e-mail and 40% are by telephone. In Mexico group visits could be an alternative for the management of chronic illnesses like diabetes; in Nuevo Leon the experience is beginning to be used. The idea is to be able to manage patient's needs and demands efficiently and effectively, prioritizing needs and using a team approach.

Family Medicine Services at IMSS are gaining experience in open access with the *moto* "doing today's work today". The appointment systems are more and more accepted by both providers and patients. Incentives can play a role in the adoption

Table I
Current and New Models of Family Medicine Care

Current	New
Individually based	Team based
Episodic	Continuous
Physician as authority	Shared decisions with patients
Knowledge is the property of the physician	Knowledge is shared
Based on visits	Based on therapeutic relationships
Emphasis on productivity	Emphasis on quality
Number of interactions	Caring interactions
Look at the individual	Look at the individual and population
Fragmented care	Authentic "Health Care System"

of new models of care in the future. To make this possible, the institutions need to improve efficiency, reduce waste and spare resources. On the other hand, private insurance in Mexico often pay low compensations for physician services, do not cover many essential aspects of care (like mental health, transplant procedures and almost any long term care which finally reach social security institutions) leaving the insured helpless, overburdening the physician and applying profit-based policies, with little focus on quality.

Steps taken towards a new model

In the first section of the book we have described a series of transformations that our Family Medicine Health Services are experiencing, that we collectively denominate "Family Medicine Improvement Process". Succintly, the process includes new systems for clinical information and agenda management. Prescriptions and disability certificates can now be done electronically making easier for the patient to follow. The use of computers includes web based support to decision through the possibility to consult guidelines online. Receptionist manage electronic agendas and have less paper work, social workers and nutritionist will have specific modules in the software to work with clinical records and activities.

The technical skills of family physicians are renewed in an innovative educational approach working with other specialists. Lifetime education has been supported financing locums and protecting time for supervised clinical practices, education and literature reviews.

Self help groups based on adult education principles and empowerment philosophy are implemented in the system to support self management of chronic conditions.

Family Medicine clinics now provide rehabilitation services reducing the problems of access to these services in order to restore the functionality of the patients. Medical equipment for breast cancer detection and ultrasound for pregnancy monitoring are additions to Family Medicine clinics oriented to reduce the burden of gineco-obstetric diseases among the population.

The integral model of care we are working on looks not only to privilege prevention instead of cure, but also to be more psychosocially oriented instead of only biologically and to provide services with coordinated teams.

Many things remain to be done, but a significant progress has been achieved. In the last section we describe some of the qualities we expect to strengthen in the relationship among providers and the population.

A new relationship between health service providers and the population

Patient centeredness

Do we really have services oriented to the patient? Given our “health system” it is possible to have them? How will we add value to the micro system where clinical care takes place? We need a better knowledge of context, cooperation for health care and a better understanding of meaning for patients, to increase levels of patient participation. Turabian³ asks for better clinical records of primary care and better systems to support complex decisions. Instead of number of services, pharmaceutical spending, biochemical levels, he proposes better semiology specific of family medicine. Individual illness can also be seen as an expression of dysfunctional group context. Mental health in family and community, including adequate attention to the aging process are of paramount importance in this context-sensitive view that family medicine can achieve. Our efforts can lead us to put the patient at the center of care and family physician as a partner, advisor and advocate of the patient’s interests. Seeking patient’s health understanding, using the patient’s elicited beliefs in the explanation, and checking the patient’s understanding of an explanation are behaviors that can be evaluated systematically.²⁰⁻²² Professional evaluation committees in UK have confirmed that the requirement of Colleges can help to modify physician’s behavior to become more patient centered. For example, checking understanding, a previously very unusual activity, is now becoming commonplace. “Although the exam is an assessment of a candidate-selected sample of consultations, and as others have pointed out, candidates can be “coached” into these behaviours, we nevertheless suggest that this represents a move in the desired direction, and hope that some of these demonstrated behaviours will continue and develop throughout a medical career”.²³

Medical behaviour that promotes patients participation is congruent with a model where patients are in charge of their own health.

Family Medicine should strive to ensure a universal and timely access to the services and the possibility to contact the providers 24 hrs a day. Models of Chronic Illness Care as provided by Wagner²⁴ argues for an interaction between a proactive and prepared team and a participant and informed patient, with the support to self care in the community. Again information systems provide the input required to plan, schedule and design the care that is needed at different levels.

The Institute of Medicine and the Institute for Health Improvement have elaborated on six objectives of medical care establishing as a priority the experience of the patient:

Safety: Use to be related to hospital settings, but now safety is more recognised as goal for prevention of hospital visits (diabetes control, prevention of ischaemic heart disease in high risk population, prenatal care for better delivery outcomes. Patients need individualized care congruent with their risks. Clinical epidemiology tools allows to anticipate that a 55 year old male, with a 160/95 blood pressure and a quotient of total cholesterol to HDL of 8 has a high risk of cardiovascular event (angina, infarct, cerebrovascular accident or cardiac failure) this is 20 to 25% risk for developing a fatal and non-fatal event. We need to treat over five years 13 patients (with moderate reductions of cholesterol and blood pressure) in order to prevent one event in this time frame.^{25,26}

Effectiveness: Tightly related with the precedent, is the consistent use of the evidence based interventions.

Patient Centered Care means to provide attention consistent with the patients values, needs, beliefs and preferences. Long term relationships as required by chronic illnesses get best outcomes when patients are motivated, active and well informed. Patients become decision makers in health care. The ideas of patient centered care has been expanded to include the parents as active participants in the design and provision of care for severe chronic illnesses like cystic fibrosis. A new paradigm is emerging as physicians and parents make the rounds to improve the quality of care in services like the experience of the Children's Hospital in Ohio where patients and parents are part of a vital health care team. Another excellent example of collaboration is the study to reduce antibiotic prescription in otitis done by Siegel where 63% of the parents agree to treat the condition with no antibiotic.²⁷ Patient centered care becomes authentic family centered care. Empowerment can be applied, under certain conditions not only to chronic conditions²⁸ but in acute ones.

Timeliness: A renewed science of flow, access and organization of services is needed. The better use of telecommunications for this purpose is essential. The use of internet and mobile phones is on the rise in developing countries. Pagers, faxes and call centers will add to the communications network.

Efficiency: Waste is a constant obstacle to the provision of quality health services. Overuse of a number of resources has been previously identified: antibiotics, diagnostic tests, inadequate doses, etc.

Equity: Social security services must be available for every Mexican citizen. A fiscal and financial framework is needed to make this possible. The universal provision

of quality services is possible mainly through social security and well funded family medicine services.

Family Medicine requires to renew its professional perspectives, to continue in the construction of better designed system to achieve the goals of quality care mentioned and to help building a community response towards health preservation and restoration. These actions will lead the profession to a continued path of accomplishments not exempt of crossroads.²⁹

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Section II

International experiences



Family Medicine in Argentina

Adolfo Rubinstein*

Introduction

Argentina, as many other countries in Latin America, has undergone dramatic reforms in its health care systems in the past decade. Many of these reforms have been oriented towards strengthening the role of the market in the financing, organization and service provision. Indeed, the primary features that today define most of the health care systems in our region are segregation and fragmentation, direct payment for services and the weak regulation of the States. Decentralization in the 1990s –followed in numerous cases by privatization– was associated to policies specifically outlined to reduce the public sector’s coordinator role, in contrast to the 1970s paradigm where decentralization, observing the principles of primary health care (PHC), was conceived as a means to strengthen the local levels. These reforms were parallel to other changes in the role of the State that involved profound transformation in the social sectors. One of the most devastating consequences of the 1990s was the escalation in the levels of social inequity despite the increase in the gross domestic product (GDP) in many countries of the region. By the end of the 1990s, 44% of Latin Americans (more than 211 million) were poor and 18.5% (89 million), indigents.

Some of the health reform processes in the region are aimed at surmounting these weaknesses, expressed in the growing percentage of people excluded from the benefits of health care coverage. This is expected to be achieved through policies such as the extension of social security contribution regimens to uninsured populations by way of States subsidies (subsidiary social security regimens), such as in Colombia; the processes taking place in Mexico and the Dominican Republic; the gradual development of unified or better articulated systems (Argentina, Bra-

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zil and Chile); more explicit definitions of the services covered by the States (Argentina, Chile and Mexico), and States' coverage of specific highly-vulnerable groups.

Among these reforms, the role of the primary health care strategies is increasingly important, in particular that of the family physician as articulator. Like Costa Rica and Cuba have health care systems based on primary health care services, many other countries in the region –Argentina, Brazil, Colombia, Mexico and Dominican Republic, among them– are reinforcing family medicine as the foundation of their sanitary system.

The following sections describe the most prominent characteristics of the *Argentine* health care system and family medicine in its historical and social contexts; the insertion perspectives in the health services, and lastly, the features of the family physician training.

Characteristics of Argentina's health care system

The *Argentine* health care system has been usually characterized as one of “fragmented solidarity”. Several factors have contributed to this conception: as a result of the decentralization of the public sector to the provinces, the coverage offered is different according to the place of residence of each individual; the social security system offers different-in-scope-and-quality services depending on the “*Obra Social*” mutual social insurance schemes which are linked to the branch of activities that workers perform, and finally, the development of the private sub-sector has been variable at each locality since it depends on the operation of other sub-sectors. Additionally, the structure of the health care system has derived in a rather poor use of resources, where the existence of a defined population of institutions that do not have a clear definition of goals has played a central role. The resulting fragmented and inefficient system caused serious equality problems.

The public sector offers coverage to approximately 40% of the population. The hospital, which is the public sector's axis, is under the jurisdiction of the State provinces and municipalities within a decentralization model that handed over the financing, provisioning and delivery of health care services to the sub-national levels, thus depriving the National State from effective instruments for the planning and coordination of health policies. Therefore, the autonomy with which the provincial authorities decide on their health care service system is almost absolute and there is no national policy oriented to maintaining specific levels of quality and access to health care throughout the country and guiding the service delivery modality. The consequence of this situation is a heterogeneous and deficient coverage. Since the public health mode is hospital-centered, it is almost exclusively

concentrated in the secondary (that is, more or less severe pathologies that require special care or admission), tertiary (high complexity) and emergency levels, overseeing primary health care programs, which are the natural and most cost-effective entry to the medical care system.

The *Argentine* social security system covers around 50% of the population. Inspired in the German Bismark-based model, it is extremely fragmented in more than 300 *Obras Sociales*. This sector underwent several reforms in the last decade aimed at the creation of an “internal market” within most of the *Obras Sociales* that had the purpose of enhancing the efficiency and quality of service provision, in addition to increasing the response to the demands and needs of the beneficiaries. This model is financed through employers and employees’ compulsory contributions and is intimately related to the evolution of the labor market. Hence, the increase in unemployment and underemployment, as well as the labor instability of the past few years in Argentina, coincided also with the decrease in the proportion of the population covered by the system. It is worth mentioning that during the height of the *Obras Sociales*, they covered more than three thirds of the country’s population.

Finally, the privately financed sector formed by commercial private insurance and collective insurance, NGOs, etc., covers approximately 7% of the population and it is mostly focused on the groups with the highest purchasing power in the country’s largest urban cities. The plurality and important fragmentation of this system, the existence of a third-party payer system and the pay-for-service modality have been the cardinal determinants of professional development and medical specialties, which have led to a clear hegemony of specialists over primary care physicians, with a ration of 1:2 generalist/specialist, in contrast to other countries with primary health care oriented systems, such as most of European countries, Canada and Australia, where this ratio is 1:1 approximately. Even when the generically called primary care physicians (PCP) in Argentina and comparing them with other countries of the region, it is evident that most physicians in the country who work as PCP are not family medicine specialists (table I).

Family Medicine in Argentina

It is important to point out that family medicine in Argentina has adopted several names throughout the past few decades as a result of different political circumstances and regional realities: family medicine, generalist medicine (as a post-graduate specialty), rural medicine, and community medicine, among others. Its history began very cautiously early in the 1970s; the first formal development experience within a reorganization of health care provision and deliver framework took place

Table I
Primary health care physicians distribution according to specialty, in selected countries of the region

Country	GP	FP	Ped	IP	Gyn/Obs
Argentina	30	10	20	25	15
Bolivia	52	6	16	5	20
Chile	95	0.5	2	1.5	1
Colombia	57	0.5	12	19	10
Costa Rica	95	2	2	0	0
Cuba	0	88	3	3	3

GP: general physician, FP: family physician, Ped: general pediatrician, IP: internal physician, Gyn/Obs: gynecologist-obstetrician physician

Modified from: PAHO/WHO (Series HSR 29), and Family and Community Medicine Department, Baylor College, USA. March, 2002

in Neuquén, in Argentina's Patagonia, where the first Rural Medicine Residency was established (later, family and general medicine) to render primary care services to the whole province. To date, this district has a health care system centered in family medicine practitioners robustly lead by family doctors. By the end of the decade this movement gains, as a result of the 1978 Alma Ata Conference, additional impetus with the first experiences and training and educational programs in the province of Buenos Aires, the largest and most populated, and in Salta province, in the north.

Along the 1980s, the number of general/family medicine residency programs in the public sector of several provinces starts to multiply and the first family medicine residency emerges in a private academic hospital dedicated to research and teaching in the city of Buenos Aires (CEMIC). By the mid 1980s, the two core family medicine scientific associations were created: the *Argentine* Family Medicine Association and the *Argentine* General Medicine Association. As has been previously stated, the members of the latter association are graduate physicians in the general medicine or generalist medicine residency, and they are called general practitioners instead of family physicians. By the end of this same decade and the early 1990 decade, the family medicine services are created at several important hospi-

tals of Buenos Aires, among which the *Hospital Italiano's* Family and Preventive Medicine Unit, one of the most renowned university hospitals in the country. Not only did this unit become consolidated throughout time as a dynamic academic axis in family medicine and PHC professional education and research, but it also produced the first experience of medical attention in the private sector, which was organized in defined medical care levels; the primary care level was in charge of family physicians who had a population assigned to them within a capitation system. At present, this model renders coverage to more than 100 000 people in the *Hospital Italiano's* Health Plan. This experience subsequently resulted in many private insurance organized through models that included family physicians. A similar health care model was concomitantly created in the construction workers' *Obra Social* (Ospecon, as per its acronym in Spanish) that covers a population of one million beneficiaries. This model served later for the development of other programs within the social security.

In 1994, the Nation's Minister of Health acknowledges the specialty and in 1996, the social security issues a resolution that fostered access to the primary care level in the *Obras Sociales* through family physicians, which implied the dissemination of this model to other *Obras Sociales* that is still undergoing up to this date. On the other hand, in 1994 the School of Medicine of the University of Buenos Aires, the most important in the country, creates the Department of Family Medicine that at first offered optional courses and later mandatory courses in family medicine as part of the curricula. In 1996, the Iberoamerican Family Medicine Confederation, with the support of PAHO and WHO, organized a meeting in Buenos Aires to gather important health care officials, academic and family medicine scientific authorities from Latin American countries. This meeting, which was later called "the Buenos Aires Declaration", thrust the development of family medicine in Argentina in a significant manner. In 1997, the FM Foundation was created for the development of family medicine and primary health care, physicians and other professional of the *Hospital Italiano*. Several family medicine and general medicine leaders' meetings were organized from 1997 to 2000 at different sites of the country (Mendoza 1997, Buenos Aires 1998, Mar del Plata 1999 and Buenos Aires 2000) within what was called Argentina's Generalists Project. This initiative culminated in the year 2000 with the establishment of the *Argentine* Federation of Family and General Medicine (FAMFyG, as per its abbreviation in Spanish) formed by 18 provincial federated family/general medicine associations that gathered most of the family and general practitioners members of those associations. From 1997 and 1997 on, the *Argentine* Family Medicine Association and the FAMFyG, respectively, developed the specialty professional certification process in the Country, with high quality standards.

Education of family physicians in Argentina

Family medicine, as a specialty aimed at integral and continuous health care, health promotion and disease prevention, as well as delivery of primary health care service, is seen increasingly as an ideal model to carry out the foregoing functions. While general and family physicians represent a major part of the primary care model's labor force in most countries of the region, it is worth pointing out that, in contrast to family physicians, general physicians are professionals without formal post-graduate formation.

The context of health care in Argentina seems to offer a favorable setting for the strengthening of family medicine as specialty appropriate enough to attempt the ameliorate the inequalities of access, coverage and quality in the country. There are key factors that may enable the meeting of this goals: government support in policies and financing, the fostering of educational activities, and the integration of the community to the educational and training systems so as to promote the use of tools –such as communication technologies, distance education, telemedicine and continuous development of medical information systems– that may facilitate these processes. Among the policies that the Latin American countries should attempt to draw to guide reform processes towards primary health care are those related to the development of human resources in these functions, particularly family physicians. The quest for quality in the professional growth –and quality understood not only as excellence in education, but also the adequation of this education to community and health services needs– occurs from the undergraduate education, where the role of the generalist should be emphasized throughout the career with the purpose of exposing students to a practice profile that is an alternative to the traditional learning in medicine schools. This profile should be more focused on health promotion and disease prevention, as well as to interdisciplinary and multi-professional work centered not only on the patient, but on the community and its context. The curricula model of medicine schools should increase the number of graduates choosing family medicine as specialty, which should continue its development in postgraduate courses through the residency program and a permanent professional development.

Family medicine in the undergraduate education

Although the presence of family medicine in the undergraduate education has been intensified in the past 10 years, it is still not a general subject of the Argentine universities. Most of them have only acknowledged it and have certified the different residency and postgraduate programs that started to be developed in the

country during the 1980 and 1990 decades. While there are some departments of family medicine in the universities, most of them are still focused on the development and supervision of residency and postgraduate specialization programs. Of the twelve public universities' schools of medicine, only two of them –the University of Buenos Aires and the University of Córdoba- have formal departments of family medicine as such, as well as compulsory curricular courses incorporated in their curricula. Other four medical schools, three of them private, have mandatory courses although they lack a specific department, and another five offer family medicine as optional courses. For instance, the School of Medicine of the University of Buenos Aires has two 84-hour mandatory family medicine course, which are mostly taught during the fourth and fifth years of the career, and another 144-hour course taught in the 6th year of medical school as part of the internship, which students have to take at the end of the year. Table II shows the situation in other countries in comparison to the graduate education in Argentina.

Family medicine in postgraduate education and the process of specialty professional certification

Two strategies can be identified in the development of the family medicine postgraduate education in Argentina: the education through specialty residencies and the education through post-graduate courses with or without in-service activities. The first one has been operating for 30 years, since the first residency program in Neuquén province. At present, around 3 000 physicians have graduated from these one hundred programs currently, and around 400 vacancies per year to enter to the same courses in different provinces and sectors (table III). This dual education system to obtain the specialization diploma is attempting to equalize the level of knowledge, skills and dexterities –through a unified exam– among those who take the specialty residency and those who have complemented their service activities with certified courses. This has been the modality of certification adopted in 1997 by the FAMFyG. However, the certification process of medical specialties in Argentina has followed the same chaotic course characteristic of the health care system. Indeed, the Ministry of Health, universities, scientific associations and medical boards can issue specialty certificates today, both in family medicine and the other acknowledged specialties through processes that most of the time are not even articulated. This generates the issuing of variable quality and hierarchy specialty diplomas.

On the other hand, Argentina has a long history of the so-called professional re-conversion programs in which those professionals who have not taken any formal residency education (general practitioners) or have received instruction in other

Table II
Family medicine situation in grade education,
in selected countries of the region

Country	Number of Medicine schools	Schools with Family Medicine Department	Schools with mandatory course on Family Medicine	Schools with optional course on Family Medicine
Argentina	23	2	6	5
Bolivia	9	0	0	0
Chile	12	4	0	0
Colombia	42	3	9	3
Costa Rica	7	1	4	0
Cuba	21	21	21	0
Rep. Dominicana	9	2	2	0
Ecuador	9	1	2	1
España	27	0	0	1
México	59	2	0	2
Portugal	5	4	4	0
Venezuela	8	8	2	0

Modified from: PAHO/WHO (Series HSR 29), and Family and Community Medicine Department, Baylor College, USA. March, 2002

mandatory general specialties –such as internal medicine, pediatrics, obstetrics and gynecology, for example– are re-trained. The goal of these programs is to evidence the demand for primary health care physicians as part of the health care services. Even though the education received throughout medical residencies is the gold standard of postgraduate professional education, it may take much longer to meet the critical mass needs. The Argentine case may be exemplified as follows:

- It is considered that one family physician can attend an average population of 1 500 inhabitants.
- If each Argentinean –from a population of 36 million inhabitant– had his/her own family doctor, as in England, there would be a need for approximately 24 000 physicians.
- If the current situation prevailed, and considering that there are 3 000 family medicine practicing specialist and 400 annual graduates from residencies, it would take more than 50 years to satisfy this demand.

Table III
Family Medicine Residency Programs
in selected countries of the region

Country	Number of Residency Programs	Number of annual vacancies in first grade	Duration of programs (in years)	Estimate number of graduates
Argentina	98	400	3-4	3 000
Bolivia	3	15	3	270
Brasil	45	200	2	1 000
Chile	7	50	3	100
Colombia	5	35	3	150
Cuba	52	3 000	3	30 000
Rep. Dominicana	3	13	3	144
España	98	1 750	3	16 000
México	32	914	3	22 000
Venezuela	11	76	3	1 334

Modified from: Documentos Técnicos de la I Reunión Iberoamericana de Expertos en Certificación Profesional y Acreditación de Programas en Medicina Familiar. CIMF, PAHO/WHO. Isla Margarita, Venezuela. November, 2003

- Even when more residency programs and more positions per program were created, dozens of years would still have to elapse before this goal could be reached.
- Of course this estimate does not take into account the fact that some physicians retire, die, leave the public health system or stop practicing.

Even within the reality just described, one of the successful professional re-conversion experiences in Argentina has been the development of the PROFAM program, an initiative of the Family Medicine Foundation, certified by the FAMFyG and several national universities. Through a 2-year outreach program, more than 3 000 general and family physicians have graduated in the past seven years, many of whom have obtained the specialty diploma in family medicine after completing their certified clinical work experience.

Conclusions

In the past years, the growth of family medicine has been sustained despite the political sway in the country. Despite the inherent limitations of the health care services' financial and organizational model, today there are several family medicine model development initiatives that involve both the national and provincial public sectors –as was stated above, the public health care system is decentralized in provincial administrations– through different programs: social security, with the increasing adoption of the family physician health care attention in the diverse *Obras Sociales*, and the private sector, where most of the prepaid insurance have family physicians as their entry gate to the health care system. Several programs implemented by the Nation's Ministry of Health are centered in the development of human resources in order to improve the quality of primary health care level services, such as the *Programa Nacional de Reforma en APS*, PROAPS (National Program of Primary Health Care Reform), *the Programa Nacional de Médicos de Cabecera* (National Program of Bedside Doctors), *Programa Remediar* (Remedy Program), *Programa de Médicos Comunitarios* (Community Doctors Program), among others. All of them are considering the reorientation of human resources towards the goals of the primary health care reforms. From this perspective, today family physicians are broadly valued in all these programs and in all the sectors as one of the fundamental pillars for the transformation of primary care in Argentina.

It may be said that even though there is still a long way to go and much work needs to be done to consolidate it once and for all, family medicine is a greatly recognized specialty.

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Family Medicine in Brazil: experiences, reflections and perspectives

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*I respect medicine because I love it.
But love must also be criticism*

Gregorio Marañón

Introduction: Primary health care and its academic implications

The historical meeting organized by the World Health Organization (WHO) in Alma-Ata in September 1978¹ introduced the concept of Health for All through Primary Health Care, which is perceived as the essential health care based on a practical scientifically-founded model containing all the methods and technologies universally accessible to individuals and families within a community. Primary health care (PHC) is, thus, the first contact, the point of entry offered to people to look after their health. But this entry point has to be one leading to a specific place, to domestic organizations where the patient, a unique person, may be treated with dignity. It is not enough to offer citizens a universal access to health systems if this entry point does not lead anywhere, or if it leads them to large waiting rooms or to transitory rooms to wait for the longed-for specialist who never shows up. PHC is expected to be competent and to solve most of the problems that call their entry point; an access without further solutions is simply sterile populism. Therefore, PHC is a chronological concept of rational resources management, but never of poor quality. Primary –and this term might be confounded with the terms “primitive” and “simple” in Spanish– is not the correct epithet to designate health care, which should be denominated principal; i.e., the first and most substantive, since they are the ones most frequently needed.

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It seems natural that in order to contribute to an improvement of people's health there should be a rational distribution of work. Thus, those responsible for public policies will be in charge of preparing the professional scenarios for a good exercise of PHC, including working conditions and financial management. On the other hand, educational institutions will be responsible for the competent education of these professionals. In this matter, the education of adequate physicians to perform this role is the universities' mission.

The academic response to form general practitioners has been diverse few years after the International Primary Care Conference. While in some countries the recommendations of the Conference were summed to the increasing growth of specialties directed towards PHC, as is the case of family medicine, in others the demand for professionals with this profile remains missing. The logical explanation is that schools of medicine still privilege the education of specialist because they are founded on the traditional educational paradigm on which the quality of physicians is directly proportional to their training as ultra-specialists. The history of medical education in the 20th century, where the quest for excellence moved towards specializations in an attempt to remove improper practices from the medical profession,² offers an explanation as to the lack of academic response. It is easier to stay in the level of the scientific quality conquered with high specialization than to venture into unknown worlds –with past unhappy memories– for risk of losing quality. The lack of institutional response may be understood, but is not justified today; it is an issue that needs a deliberate thought.

The educational challenge is not a small one. The creation of a new physician model, competent to solve 90% of the problems emerging in primary care scenarios; with health prevention and promotion knowledge; a professional capable of looking after the health of all individuals in a continuous and broad manner, irrespective of their gender, age, social condition and pathology afflicting them, and of integrating biological, psychic and social factors; a professional attentive to individuals as part of a collective, that looks after their families and communities, without neglecting the needs of each person; a caretaker who at the same time is a health educator and who earns the trust of individuals; the creation of such a physician entails a major change in the educational paradigm of the university academic setting. There is no need for too much reflection in order to understand that, indeed, what is not shown and demonstrated in practice cannot be taught, and that in order to devise this model it would be necessary to install new learning models in medical schools with the same academic prestige to promote the vocation for family medicine and educate them with competence.

This is precisely the mission of Family Medicine as an academic discipline. Although the effort of promoting competent general physicians is the fruit of the

joint work of all those participating in educational institutions, Family Medicine assumes this responsibility as its own and considers it essential within its educational competencies. That is why since 1980 the World Organization of Family Medicine (WONCA) began a close collaboration with WHO that culminated in the historical 1994 Ontario meeting, in Canada, and the drafting of a joint document that proposes the practice of medical education with an focus on the needs of people, and in which there is special emphasis in the role of family physicians.³ The document also recommends the establishment of Family Medicine as an academic discipline aimed at fostering a balance between generalists and specialist, and considering that this discipline would also be a valuable continuous medical education resource for students, future physicians, who would learn to respond to people's demands at the individual, community and national levels. This document explicitly states the importance that "an intimate personal relation between the physician and the sick has –which in some cases depends on the diagnosis and treatment–, and how the lack of ability to build this relationship produces inefficiencies". Hence, the importance of the human dimension in the formation of physicians is a universal consensus particularly focused in primary health care, which is the context of family medicine per se. The family physician is one of the main actors in the Health for All mandate proposed by WHO more than 25 years ago. This introduction should serve as a reflection guideline to examine the situation of Family Medicine in Latin America, with particular interest on the academic dimension that has been posed to us. The situation in Brazil will be better understood under these preliminary considerations.

Historical perspective of the Brazilian scenario

The Federal Constitution of Brazil, promulgated in 1988, grants all citizens the right of free access to health prevention and promotion services. The Single Health System (SUS, per its abbreviation in Spanish), was created in an effort to truly consolidate the efforts of building a health system that could respond and attend the population's expectations and needs.

Having the SUS been established by the health policy authorities, it is the responsibility of the educational apparatus, represented by the universities, to properly respond by preparing professionals capable of executing in practice and in real situations what the SUS program offers. The evaluation obtained from the 17-year operation of SUS reveals that educational institutions –mainly medical schools and colleges– have not prepared physicians to practice this function with competence. No emphasis has been given to an adequate education, nor has it been fostered; a vocation has not been pursued with an essence of competence for health

prevention and promotion through primary care. On the contrary, continuous medical education, offered mainly at hospitals, is focused on disease and not on the sick, and it converges to specialties which are increasingly technology-dependant. Brazilians have not observed the response they would expect to see as a result of the SUS program.

In 1994, through a new effort of continuity of the same strategy, the Brazilian government inaugurated the Family Health Program (PFS, per its abbreviation in Spanish) that contemplated the conformation of health teams who could assume the responsibility of looking after 3 000 people/team. The implementation of the PFS, which was inspired by models operating in other countries, has been progressive and has produced an actual increase in the number of family health teams. Yet, it is precisely the image of the family physician, the essential element that coordinates the team's actions, what remains in conflict and becomes the most important limitation to obtain an effective PFS impact. The difficulties are the same as the ones discussed above with regard to their relationship with the SUS: teaching institutions don't prepare physicians in an adequate manner for this function, nor do they produce real interest towards their attending the demand of the program. Once again we confirm the existing lack of proportion between strategic actions in health proposed by the government and the model of physician graduating from universities.

A new attempt to come to tune is represented by the Ministry of Health's initiative through the Health Work Internalization Program (PITS, per its abbreviation in Spanish). This contemplates the joint work with some universities to whom new health care models are proposed in an attempt to promote continuous education through specialization courses in family health. It would be the intention, then, to involve universities in the certification of physicians for the PSF. However, the results are not very encouraging, since graduate physicians from universities are not the ones seeking this specialty to confirm themselves as family physicians with academic dimension; on the contrary, it is other professionals are already working in the program –more for a lack of options than for vocation- who want to somehow ensure a qualification.

The Family Health Medical Residency programs are another attempt of joint collaboration between university institutions and the government, who insists in the success of this program with noble objectives. In these cases, the demand of the recently graduated physicians is quite limited and fully incommensurate with the conventional residency programs offered by other specialties, which are saturated with candidates. The explanation for this discouragement is very easily found within the university response to governmental requests, which is timid, poorly defined, missing scientific and academic methodology, in absolute disadvantage with other

medical specialization residency options. The absence of an academic component in the family physician specialization program results in the lack of credibility among young professionals, in whom the desirable interest continuously sought and promoted by the government is not awakened. In other words, it is possible to state that the poor interest of university academic institutions for family medicine is not overlooked by young physicians recently graduated from medical school who, naturally, direct their professional goals towards other directions.

Additionally, the financial resources available in the PSF, with job positions that offer appealing remuneration, especially for recent university graduates, are not sufficient enough incentives to guarantee their continuity in order to transform them into family physicians. Many of those who decide to work in the PSF do so precisely in response to this appealing wage, but they don't project their future professional life in this practice. Most of them see it as a good work opportunity, a means to collect the necessary financial resources so that they may, most probably, undertake other specialization in the future to which they had no access previously. Or perhaps their monetary needs at that moment hindered them from opting for what they had always dreamt of. The truth is that, besides good working positions and adequate wages, health institutions must be absolutely serious and guarantee credibility, knowledge and scientific-academic competence in order to recruit young physicians who are just beginning their professional practice, making this opportunities true life vocational options.⁴

It is worth noting that the latest initiative to promote PSF on the part of the Brazilian government is short of suitable physicians and convenient vocation, as has been claimed. Despite the resources that the Ministry of Health has to promote family medicine –raised through agreements with the universities– and in view of the timid and poorly defined responses that are not encouraging young physicians, the Ministry of Health, in conjunction with the Ministry of Education –responsible for undergraduate and medical residency programs– launched the PROMED Project in the past few years. This project consists of an award offered to medical schools that become engaged in reformulating their undergraduate curricula with a view to form generalist physicians. This award is naturally translated into financial resources aimed at helping medical schools in this endeavor.

To put it briefly, the result is that many medical schools submitted their curricula reforms and some of them were granted the award. The reforms they committed to perform started to be implemented, but concrete results took longer to emerge. However, it is already apparent in many cases that the attempt to promote a more generalist-oriented education in young students is not showing an encouraging response. Family health is promoted through disciplines that, in practice, are completely divorced from conventional scientific medical education, as though

family medicine lacked its own scientific method. Students are recruited for actions in to be applied in conjunction with the community, but without professors and medical models by which they may be inspired. From the opinion expressed by many stakeholders, students feel more like community agents than like medical students, future doctors. The practical actions in family medicine –continuity, coordination of care, patient-centered and not disease-centered clinics– are absent because those coordinating the disciplines are not family physicians nor, often times, even physicians. In the end, it seems that the remedy may be worse than the disease, and that the attempt to quickly promote -in a rush- what family medicine would be in the undergraduate school –without the proper scientific methodology and without the protection of academia– may scare more than appeal students. It is a universal experience that a poorly taught discipline will end up creating antibodies and generating rejection, rather than motivating students.

The issue here is that the government will request schools of medicine to render their accounts on the use of the resources granted to them for the promotion of physicians for Primary Care. Let this be clear: PROMED is not an award granted to simply reform the undergraduate curricula; rather, it is granted so that the results derived from these reforms produce family physicians. If, despite these reforms, the percentage of the other specialists still shows the same disproportion today, it means they were useless. A slight knowledge of the academic evolution of family medicine in other countries is sufficient to understand that promotion of the family medicine specialty depends both on curricular reforms and the presence of suitable models that could inspire and promote vocation among medical students. A family physician passionate for his/her specialty and who is a professor devoted to his/her students and patients will indubitably achieve better results than complicated and unclear curricular reforms.

Better understanding of the Brazilian scenario: Specialists and general practitioners

The current situation of the newly medical school graduates in Brazil is that only 60% are able to join a Residence Program to complete their formation as specialists. Many others look for their specialization through their medical practice, working in the service offered by any specialty –often as volunteers, with no remuneration– earning their living with extraordinary jobs and guards in emergency rooms. After some time, they obtain their title as specialists, recognized by the corresponding association that represents said specialty. Specialization is the natural and most desired road by most of the graduate physicians. Worth of mention is that when reference is made to a specialist in Brazil, all specialties are in-

cluded, but general practitioners or family physicians are excluded. General practitioners, simply stated, are all those physicians that were unable to follow any specialization.

A trend seen in recent years is that general and community physicians have made efforts to obtain their specialization title in Family Medicine. The process is complicated and it has more political than academic components. In fact, many professionals who are working in the PSF, most of them general practitioners and newly graduated physicians –who were unable to continue with their specialization and, as was explained above, opted for this working position on a provisional basis– the program leaders understood that they also deserved a specialist title. The truth is that they never analyzed what the Family Medicine specialization really consisted of, as if were a well-known and accepted fact, and focused their concern only on obtaining their specialization title, with the corresponding improvements in representation, wages, and corporate position. This leadership stems from the old Society of Family and Community Medicine. Other players involved in the process come from Academic Departments of Preventive Medicine, or of Public and Community Health. Also mention has been made of the attempt made by the government and the universities to work together to foster Family Medicine, which ended up having an influence on these departments. As a way to adapt themselves to the favorable situation, they included it as part of their competencies, although only nominally of course.

Thus, what should be –as in any other specialty and in other countries of the world– a scientific, academic, and methodological issue, became a semantic and nominal issue. It was sufficient to change the name and to allege some experience in community work to establish a certification process that includes the specialist title, of a specialty, which in the practice, has yet to be built within the Brazilian academic reality. The argument that the physicians who work in the PSF must have a representation and a title appears to be more of a union-related concern than a serious occupation with a future specialty and with the adequate preparation of the physicians who feel the call –with vocation– to perform their activities in it. This story, which can be a novelty in Brazil, is sufficiently known by the rest of the Latin American countries, where similar processes ended up in a certification that left the family physicians in a clear second level, in a position equivalent to scientific and academic mediocrity, and in the generation of difficult to solve inferiority complexes.

Let us go back to our initial analysis. Medical schools and universities foster specialization despite the efforts of the government. So, the next question arises: who are, therefore, the general practitioners who practice in Brazil? If most of the students wish and dream of becoming specialists (because that is what they see,

live, and breathe in the medical schools), what are the real perspectives so that somebody aspires to be a general practitioner? Without the intention to oversimplify things, we can admit that most of the general practitioners –also family medicine– work as such because they have been unable to attain their specialization, for several reasons. There are some who practice general medicine as a result of their own choice, but they represent the minority. Others also included are those who have their formation as general practitioners as a result of another specialization that is more aligned with health policies than with the clinical practice, such as epidemiologists, public health or preventive medicine professionals. Therefore, the physicians who act in the field of general medicine and in primary care evolve in a broad and varied universe. Very few of them do it because it is an option they chose or for vocation; others move in this field because they were unable to obtain a specialization and, finally, some others who have played an important role in the creation of health strategies end up filling a gap in desperate need of labor and practical actions, rather than of political postures.

In any case, there is a common element in those who practice general medicine in Brazil: the neglect they have to endure. Lack of points of reference supported by continuous education programs and lack of rational and academic planning to certify, and particularly, to improve the quality of these professionals, is a significant deficiency and an inferior status when compared with any other specialty. This is not something that can be resolved overnight in a dictatorial way through the establishment of a certification process. Prior and relevant education is needed. Let us imagine such an easy exam that everybody obtains the certification or so difficult that nobody can get it. In any of these cases, the process credibility will be at stake and, obviously, compromised.

Failure of university institutions to assume a real commitment in this formation places general practitioners in clear risk of becoming second class professionals or, if they are already considered so, that they can never abandon their role of “second level physicians”. This is a serious issue, because all the efforts made worldwide to provide health access to all the citizens is supported on these physicians. They are actually the main characters of the APS. As such, they should be entitled to have a more carefully devised formation.

Nothing of what has been stated here has the intention to criticize specialists nor does it leaves aside the need that a health service has of each and every one of them. However, specialists are a rational need of care at a secondary level. It cannot be expected that specialists (and I reiterate, specialists with the Brazilian meaning, as opposed to general practitioners) offer patients more extensive and ongoing assistance, that integrate other health problems, because that is not the role they are supposed to play. They will not become better physicians by doing that and the

results might be even worse because there is the risk that they get distracted and that they neglect their specific competencies expected from them, as specialists. It is here where they become really essential. Specialists who provide primary, general, and habitual care will end up losing their skills as such in each of their skills.

Another issue that we still have to discuss in this analysis of General Practitioners and Specialists to better understand the Brazilian scenario in which the family medicine will have to flourish; we are referring to those engaged in internal medicine or in clinical medicine at the university. Apparently, they are general practitioners and their departments are sufficiently consolidated in the academia in such a way that it would be possible to think that their role would be the competent formation of physicians for primary care. This is actually true and many of the skills of a general practitioner will be obtained through learning within the internal medicine departments. Nevertheless, the issue is much more complex than what it appears; not so much for the internal medicine knowledge but for the models that really exist in the labor market. In the real world, with extremely rare exceptions, the professors who teach clinical medicine or internal medicine at the university orient their particular professional practice to complementing a specialty. Finding a market for an internal medicine professor who has the true conviction to present himself as a general practitioner is truly difficult. The most common situation is to practice clinical medicine and something else, another specialty—cardiology, endocrinology, pulmonology, and gastroenterology—or sub-specialty. This is the model that students witness in real life; this is what complements the formation of the academic scenario. Thus, it is natural to conclude that their professional option will follow a similar path as that seen in the trajectory of their professors.

Academic foundations of Family Medicine: a need for excellence

The academic response of educational institutions in Brazil, as in many other Latin American countries, has been diverse as well. Whereas the health policies in these countries have adopted the Health for All models, using the APS and the family medicine as the basis for their articulation, lack of proportion is noticed in the academic preparation of the physicians who should lead this paradigm change in health promotion. The scenario has been built, but the actors are not prepared yet. And it is precisely the absence of this educational-academic factor what becomes the primary objective of this discussion.

Lack of interest in family medicine among the newly graduated physicians is totally disproportionate to that shown by young professionals before any other medical specialty. As was mentioned before, this is the result of a response totally

devoid of interest and of the wrong leadership by the medical schools with regards to Family Medicine. When the academic and educational component is missing in the family physician specialization, it immediately results in loss of credibility among the candidates who, equal to what happens with the institutions, opt for the security offered to them by high specialization, before running the risk of becoming second category physicians. The residence and specialization programs proposed to them are at a disadvantage before what is offered by other specialties, resulting in lower demand.

When we contemplate this reality in a calm way, it is worth considering if it is really possible, or better still, if it is sensitive to establish a specialization program of something that graduate students have never seen or lived, as it is non-existent throughout their college education. The intention to solve through a residence what has not built or fostered, and much less promoted their vocation, while they are at school appears to be a palliative solution; and everything with a palliative character questions the real possibilities of future hopes. Let us imagine, for example, what it would mean to offer a residence in neurology in a hypothetical medical school where this discipline were not present in the curriculum. Very likely, those who oriented their steps there would not know exactly what they are looking for and, in many cases, it would be a consolation option when more frequently sought objectives were out of their reach.

The efforts focused on family medicine are not devoid of good will and sincere intentions, but these attributes are not sufficient to be successful. Besides, science and medical competency are not built only with good intentions. Some of the medical residence and specialization programs, fostered by those responsible of the health policies, end up in the hands of the wrong leaders. The problem does not lie in the people who foster them from the governmental entities, because logic might indicate that those responsible for setting up the scenery and the theater are really interested in getting, as soon as possible the high category actors to play the role assigned to them. The critical issue is that the institutions devoted to formation, the university, assume the commitment, because when they are under the political-governmental pressure, they delegate this important mission to those who are not properly prepared to carry it out. Thus, we find medical residency and specialization programs in Family Medicine embedded in public health, epidemiology, preventive medicine, or community and general medicine departments, or worse still, distributed among various specialties at the same time, with no coordination, and evidencing in all these cases a true lack of identity as a consistent specialty.

History warns us of the risk implied when we try to simplify things and it teaches us that the phenomenological understanding of human attitudes must be sought. It is not difficult to find a reason for this existing inconsistency that charac-

terizes Family Medicine in the academic and university scenario. Medical schools, anchored in the high specialization security, respond to the repeatedly request made by the government –the producers that finance the metaphorical theater play– with the speed of those that do not want to be distracted with minor details, to concentrate on that is really of interest to them: research in ultra specialties. And Family Medicine, the promotion of general practitioners to replace Primary Care, whose competency they actually mistrust, is dispatched through poorly understood “proximity” to departments that have the corresponding prestige but lack the necessary competencies. Having an understanding of population, epidemiological studies, public health, or prevention does not mean having an understating of Family Medicine. Even though the other specialties contemplate specific diseases, they do not have the necessary perspective to take care of individuals –which is the core of Family Medicine– and they also lack within their tasks the priority to study the population and the communities.

The intention of these explanations is not for them to become a semantic discussion, and much less a dispute to establish boundaries of domains. It is an essential issue where the identity of Family Medicine as specialty is at stake, with its own set of knowledge and specific competencies. Accepting that anybody can practice –and, worse still, teach– Family Medicine is equivalent to saying that these are minor issues, details that any physician can solve by using common sense, in the free time left to him by his/her specialty.

Those countries where family physicians exist as such –experience that Brazil must weigh to avoid rushed decisions– are also partly to blame for the lack of credit that the specialty has. Let us think, for example, of the lack of quality benchmarks and of continuous education programs that maintain the professionals updated from the scientific point of view. Also worth of stress is the time consumed in activities of a predominantly union and political character, rather than academic. And, finally, the scientific congresses and activities organized by Family Medicine institutions where, instead of representing the venue to exchange experiences and become specialists trained to think and mold their specific competencies, end up being a series of conferences given by other specialists invited to them. Nothing of what has been established here goes against the updating achieved in scientific advances; however, two simple warnings must be set forward. The first one is that the perspective of a given specialist in the approach of patients will never be the same approach used by the family physician. If the intention is to improve the formation of family physicians, this specific perspective must be present at all times as a unifying element. The second one is that in this attitude to delegate in others what corresponds to us, a certain complex of professional inferiority is latent. Even if this is not our intention, we might be negatively contributing to perpetuate the idea that Family Medicine is something that anybody can practice and teach.

Family Medicine has been taking shape as a specialty for almost 40 years in many countries, and the academic incorporation in universities has varied among the different countries, and within the same country, the implementation of Family Medicine Departments in the medical schools is not uniform either. Before this scenario full of variations, two conclusions are clear: the first one is that the credibility of Family Medicine as a specialty is directly proportional to its academic incorporation. Its implementation in universities provides transparency and relevance to its specific values, enabling the practice –clinical, educational, and of research– of the new paradigms that propose it as a science.⁵ Secondly, when Family Medicine with an academic perspective is incorporated to a health system, it has a positive influence on the Primary Care results of that sanitary system.⁶

The practical posture of a general practitioner in academic version –equivalent to a family physician– offers an interesting opportunity to ponder on the inherent values of the specialty and to deepen in the value of its academic profile.⁷ The specific needs present in a patient’s care, particularly when dealing with chronic patients, who suffer several disorders (co-morbidities), need a professional that makes use of an extensive approach and who owns a broader methodology for their care. From this perspective, the physician must determine what the best clinical options are, having the necessary sensitivity to coordinate the priorities of the different health problems that the patient might present, with the preferences based on his/her personal values and on the feelings of the patient. He must also acknowledge that the best suggestions to provide care to chronic patients are offered by the patient himself and his/her family, who actually collaborate with the physician, and that it is his/her responsibility to learn to speak “the language of the patient and his/her family”, and to engage in conversations to jointly look for the best solutions. The family physician assumes a central and integrating role to coordinate all the assistance efforts for the benefit of the patient. He becomes the main character in health management, he collaborates with the patient and with the family to manage the disease and the resulting limitations; after that, he works in collaboration with other specialists and health professionals to solve specific aspects.

A family physician is not the mere algebraic sum of solutions for the various health problems that the patient suffers. It assumes a new perspective in the art of taking care, a different gestalt, a new outlook of the world or of the patient under his/her care. And as such, a new paradigm must be built and taught.

Building and teaching this paradigm takes us to the medical education topic, one of the pillars of the Family Medicine as an academic discipline.⁸ The practice of medicine focused on the person turns the family physician into an educator that thinks, first and foremost, in the medical model proposed by his/her specialty,

and after that, in the educational process of the medicine student, thus becoming an important collaborator in the comprehensive formation of future physicians. The family physician acts and thinks in the person –the patient and the student– to offer both of them the best he has: his/her specific competencies. The family physician looks at the patient before his/her disorder, because the patient represents the key that orients his/her medical actions. Likewise, it is the student –with his/her expectations, dilemmas, concerns, and learning process– who orients the family physician in his/her role of professor.

The affirmation of the Family Medicine identity as a specialty has to necessarily pass through its progressive university insertion as an academic discipline.⁹ The prestige of family physicians who teach in the academic institution will mean that they will be required to speak at the same level with the other specialists, with the same competencies, with the awareness that they have their own set of knowledge, a specific methodology that also leads their lines of research. And all this without feeling neither more or less important than the other specialists, but carriers of something that is particular to them, their skills and specific field of medical action in the every day activities of the family physician.

In this way, through their actions in undergraduate and post-graduate scenarios, it will be possible to foster among the students the vocation for this professional option. A vocation that arises when in contact with real models, with family physicians that enjoy academic respect and that teach while they are engaged in their clinical practice with competency and capacity to solve the health primary care issues. Vocation among students who freely decide to become family physicians, rather than an option they accept because they were unable to study another specialty. These students will exercise true leadership to perpetuate among their peers the prestige of Family Medicine as a specialty.

In Brazil, as in many other Latin American countries, Family Medicine lacks this academic dimension, and the corresponding recognition. There are no departments for it in the medical schools nor family physicians teaching its principles. In the best of cases, we find family physicians, very few of them, teaching in other disciplines. By virtue of this, in Latin America now it is more necessary than ever to think of education as an element that orients the academic direction. The example of other countries that have created associations of Family Medicine professors (see: www.stfm.org) as a strategy of academic implementation offers us a starting point to think about the reconstruction of our specialty. Nowadays it is not possible to exercise Family Medicine in the university environment without thinking of medical education. What started more than 30 years ago in some countries as a need to conquer credibility and show academic seriousness is currently a *sine qua non* condition, true consensus. The family physician is a genuine educator and

doing without this dimension –for omission, for incompetence, or for an inferiority complex– will endanger not only the prestige of Family Medicine as a specialty, but its own identity and educational commitment.

Promotion of Family Medicine among the Brazilian medical students: the experience of the Brazilian Family Medicine Society

The Brazilian Family Medicine Society (SOBRAMFA) has an academic nature. It was founded in 1992 in São Paulo, Brazil, and its objective is to establish the scientific and academic foundations to promote the family medicine development. Throughout the last 13 years, SOBRAMFA –pioneer initiative–, has disseminated the philosophy of Family Medicine among the medical students through congresses, academic meetings, seminars, international conferences, and continuous education courses. Since 1993, it directs the Family Medicine Department of the Associação Paulista de Medicina (APM), medical association of São Paulo, where many of its activities are carried out. The APM is integrated to the Associação Médica Brasileira (AMB), which is a medical association.

All throughout these 13 years of operation, the SOBRAMFA Board of Directors has understood that one of its main missions is to work along with the medical students and find ways to develop Family Medicine in the medical schools and promote among the students a vocation in this area. The interest generated by this branch of medicine has increased thanks to this work and the students' interested act as true leaders among their peers, in the academic field they belong to. Thus, the attention given by students to this specialty becomes a valuable resource to provide transparency to the core values that govern family medicine. The students understand that when they incorporate those values, these values are transformed and their medical formation is better. When there is independence and they can consider the Family Medicine as their future specialty, it is outstanding to see that what they learn in it facilitates the treatment and care of patients and, consequently, they improve their clinical efficacy. The recognition that family medicine is a valuable educational resource has been confirmed by the interest shown by students.

To support and facilitate the growing interest of students for Family Medicine, the SOBRAMFA created the academic division eight years ago, a board of directors made up by students of different medical schools from various academic levels. The student that explains and teaches the values and the family medicine method to another student represents one of the most promising results that the academic division has shown during this period. On the other hand, and considering this pioneering feature of the project, the students who decide to choose Family Medicine as their future path, have to be convinced of what the mission entails

in these initial times in this specialty. They frequently suffer the well-known opposition of the new ideas in their own academic environment, and even their families do not always understand why it is worthwhile to take new roads, which are somehow unknown or not conventional. Therefore, these are true and well-focused leaders who make of Family Medicine their personal objective, both from the professional and personal perspectives.

At present, the academic division of SOBRAMFA is represented in different medicine schools. Within the last four years, some of the students who started the academic (student) division, graduated and currently hold directive positions of SOBRAMFA; that is, the current directors are mainly young physicians who were medical students interested in this new academic and educational project.

With the clear understanding that there will be a natural trend for the university environment to accept the new educational paradigms proposed by the family medicine, and knowing that it does not have professors trained for this purpose, SOBRAMFA directs its best efforts to promote leaders among the medical school students, to provide those interested with continuous formation in this area during the undergraduate stage, and to help them develop their scientific competencies. In the future, from these students the necessary leaders will emerge to disseminate and implement the Family Medicine in Brazil, with the academic seriousness required to show scientific credibility.

The main result of the work conducted in these last eight years by SOBRAMFA is that the interest of the medical students in the philosophical principles of Family Medicine has been fostered. More than 3 000 students have been involved in this period of continuous education activities promoted by SOBRAMFA. Below, we will outline the most important ones.

The Family Medicine Links, founded by SOBRAMFA in eight medical schools of the State of São Paulo, has also been promoted in schools of other Brazilian states, and students from other 10 schools frequently attend the meetings organized by the academic directors of SOBRAMFA. The Links are groups organized and integrated by students, structured in parallel to the official curriculum to approach, study, and discuss aspects of interest to them, outside their school time. The Family Medicine Links are, thus, an opportunity for the students interested to meet every week or two weeks to delve into the philosophical principles, the clinical approach, and the research methods related to Family Medicine. It is an opportunity for students to read and analyze amidst constructive discussions papers of international journals about this specialty, and the classical texts that orient its essence. The students themselves are in charge of organizing the Link. A casual and agreeable ambiance is created, where the participants can pose their concerns, ideas,

and the frequent perplexities that arise during their formation years in their undergraduate studies. Therefore, it is a space for constructive reflection offered as something unique and particular.

The project PRAMEF-21 (Academic Project for the Family physician of the XXI Century) consists of a learning Ambulatory, where students of different medical schools, take care of patients and learn the methodology of the patient-focused medicine. At the same time, they exchange with their peers their own educational experiences and learn from what we call the reflective practitioner, a philosophical exercise of the profession. This Ambulatory is truly innovating because regardless of the year the student is studying, he can have the opportunity to take care of a patient. This might appear to be irrational, because the newly graduated medical student does not know sufficient medicine. However, we must acknowledge that he knows what a person is –probably this is the reason why he got interested in becoming a physicians– and this starting point is sufficient to put him in touch with the patient.

Each of them tends to the patient depending on the knowledge level, and the students more advanced in their medical education, and the supervisory physicians (directors of SOBRAMFA) complement the clinical examination, the necessary information and the decisions made. The surprising result is that everybody has something to contribute in this place of true “built knowledge”. While the youngest students pay more attention to the dimension of the suffering of the patient –because this is what they can best observe, as they do not have any other technical resources– reflected in the joint discussion of the case, the more advanced students complement the decisions made with the specific diagnosis and treatment knowledge. The young students somehow “remind” the elderly of the importance of the human dimension and the most advanced students motivate the young ones by showing them the practical usefulness of the knowledge of basic sciences that they are not always able to discern. Some students motivate others, the supervisor fosters reflection, and the patient motivates all of them. The youngest ones observe the veterans when they tend to the patient. And when the turn comes for the most inexperienced students to take care of the sick person, neither the veterans nor the professor are present in the room. It is necessary to let them be and create, to feel the patient in all his/her dimensions, leaving aside their worry for their natural lack of technical knowledge; eventually there will be sufficient time to acquire what they need to know. What is important is that the young student is not distracted in his/her role of caregiver when he feels the presence of a more experienced person at his/her side.

The Monthly Meetings of the Family Medicine Department of the Paulista Association of Medicine are coordinated and led by students, where a method with high impact results is presented: students teaching to students. The references used as the basis for the discussion that the students will present are classical international* or domestic† texts. Several chapters are assigned to the most experienced students who, in turn, recruit the youngest ones and provide them with guidance for their presentation and the discussion held after it. A family physician (of the Directors of SOBRAMFA) coordinates the discussion and helps draw the conclusions and the scientific summary that will be then published on Internet.

The Annual Family Medicine Academic Congress is also organized by the students and a learning environment is created, within an ambiance full of enthusiasm and professional passion, through the design of an interactive scenario. Some of the main topics during these congresses were: “Bases for family assistance” (1997), “The patient and the family before the disease” (1998), “The Family Medicine: a road to humanize medicine” (1999), “Family Medicine: search for a new medical style” (2000), “In the search for medical art” (2001). In the last three annual congresses, the board of directors of SOBRAMFA included leaders with worldwide prestige in the Family Medicine field, members of the Society of Teachers of Family Medicine (STFM) of the United States of America. “Awakening for the questions posed by students” (2002), with the participation of Joshua Freeman, of the Kansas University. “Taking care of people: the practical idealism of Family Medicine”, (2003) with Cynthia Haq, of the Wisconsin University. “New paths, new values: collaboration with the health of Brazil” (2004), with Stephen Bogdewic, of the Indiana University. In the last congress (2004) there were several significant participations and the presence of professors from Mexico (Dr. Rafael Bustos

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Saldaña); Honduras –Indianapolis (Dr. Javier Sevilla), and England– India (Dr. Prasantas Bhowmik), offering the students the real possibility of being exposed to other learning cultural models.

The International Congresses* where students and professors of SOBRAMFA submitted the results of their works, have also represented a research oriented incentive for young students and newly graduated physicians, as they are exposed to an academic environment where Family Medicine has conquered its well-deserved recognition. The presence in the STFM congresses to present research works has been ongoing in recent years (2001-2005).

Particularly important was the series of presentations that SOBRAMFA, represented by a numerous group of students and young physicians, made in the World Congress of Family physicians, (17 WONCA World Congress), held in Orlando, Florida, in October 2004. The main objective was to share the experience accumulated throughout these 13 years. The presentations stressed the construction of Family Medicine with the students when there is no official curriculum in undergraduate studies to do it, and when the residence programs are not coordinated by family physicians, but by professionals who do not know about the methodology of the individual-focused medicine, the basis of Family Medicine. Affective education and the use of humanities – literature, cinema, opera – were also part of the presentations.

The Family Medicine Miles Program¹⁰ is one of the most recent initiatives of SOBRAMFA. It is structured as a Project of Continuous Medical Education for Medical Students during their undergraduate years, and its main objective is to promote the vocation and form students within the Family Medicine context. The different activities offered by the Directors of SOBRAMFA for the students are integrated in a project that manages to provide the participants with a system of extra curricular support during their formation years. The students acquire *miles* through their participation in the different educational scenarios that SOBRAMFA offers. *Regular miles* will be those obtained in scientific meetings, congresses, conferences and seminars; *practical miles* when clinical assistential activities are performed; *didactic miles* when acting as the professor of other students; *academic miles* for participation in research and publications, and *family miles* that are obtained through the participation in informal gatherings, celebrations, and recreational and

* The complete list of works presented in International Congresses is available in: http://www.sobramfa.com.br/quem_somos-memorandum-3.php

activities for joint reflection. The latter miles are certainly particular, they are difficult to measure, but are of capital importance. One of the clear conclusions reached in these years of work is that a person who does not know how to interact with others, rest, have a good time, and be happy, will hardly have the vocation to become a family physician.

The students can monitor their miles through the SOBRAMFA Web site and request orientation to acquire a desirable and productive balance among the various types of miles. In this way, it is possible to make use of personalized tutorship –not only through electronic means but also personally, for those who prefer it this way– throughout the six years of undergraduate formation, along with the conventional formation offered by the medical schools. The official and conventional learning is integrated in a personalized way, showing the extremely important dimension that Family Medicine has in medical education. With this continuous education system, true leaderships among the students are also promoted, as they become the professors of younger students. This interaction among students –commonly known as informal curriculum, with a worldwide recognized important – is also taken advantage of within this educational context. The Family Medicine Miles Program is, in practice, the cradle of a school of Family Medicine professors who start being active since their academic years. Therefore, it is an “active and productive waiting time”, where teaching is encouraged so that sometime in the future it might be a discipline that universities will be interested to incorporate formally.

The Family Medicine Fitness Program¹¹ is the most recent initiative of SOBRAMFA, as a logical consequence of the education project carried on with the students. The Fitness Program (Comprehensive Integration with Training in Service and Supervision) is a *Medical Residence Program* created in 2003. The students who participated in the Family Medicine activities and accumulated a balanced and sufficient number of *miles*, will be ready, upon their graduation, to take the Fitness Program Admission Test, through a letter of intention –why do I want to be a family physician?– and an individual interview with curriculum analysis.

This is an innovating program in the form of medical residence in Family Medicine for certain characteristics that are essential to it. The first one is that the residents –the *Fitness F1, F2, and F3*– act on a continuous basis in the daily activities of a family physician; at the beginning with direct supervision and then with coordinated supervision. The practice scenarios are not performed together with other specialists, but always alongside with family physicians (directors of SOBRAMFA or certified collaborators). The main task of the *fitness* is, therefore, out-patient based:

primary care, high complexity outpatient care, and co-morbidities, management of chronic patients, health promotion and prevention. They also play an essential role in the systematic home care, with consists of pre-hospitalization assessment and coordination of emergencies in patients. The hospital actions depend, much as in real life, on the patient under their care and in need for him to be hospitalized. They do not go to the hospital to practice; they do it when they are required to go there to take care of their patients. Contact with specialists is also fostered in the case of their own patients to extend the care and coordinate the sporadic actions of the specialists. It is easy to conclude that one of the most significant innovations of the Fitness Program is to provide the residents with continuous learning of patient care, its coordination, and the expansion of possibilities that are actually involved in primary care.

Although this innovating formation would offer clear benefits were it implemented in the Public Health System (cfr. SUS, already explained above), the practical difficulties for its implementation depend on political and public management commitments. Likewise, the possibility to develop this project in the university environment faces difficulties of the same type. These barriers have been dealt with in the real world with another innovating dimension of the Fitness Program: the predominant performance takes place in the Private Health Service, developed by SOBRAMFA, along with insurance companies and private companies with whom health agreements have been executed.

The encouraging results that the Fitness Program has yielded in its two years of operation have awakened the interest of other professionals who have showed their interest to participate in a similar formation, adapted to their own circumstances. Thus, in 2004, SOBRAMFA launched the Senior Fitness Program, for physicians with several years of experience and who wish to be trained as family physicians certified by SOBRAMFA, and collaborating professors. Another initiative in development since 2005 is the Professional Fitness Program oriented to physicians who hold positions where the academic-practical formation offered by SOBRAMFA will be of use to them. These are university professors who were entrusted with the task of developing the Primary Care discipline (cfr. Promed, already explained), or health managers of private companies, or coordinators who act in the public health system of some municipalities. In this way, with a program similar to an MBA (Master in Business Administration) in Family Medicine –with one year duration, one week per month of attendance to the SOBRAMFA course and remote learning with tutorship in a Web environment– the real possibility exists of collaboration in scenarios where the academic implementation of Family Medicine is anticipated as slow and cumbersome. Without any doubt, the most profitable investment is certainly the formation of professors and leaders.

Finally, the interest generated by the dissemination and continuous formation work of SOBRAMFA in some Latin American countries where already installed Family Medicine requires a scientific- academic innovation, has led the Board of Directors to create the International Fitness. Through this program, the exchange of professors, residents of the specialty, and students is contemplated, first from Latin America and, eventually, from other regions of the world, to develop practices equivalent to the *fellowship* in SOBRAMFA. The four main objectives of the Fitness international for Latin America are:

1. Highlight the educational aspects in Family Medicine.
2. Provide resources to improve the management and updating of scientific information, facilitating the decisions made in the clinical practice.
3. Foster research and develop the capacity to publish papers.
4. Promote leadership so that the candidates can help develop the Family Medicine in their own countries.

A final aspect worth of discussion which, rather than being an activity developed by SOBRAMFA is an innovating methodology, is that related to Affective Education of the Medical Student. The affective dimension –education of emotions– is particularly significant nowadays, when speaking of formation. The emotions of the student cannot be ignored; further still, they have to be contemplated and used because, from the perspective of the student, they are an essential element in their formative process. Within the modern cultural context, it can be certainly asserted that emotions are the gateway to understanding the universe where the students walk, move, and consequently, are formed.

It is in this aspect that the use of humanities in the medical formation finds their reason to exist. Humanities, when incorporated in the academic formative process, arise as an important resource that favors the development of the humane dimension of the professional. It is a fundamental professional dimension because it is precisely what the patient better notices, and on which his/her requests must find support. What the patient mainly desires is to have an educated physician, that is, somebody who not only has technical knowledge, but who is also capable of understanding him as a human being with feelings, who seeks an explanation for his/her disease, and who requires comfort in his/her suffering.¹² Humanities are an extremely valuable resource to deal with these realities and, more importantly, they educate. Education not only refers to providing training in certain skills: it implies a reflexive attitude and a continuous desire to learn.

The objective of educating through aesthetics is not to base on emotions and on sensitivity all the group of concepts necessary to build the values of the person.

The intention is to awaken the interest to think, an essential condition in any attempt to build one's personality. The technique can always be taught, and skills can be incorporated without giving any thought to them; but virtues cannot be acquired, attitudes cannot be changed without a reflection process. Thought is required, or better still, thought must be promoted, and this is part of the usefulness of aesthetics and the emotions that accompany it. The purpose is to establish a starting point, as in a launching pad from where deeper knowledge can be obtained; starting with what is nice and aesthetically beautiful, with something that "touches our emotions" to then dive into the construction of values that, aside from being agreeable, are true. The assistance offered by the classics to us to work on emotions is additionally useful if we admit that in the universe of the current student, emotions represent the core actors in the education scenario. Therefore, in the educational process, emotions must be contemplated – never ignored – and we must learn how to take advantage of them and to place them in their real dimension and place. Sharing emotions in open discussions opens the door to achieve a true affective reconstruction practically imposed by the current culture.

This would be the role of the educator, a true promoter of culture, who awakens the desire to learn, who transmits the enthusiasm to know, and who encourages the student to place his/her best efforts at the service of his/her own formation. The creativity expected from an educator is evident, as well as his/her capacity to adapt to his/her surrounding universe. Flexibility, observation, continuous reflection about his/her position and actions are required from professors, as all these traits will be reflected in the educational methodologies used, because an educator works with individuals, and not only with ideas. It is not possible to consider ideas only *a priori*, it is also necessary to adapt to the reactions that ideas generate on the receiving party. Another new challenge arises here: flexible education, a challenge that must be dealt with if a real education is truly sought.

The initiatives that propose the integration of humanities in the medical curriculum are not, consequently, peripheral artificial proposals –useful "hobbies"– because they require methodology, system, modern integration. The proposal of instilling the habit of thinking and teaching roads for permanent reflection –a true philosophical exercise of the profession– is an ongoing concern among educators, who find a space available to them in the publications oriented to medical education. The humanistic resources cover the wide spectrum of the human condition: literature and theater,¹³ poetry,¹⁴ opera,^{15,16} and arts¹⁷ make up the mosaic of possibilities used to help the student to construct his/her balanced identity, his/her full formation. The cinema is emerging as a useful resource in the universe of medical education.¹⁸⁻²⁰ Within this educational effort, it is fair to recognize that Family Medicine as an academic discipline makes efforts, considering its own nature, to offer a formal context for the development of these projects.¹³⁻²⁴

The use of Cinema as an educational methodology in Family Medicine is an experience with encouraging results, generally incorporated by SOBRAMFA, which opens new perspectives in the formation of future physicians.²¹⁻²⁴ First of all, opportunity and space are created to discuss issues which, in fact, are of concern to the student and which are not included in the conventional curriculum: topics focused on affectiveness, on the medical posture, on attitudes, in short, on essential values and questions. The educator emerges as a dialogue facilitator between the students, covering the scenes projected to then insert them in their personal world. Dialogue enriches because it makes it possible to divide “what was felt and lived”, and it enables individuals to grow with the opinions of others, to listen to them and to respect them. The cultural context –image and emotion– of the student favors other highly useful skills: the possibility to incorporate a new form of communication, and the facility to translate the cinematographic experience into everyday situations. The cinema becomes a particular language among students, and between students and professor, enabling him to be known by them, in a reverse process to the metaphoric incorporation of what is seen in the scenes: the student is reflected in the scene and in the conflict projected, but he also uses it to communicate his/her inner universe. The cinema conveys its communicational strength, through what is concrete –images and emotions that everybody feels and sees– to open his/her inner world. This universe must be contemplated with respect because it is something important in the formation of the student. Therefore, the cinema acts as a true “facilitator” that helps in the construction and education of ethics and values in an efficacious and productive way.²⁵

Considerations about experiences: construction of possible solutions

Placing the student in contact with Family Medicine in various practical situations –beside the patient and the family physician– and in theoretical discussions led by the students themselves to disseminate this new paradigm, has resulted in a dual renewing force. First of all, with the students who learn to integrate the theoretical knowledge in the practice –in the care of the patient. Secondly, the renewal involves the family physician who, subjected to continuous questions by the students, besides being a professor becomes an autodidact in the search for information and updating, to end up being a more competent professional.

In Brazil, as in most of the Latin American countries, there are no Family Medicine departments in universities, and the specialty as such, is absent in undergraduate studies. However, the interests shown by students in Family Medicine in the last 10 years turn it into a promising experience.²⁶ Important issues arise in this discussion forum with students, such as vocational motivation, the

visualization of the professor as a real model of learning, tutorship programs, the student who becomes the professor of his/her peers, and all the passionate topic of education of emotions and the affective construction of the young physician.

In parallel to this educational experience, the student leaders who opted for Family Medicine as a professional option upon their graduation, are now opening their way in the private medicine sector in Brazil, developing service provision projects, jointly with health insurance companies and private companies. The quest for quality services by these companies, the need of professionals that coordinate the health management services, with competency, satisfaction of the patient who demands his/her personal physician, problem resolution, and cost containment, open a promising working field for family physicians. On the other hand, this opportunity offered by the private service also poses the challenge of proving that family physicians are well prepared to perform their role as physicians within a business scenario. To meet these expectations, continuous education parameters must be created for students and residents in the models requested by the labor market.

In order to join efforts and to strengthen these educational initiatives, the directors of SOBRAMFA, along with some Family Medicine professors of Mexico have established the Latin American Family Medicine Confederation (CLAMF). The implementation process of this Confederation started in the IX State Congress and VI Regional Congress on Family Medicine in Guadalajara, Mexico, held in September 2004 and the official launch was made in the XVII World Congress of Family physicians in Orlando, Florida one month later.²⁷

The CLAMF mission is to gather the Latin American students interested in Family Medicine to promote exchanges and foster the continuous medical education in this discipline, as a practical strategy to fill the gap of the academic shortages of this field of medicine in Latin America. The students will be the main players of the Confederation, inspired on the previously described experiences promoted by SOBRAMFA. The family physicians who have an interest in education, as well as the health sciences professors that are motivated to collaborate, will participate in the multicultural exchange, and will provide the foundations for this project through their professional and teaching experience. The first CLAMF Latin American Symposium will be held along with the IX International Academic Congress on Family Medicine, organized by SOBRAMFA in Brazil from July 8 to 10, 2005.

Conclusion

The reflections about the Brazilian experiences hereby exposed have the intention to contribute in the construction of the future perspectives of the Family Medicine in Latin America. Therefore, they are a sincere call we wish to extend to all the

Latin American countries to join us in this leadership. We cannot limit ourselves to being family physicians and leaving things just the way they are. We need to think in a serious and mature way about who we are, what we want, and what we expect of our specialty... and of ourselves as individuals. We must acknowledge that the privilege bestowed on us to take care of people is not something everybody can do, and it is not something fit for others who have positioned their interest in other places. It must be a true professional and carefully studied decision that results in a corresponding option of living. We are therefore a true point of departure in our journey, maybe tiresome and dull of the current family medicine in Latin America. The moment has come to make the commitment to think of education in Family Medicine as a renewing force that guides the academic direction along its path to excellence. This effort is required to achieve credibility in our specialty. Our patients, who trust us, deserve it. This is one of the demands of the vocational commitment we have assumed.

We quote the words of Dr. Gregorio Marañón, physician and humanist, to conclude these considerations that might be described as critical and pessimistic, rather than full of hope in the quest for a better world.

I would regret that somebody concluded that after what I have said I am disrespectful to medicine and that I am pessimistic about its present and future fate. I respect medicine because I love it; and love is the utmost source of cult, both in humane and divine dimensions. But love is also, or should also be, critical. Only when we tear apart in the object of our love what is despicable, can we find, down deep, what is imperishable. That who speaks with courage of the defects of his/her nation is the best patriot, and that who expresses the fair condemnation of his/her profession, is fully serving it.²⁸

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Primary Health Care in Canada

John Millar*

The Canadian health care system

The organisation of health care in Canada

During the 19th and early 20th centuries Canada's health care was organized similarly to other western democratic countries. Family physicians and specialists provided services to patients on a direct professional contractual fee-for-service basis. Many clinical encounters were related to acute conditions such as infectious diseases and trauma and the physicians' therapeutic armamentarium was limited. Low income patients who could not afford payment either did not seek care, defaulted on payments or, sometimes, went bankrupt in the process of paying for catastrophic illness costs.

Through the first half of the 20th century, through better housing, nutrition, improved socioeconomic status, better hygiene, the introduction of immunization and new medical and surgical technologies and drugs, the Canadian population underwent the 'epidemiologic transition' whereby infectious diseases declined in incidence and chronic illnesses such as cardiovascular disease, cancer and respiratory disease became more prevalent.

Medicare

In the 1950s and 60s Medicare was introduced on the principle that no one should be denied care because of inability to pay and no one should be forced into bankruptcy to meet health care costs.

The five principles of Medicare are:

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- **Comprehensiveness:** initially Medicare covered all hospital costs but this has now been extended to cover physician costs and to varying degrees to pharmaceuticals.
- **Universality:** all Canadian citizens are covered
- **Portability:** coverage in one province extend to all other provinces.
- **Publicly administered:** each provincial government acts as a third party health insurer. No private health care is permitted by any provider participating in the public system.
- **Accessibility:** all services are provided without payment at point of service. The system is funded by government through either premiums or income taxes (those with lower incomes paying less than higher income earners).

With Medicare came an important change in the way in which health care was financed and paid for. Canada is a confederated democracy with powers shared between the federal government and the ten provinces and three territories. Because health care is predominantly a provincial responsibility, under Medicare the provincial governments became the third party insurers of health care. The funding for this government – run health care insurance scheme is provided from a combination of health premiums and general revenues such as sales and income taxes. Services covered include most physician services (some services such as cosmetic surgery and infertility treatments are excluded), most hospital care, some pharmaceuticals (for the poor and the elderly) and limited ancillary services such as physiotherapy. These services are free at the time of care (i.e. there are no co-payments). Canada is unique among developed countries in legally excluding private sector provision of health care. While the law does not prevent licensed health care providers from privately offering services, if they do so, they are not permitted to operate within the publicly funded sector as well; there are exceptions to this however. There are some services that are provided outside the regular system – these include Workers' Compensation Boards, the military, the national police force and some private health insurance companies. A small amount (about 1% of total health expenditures) is also spent on services provided across the border in the United States.

Regionalization

From the establishment of Medicare in the 1960s until the 1990s, the vast majority of health care services in Canada were funded and delivered through provincial governments. Hospitals were funded with budget allocations directly from the provincial government and governed through local hospital boards. All physicians

were paid, predominantly on a fee-for service basis, by provincial governments. Home care, long term care (nursing homes), mental health and public health services were predominantly provided by provincial governments.

Since the 1990s there has been an increasing devolution of health care administration to subprovincial health regions. In almost all provinces, responsibility for the administration of health care services rests with regional health authorities (RHAs). These RHAs are governed by boards of governors that are either appointed by the provincial government or elected (or a mixture of the two) and are responsible for the provision of a range of health care services. The provincial government through the ministry of Health provides the RHA with an annual budget and the RHA is accountable to the provincial government on the basis of an annual performance agreement that outlines the government's expectations as to services provided and, in some cases, performance objectives to be reached. The services provided by RHAs generally include hospital care, home care, long term care, mental health and public health services. The performance objectives include procedural indicators such as the number of joint replacements performed or immunization coverage. In some cases, these extend to broad population outcomes such as life expectancy and infant mortality rate which do not exclusively reflect the performance of the health care system in isolation from other sectors of society.

While the process of health care regionalization in Canada has not been rigorously evaluated to determine if it has actually improved health care performance, there is no doubt that it does represent a significant change in thinking about health. Many RHAs are committed, as their primary responsibility, to the improvement of the overall health of the population (and in some cases the reduction of health disparities) rather than the pre-existing preoccupation with the delivery of health care services. This change in paradigm means that the governors, administrators and providers working in health care need to not only consider how to improve health through the more effective delivery of health care services (including public health) but also how to link with other sectors (other parts of government, municipalities, schools, social services, non-government organisation and the corporate sector) to address other determinants of health such as income, employment, education, early childhood development, environmental concerns and social exclusion in various forms. This orientation is a beginning of an organisational evolution towards a system focused on primary health care as it was formulated by the Declaration of Alma Ata in 1978.

Physician services not part of regionalization

While almost all other publicly funded services are now the responsibility of RHAs, a notable exception are physician services. Almost all physician services, particu-

larly in primary care, remain funded directly by the provincial governments. This has meant that, while it has been possible to better integrate and coordinate other sectors, physician care remains poorly integrated with other health care services. This has been exacerbated for primary health care physicians because of a growing trend to a dependence on specialist 'hospitalists' to provide care in hospitals with family physicians no longer having hospital 'privileges', i.e. no longer admitting patients to hospital or following their care while admitted. Primary health care in Canada now continues to be delivered in much the same way it was 100 years ago; through family physicians who work in solo or small group practices formally supported only by the services of a medical office assistant who makes appointments, receives patients, retrieves and files charts and follows up on laboratory and X-ray results and so forth. Patient information is recorded in paper charts with little ability to readily or securely exchange patient information between providers in other primary care settings or hospitals. With rare exceptions, the family practitioner has no formal ongoing relationships with nurse practitioners, midwives, home care nurses, mental health workers, pharmacists, dietitians, social workers or other primary health care providers. In summary, family physicians in Canada operate largely independently from the rest of the system and so primary health care is fragmented and uncoordinated.

From the perspective of a patient with chronic disease or a combination of chronic diseases, the system is hard to access, fragmented, uncoordinated, duplicative, wasteful and time-consuming.

Health care performance and outcomes

Health care system performance can be measured by both outcome and process indicators. At a macro level, outcomes such as life expectancy, infant mortality rates and disease specific mortality rates show that Canadians enjoy a health status comparable to the best in the world.

Measures more relevant to health care system interventions such as case-fatality rates for some common conditions such as acute myocardial infarction, stroke and cancer show that the Canadian system performs favourably compared to other developed countries. For preventive interventions such as immunization and cancer screening, the Canadian system also compares favourably to other developed countries. However, as will be discussed in more detail below, there is abundant evidence to suggest that the Canadian system falls far short of its potential in terms of both preventive and therapeutic interventions.

Health care expenditures in Canada are in the range of \$120-130 B per year or about CDN \$3 839 per person.¹ Although during the 1990s there was some stability in health care costs, since about 1998 there have been annual increases of about 8%,

well ahead of inflation. Consequently health care expenditures as a share of gross domestic product (GDP) have reached a high of 10% as of 2003.

While this is still much lower than the US (at 14.9% in 2002)², it places Canada among countries like Switzerland, Germany and France that have the highest health care expenditures among all countries.

Per capita annual health care expenditures

Canada with a population of over 30 million ranks fifth in the world in annual per capita expenditures as compared by purchasing power parity (PPP): US \$4 887, Switzerland \$3 322, Norway \$2 920, Germany \$2 808, Canada \$2 792..

The cost drivers

Hospitals continue to be the principal expenditure at 30% of the total, pharmaceuticals second at 16%, and physicians third at 13% in 2003. Most increases in total expenditures are driven by the hospital and pharmaceutical sectors. These in turn are driven by increasing costs related to both labour costs and the costs of new pharmaceuticals and technologies.

Public versus private expenditures

Of the total national health care expenditures, approximately 70% is publicly funded. The 30% private out-of-pocket expenditures are for such items as pharmaceuticals, dental care and optometrist services. The publicly funded (70%) component covers hospital care, physicians' services, public health services and care for indigenous peoples. The public sector also pays part of the costs of other services including home care, prescription drugs and ambulances. Canada, at 71% of total health care expenditures funded through the public sector ranks behind a number of European countries such as Sweden, Norway and Sweden at 85%, but well ahead of the US at 44% (it should be noted however, that because of the high overall per capita annual expenditures in the US in both the private and public sectors, the US per capita public sector expenditures are actually higher than in Canada).

Health human resources

Canada has 30 258 family physicians (2002 data) or about 1 per 1 000 population. This includes many practitioners who do not work full time and there are considerable variations by region.

Some provinces and urban areas are better able to attract physicians and so have higher doctor/patient ratios, leaving other areas with a relative shortage. About 10-15% of Canadians report that they are unable to receive the regular services of a primary care physician and so have to use the services of hospital emergency rooms or walk-in clinics. In 2002, there were 230, 957 registered nurses (734 per 100 000 population).

Growing dissatisfaction

During the latter half of the 20th century the system worked reasonably well. However, over the past decade, there has been increasing dissatisfaction with the services being provided and concerns that the system may not be sustainable.

Patient satisfaction with the system has deteriorated as people have encountered difficulties obtaining the services of a family physician or being referred to a specialist. Long wait times for diagnostic services (such as MRIs), surgery (joint replacement, cataracts, coronary bypass) and radiation therapy have added to this dissatisfaction. Hospital emergency rooms are often overcrowded and long waits for care are commonplace.

As mentioned above, in recent years health care expenditures have been increasing at about 8% per year and the proportion of provincial budgets allocated to health care has been increasing towards 50% and, if this trend increases, is projected to consume 75% of the budget in the next 10-15 years leaving less and less to address other health promoting services such as education, housing, income support, social services, justice, early childhood development or environmental issues. The Canadian public continues to be heavily committed to a publicly funded health care system with no payment at the time of service for the patient. However, there is also great resistance to further increases in taxation. These competing demands for increased health care expenditures on the one hand, and for public expenditures such as education, social support services, social housing, justice, education and economic development on the other hand in the face of a reluctance to increase taxation have given rise to concerns that the publicly funded health care system may not be sustainable.

These increased health care expenditures are being driven to a large extent by the increasing prevalence of such chronic diseases as diabetes, hypertension, cardiac disease, cancer, renal failure, musculoskeletal disease and mental illness. All of these, although often preventable, are projected to steadily increase over the next 10-20 years. The rising costs of care are a consequence of the rising prevalence of chronic disease and the costs for their treatment driven by the following combination of factors:

Aging of the population: life expectancy and the number of seniors is increasing as a result of both successful health promotion and prevention efforts (decreased smoking and injury prevention, improved standard of living) and improved therapy. Improved care for myocardial infarction means more people who go on to develop congestive heart failure; improved cancer care sometimes means people survive either chronically fighting cancer or to be afflicted with another form of cancer. Ironically, past success in prevention and care is now to some degree responsible for increased health expenditures.

Population increase: primarily through immigration.

Emerging technologies/pharmaceuticals: interventions such as joint replacements, organ transplants, cataract surgery, and cardiac revascularization are becoming more effective and increasingly applicable at higher and higher ages. Pharmaceutical expenditures are now the fastest growing health care cost and exceed total expenditures for physicians.

These innovations contribute to costs in four ways:

- Many new innovations are more expensive than older technologies and pharmaceuticals.
- Once introduced, the indications for their use tends to be broadened to other disease and older age groups.
- To the degree that these innovative drugs and technologies are effective they may contribute to better short term outcomes thus converting once lethal short term conditions (e.g. acute myocardial infarction, leukemia and AIDS) into chronic diseases and so contribute to the aging of the population and the higher prevalence of other chronic conditions.
- Obesity epidemic – the rising prevalence of obesity has grave implications for increasing the prevalence of associated chronic conditions including diabetes, hypertension, cardiac disease, cancer, respiratory disease, musculoskeletal illness and mental illness.

The sustainability of the Canadian health care system now pivots on our ability to adequately prevent and treat chronic disease. This system was originally designed over a century ago to provide care for acute episodic illness and, by and large, acute illnesses such as myocardial infarctions, infections and trauma are treated with a level of excellence comparable to anywhere in the world. However, the system was not designed to treat chronic disease and it does not achieve opti-

mal care for the common illnesses now confronting us: heart failure, cancer, diabetes, hypertension, COPD, asthma, arthritis, depression and other mental illnesses whether they occur as single diseases or in clusters.

Poor quality of health care system performance

While the Canadian health care system overall performs reasonably well by comparison to other developed countries, it has become apparent that all countries share a common problem: health care, particularly for chronic diseases, falls far short of ideal¹.

The Canadian health care system faces many problems concerning the quality of the chronic disease care across all sectors: hospitals, primary care, community care and public health. These can best be characterized according to the categories developed by the US Institute of Medicine (IOM). The IOM has categorized the issues in the quality of health care performance as misuse, overuse and underuse. *Misuse* refers to studies that have shown that in the hospital sector there is a considerable incidence of adverse events related to drugs, surgery, ICUs, diagnostic and communication errors and so forth. *Overuse* is applied to the inappropriate provision of therapeutic interventions when they are not indicated, for example prescribing antibiotics for viral infections. *Underuse* refers to the fact that many patients do not receive evidence-based interventions that would both alleviate their illness but also reduce utilization of more expensive interventions such as hospitalization. The combined effects of misuse, overuse and underuse are contributing to considerable excess mortality, morbidity and unnecessary expenditures in the Canadian health care system.

In the care of chronic diseases the problems of underuse apply to both preventive and curative interventions. For many of the more common chronic diseases such as congestive heart failure (CHF), diabetes, asthma and depression evidence-based interventions are provided appropriately in only 50-60% of cases. For example, CHF patients should be receiving a combination of beta blockers, an ACE inhibitor, statins and aspirin but less than 60% receive these. From a preventive perspective, interventions such as smoking cessation and measures to increase physical activity, eat a more nutritious diet and achieve a healthy weight are also not optimally provided.

Research in Canada indicates that misuse causes at least 10 000 deaths per year in the hospital sector (this is similar to the magnitude in other countries such as the US and the UK that have done similar studies). These incidents include medication errors, surgical errors, diagnostic errors and adverse events in intensive care. Extensive analyses of the cause of these medical errors have suggested

that these are not, for the most part, the fault of individual care providers but rather the result of poor system design. Moreover, experience from health sectors such as anesthesia and the blood system show that through system re-design errors can vastly be reduced.

When these results are extrapolated to community-based services (doctors' offices, nursing homes and so forth), these estimates double so that the health care system itself is now identified as a major cause of preventable deaths and illness. This performance not only causes much unnecessary mortality and morbidity, it also causes much unnecessary expenditure and hence further threatens the sustainability of the publicly funded health care system.

It has been estimated that for a family practitioner with an average patient load (2 500 patients, including a mix of children, adults, elderly and maternity patients) requires 7.4 hours/day, five days a week, 48 weeks per year to deliver all the preventive interventions recommended by the US Preventive Services Task Force. In terms of providing adequate therapy for chronic diseases repeated studies have shown that only 50-60% of evidence-based interventions for such conditions as congestive heart failure, diabetes, hypertension or depression are appropriately provided. Clearly our system as it is currently designed with a heavy reliance on primary care physicians working without the support of an integrated primary health care team cannot provide either adequate preventive or therapeutic care for chronic diseases.

An important perspective that emerges from these analyses is that even if conscientious practitioners wanted to make the improvements that are so obviously needed, given the design of the system, they could not. The problems in the Canadian system are not the fault of the providers working within it; it is the fault of the system within which they are working and, as individuals, they are largely powerless and without incentives to make constructive changes.

Don Berwick (Institute for Health Improvement) stated: "Every system is perfectly designed to produce the results it gets. Performance is not simply a matter of effort; it is a matter of design. If we want improved performance, we must change the design of the system". To provide more effective prevention and therapy of chronic disease, health care, particularly primary health care in Canada is in need of re-design.

The evolution of primary health care in Canada

There have now been many provincial and national commissions and enquiries into Canada's health care system and there is broad agreement as to what now needs to be done. The system needs to be reformed: without redesign, the same

problems of inadequate prevention and treatment of chronic disease will continue. Fundamental to this reform is reform of primary care so that both preventive and therapeutic interventions for chronic diseases can be more effectively provided.

There is strong public support in Canada for a greater emphasis on prevention. The Romanow Commission found that the Canadian public wants the health system to create the conditions that 'make the healthy choices the easy choices' in terms of healthy behaviours. This approach recognizes that there is an important role for individual responsibility in making healthy choices about smoking, alcohol, drugs, nutrition, physical activity, sexuality, healthy weight, injury prevention, seeking preventive services such as cancer screening and in compliance with adhering to effective regimes of treatment. And it also recognizes that governments (including the Ministries of Health and other ministries), the health care system and all other sectors of society (corporate, voluntary, academic, media) have a role in supporting citizens in making these healthy choices. This is a profound change for Canada's health care system. It means a change from the historical focus on the provision of care for acute episodic illness to a focus on the overall improvement of the health of the population. This shift in focus includes both enhanced primary prevention and more effective care of chronic disease. It will require profound organizational change in the Canadian health care system.

These studies have also identified the fact that health professionals are a resource in short supply. The solutions to this problem are to make better use of the professionals we presently have and to train more for the future.

It has further been recommended that primary care be transformed from the current system where family practitioners (FPs) work largely in isolation from other primary care providers to a system where they are more closely integrated with primary care teams. This would allow FPs to focus on the tasks such as diagnosis and prescribing that they are particularly skilled at, while supporting them with other providers in such areas as preventive screening, counseling and self-management.

Primary care also needs to be better supported with information technology particularly an electronic health record and electronic decision supports (such as notification of potential drug interactions).

Primary Health Care Transition

The federal government, in an effort to stimulate primary care reform has made almost \$1B available to provincial governments through the Primary Health Care Transition Fund. The provinces have also attempted to create change through legislation and funding. There has been a variety of projects in response:

- In Ontario there has been funding to stimulate the formation of family health networks that bring family practitioners and other providers together to form integrated primary health care teams. This is very recent development however, and it is unclear how extensive or successful this will be. There has been some successful experience with the development of a 'shared care' model for mental health services and arthritis care.
- In Quebec there is an attempt to bring together primary care providers together with hospitals and public health to provide more integrated care. Again it is too early to assess this development.
- Nova Scotia is also bringing providers together in teams and supporting them with electronic data systems.
- Alberta, through an agreement between the government, the Alberta Medical Association and the College, the beginnings of electronic data systems and funding incentives has encouraged the formation of integrated primary health care teams. Again developments here have been hard to assess.
- In British Columbia, there have been funding incentives to form integrated primary health care teams and there is an emerging development of 'shared care' models for the care of patients with complex co-morbidities.

The Institute for Health Improvement (IHI) in the US, drawing on the extensive experience of Wagner at Puget Sound Group Health Cooperative in Seattle, has developed a collaborative model for providing better treatment for chronic diseases such as CHF and diabetes. This model has been adapted for use in Canada (figure 1):

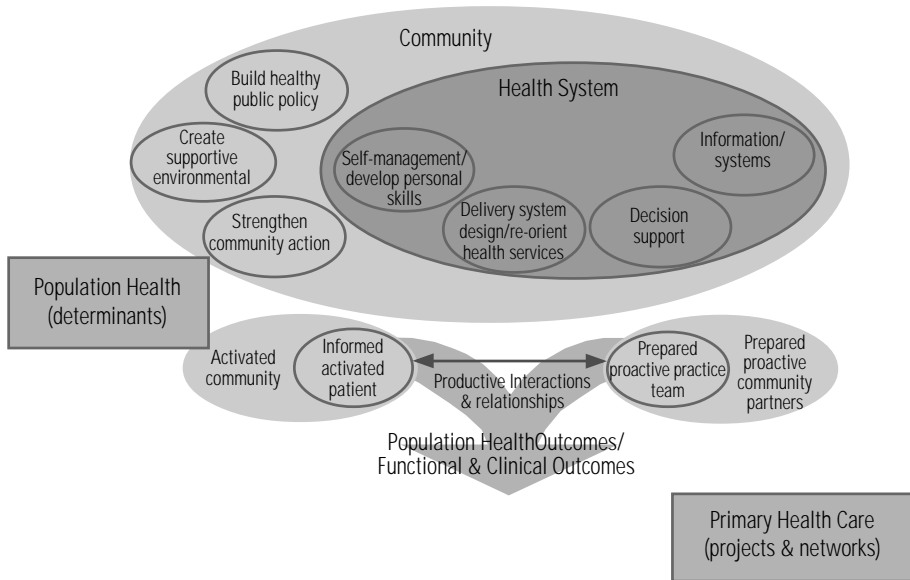
In the US this model emphasizes several key components:

Self-management is extremely important for patients with chronic disease. Patients must manage both their medications and their life style to achieve optimal results. So, for example, an obese diabetic patient should be provided with the skills to manage their blood testing, insulin and weight loss.

Information systems, particularly an electronic health record (EHR) are critical so that providers and patients know how the quality of care they are providing compares to recommended guidelines.

System design and re-orientation includes appointment booking changes to permit same day access in the primary care setting for patients who want to be seen immediately through to the establishment of integrated interdisciplinary primary care teams.

Figure 1
Chronic Disease Management & Population Model



Decision supports include treatment guidelines, protocols and algorithms, care maps, and electronic health records that include decision prompts for prescribing and so forth.

In Canada, particularly in British Columbia, the model has added some community and population level interventions:

Healthy public policy refers to public policies that help people make ‘the healthy choices the easy choices’ and include policies such as banning smoking indoors in all public spaces, mandatory seatbelt and bicycle helmet use and drunk driving penalties.

Supportive environments refers to such settings as schools and workplaces where there are healthy foods and exercise facilities available.

Strengthen community action refers to community development activities that may address issues such as food security (through community gardens and kitchens) and social marginalization. It may also alter urban planning to develop sidewalks, bike paths and sporting facilities to encourage more physical activity.

This collaborative model has been introduced widely across the US, in the UK and in Western Canada with considerable success in terms of improving the care of individuals with chronic diseases such as CHF and diabetes. There are many studies showing that involvement in the collaborative process greatly increases the effectiveness of chronic disease care for specific diseases such as congestive heart failure or diabetes.

In British Columbia, where there has been the most Canadian experience with this collaborative model, there has been considerable success with congestive heart failure and diabetes. Family physicians have been given a modest financial incentive to become involved. They are then provided with a flow sheet on which to document therapy – for example for diabetes hemoglobin A1C results. They are also able to link electronically with a central data base to determine their total diabetic population and so are able to track the overall number of diabetic patients in their practice who are meeting clinical guidelines for both treatment and outcomes. For participating physicians and patients the results have shown excellent improvements in the quality of care.

These successes in Canada have utilized certain elements of the IHI model, particularly decision supports (guidelines and flow sheets) and information systems in accessing and sharing data electronically. However, other components of the model have had only limited application. Self-management training, although available in some Canadian jurisdictions, is not widespread; most primary care is still paper based with very little use of electronic health record systems (with even fewer providing electronic decision supports such as flags for drug interactions) and aside from some adjustments to appointment scheduling, there has been no fundamental change to the organizational structure in which primary care is delivered. Primary care providers continue to practice predominantly in solo or small group practices without formal relationships with other primary care providers and without the support of electronic health records and decision supports. Moreover, as primary care continues to operate in isolation from the rest of the system there have been no links to public policy, few advances in supportive environments and little community action. Many of those who have been involved have found the supports such as flow sheets and the electronic sharing of information to be very useful for caring for patients with a single chronic disease or a small number of co-morbidities.

But the collaborative approach to chronic disease management has not proved to be as useful for patients with multiple co-morbidities.

It is this group of patients with complex multiple co-morbidities that now consume a large proportion of the health care resources in the Canadian system. These comprise such patient groups as:

- The frail elderly.
- Patients with diabetes, renal failures, cardiac disease, failing eye sight and depression.
- Patients with chronic mental illness, addictions, and HIV and/or hepatitis.

Data from Canadian studies and in several other countries show that this small proportion of the population, (about 5%) who are patients with clusters of chronic disease consume 40-50% of health care resources in terms of hospitalizations, pharmaceuticals and physician visits. To address the concerns about the sustainability of the publicly funded health care system, these relatively small numbers of patients have become a central focus for finding new and innovative solutions to effective prevention and care.

Experience in fields such as cancer care, obstetrics and mental health has suggested promising innovations such as shared care and improved navigation of the system. These will be discussed further below.

So there are a number of systemic problems facing the Canadian health care system:

- A rising prevalence of chronic diseases driving rapidly escalating and unsustainable health care costs.
- A system designed (and successful) for treating acute episodic illness that now is unable to provide effective interventions for either the prevention or treatment for these chronic diseases.
- Despite some funding incentives and many commissions and reports, so far, there has been relatively little genuine, widespread reform of primary care or the broader health care system (ref: Thousand Points of Light. S Lewis)

Successes in health system transformation

It is instructive to consider the experience in some other countries where there has been more progress made in reforming primary health care. The UK has made considerable progress in transforming the National Health Service (NHS).

With the creation of Primary Care Trusts primary care has been integrated with hospital care, community care and public health to focus on the overall improvement of population health and the reduction of health inequities as well as improved chronic disease management. Central to this model is the integration of primary care physicians with other primary care providers including nurses, pharmacists, physiotherapists, social workers, dietitians and public health staff.

Recognizing the importance of self-management, the NHS is experimenting with 'health trainers', professionals who can train patients with chronic conditions in the skills required for effective self-management. These skills include problem identification, problem solving, realistic goal setting, action planning and follow-up – the elements of self-efficacy. To help patients with complex chronic disease navigate through the health care system and social services networks, the NHS has introduced nurse case-managers or navigators. The IHI collaborative approach to chronic disease management has also been introduced with considerable success.

In the UK, change has been underway in primary care for the last several decades. Primary care has evolved, from fee-for-service practice, to fund-holding practices to the present arrangement of primary care trusts. Primary care physicians are remunerated through a combination of capitation and performance measures. About 40% of a primary care physician's payments are based on over 400 performance indicators. These include both process and outcome measures – for example for CHF, the indicators include the proportion of patients who are receiving ACE inhibitors, beta blockers, statins and aspirin and for diabetes the proportion of patients with an acceptable level of hemoglobin A1C. It also rewards physicians and teams that provide higher levels of coverage for preventive measures such as immunization and cancer screening. Critical to this process is support with an electronic health record that is capable of recording and retrieving these process and outcome data and thus linking them with payments. The UK system thus provides incentives to provide better care and to use an EHR.

In New Zealand, a new primary health care strategy aims to coordinate primary care and public health strategies with the overall objective of improving population health and reducing inequities.³ To meet this objective the government is reducing co-payments, moving from fee-for-service to capitation, promoting population health management and developing a not for profit infrastructure with community involvement to deliver primary care. The reformation of primary care in New Zealand has been achieved in a relatively short span of years. This has been achieved because of three things:

1. A clear plan as to what model should be implemented.
2. Substantial financial incentives for physicians to join the new primary care organisations.
3. Good support for primary care with information technology and performance data.

The way forward

The lessons from other jurisdictions and from the innumerable studies in Canada indicate that bringing together the following elements would help to facilitate the successful evolution of the Canadian primary health care system:

Vision and leadership: change management is always more effective if there is a clear vision of the goal – of what a new system would look like. The best available evidence and expert opinion suggests that this would be a primary health care system that has its foundation integrated multidisciplinary primary health care teams, supported with an electronic health record and evidence-based guidelines and focused on the improvement of the health of a defined population through both effective prevention and care.

Integrated primary health care: will include physicians working with other health professionals including nurses, public health professionals, dietitians, physiotherapists, pharmacists, social workers, counselors and others.

Integration of public health with primary health care: bringing primary prevention interventions into primary care will be important to redress the current failure to provide optimum preventive measures both for the well and for those with a range of chronic conditions. This does not mean bringing all public health services into the primary care setting, but some such as immunization, short clinical interventions for smoking, physical activity, healthy weights and injury prevention should be better integrated. Others such as surveillance, infectious disease outbreak control, population level health promotion, disaster preparedness should be maintained as a regional responsibility.

Electronic health record: the recording and accessing of patient information through an EHR is critical to a modern primary health care system.

Incentives: experience in the UK and New Zealand shows that if financial incentives are aligned with professional goals to improve care and they are supported

with an EHR, rapid progress can be made to developing a system that more effectively provides evidence-based preventive and therapeutic interventions in the PHC setting.

Evaluation and research: it will be critical to gather evidence as changes are made in the design of primary health care, to determine what works and what does not.

There is no doubt that to implement these changes will require greater health care investments.

However, there is also abundant evidence that the returns for such investments in terms of averted costs, better health care outcomes and a healthier population make these changes worth pursuing.

Barriers in Canada to primary health care reform

In Canada there are many reasons why there has not been more progress in primary health care reform and re-design. These include:

- A lack of vision and leadership. The approach by both the federal and provincial governments has been to encourage experimentation with many different approaches to primary care re-design with the intent to then evaluate different models to see which provide the best care. While this approach has the benefit of allowing evolutionary change and proceeding on the basis of evidence, it is also frustratingly slow. There has also been a lack of leadership from the medical profession. This is understandable when it is considered that physicians have been experiencing gradual erosion of professional prestige, power, satisfaction and, in some cases remuneration. However, these issues must and can be addressed. The UK and New Zealand experiences show that if more rapid change is wanted, articulating a vision for a new model and providing incentives for physicians to be part of it is essential.
- Medico legal issues regarding clinical responsibility and liability. This includes a lack of clarity about professional roles such as physicians *vs.* nurse practitioners, nurses, pharmacists, and others.
- Remuneration issues. As primary care providers take on the care of ever more complex chronically ill patients more time is required for each visit. The fee-for-service payment system is not ideal in these circumstances as primary care providers caring for high volumes of patients with complex chronic illnesses find it difficult to make a reasonable living under the existing fee structures.

- Training. There are few health care training programs in Canada that jointly train health care providers to work in integrated primary health care teams.
- Information Technology. Experience from many jurisdictions shows that electronic recording and access to clinical data are critical to improving care and facilitating change. In Canada, fewer than 10% of primary care providers have access to or are using an EHR.
- Change management. Effective change management in addition to a shared vision, requires training in working in new ways, adequate resources to support the changes and the time to implement and evaluate them. These are all in short supply in Canada.
- Incentives. As mentioned above, the payment system in Canada does not provide incentives to change. The UK NHS provides an example of a system that provides incentives to provide improves prevention and management of chronic disease and to use an EHR.
- Evidence. A lack of clear evidence has been a major barrier to change in Canada. There has been limited health systems research into which models of primary health care delivery provide the best results. It will therefore be critical, as new models are implemented to adequately evaluate them. It should also be noted that in the UK, New Zealand and in some HMOs in the US, the imperative for improving performance led to introducing reforms based on a managerial assessment of what would most likely be successful on the basis of the best available evidence.
- Concern about resources. Public health administrators are concerned that attempts to integrate public health services with primary care may result in resources being diverted from already compromised preventive programs to address the abundant urgent shortfalls in providing care (e.g. emergency room waits and overcrowding and long surgical waitlists).

Opportunities

Regionalization

As mentioned above, regionalization in Canada has resulted in a significant paradigm shift in thinking about health and health care: a commitment to improving the health of the population served through both effective prevention and care as opposed to a preoccupation with health care interventions alone. Regionalization has also allowed more effective mechanisms for integrating health care services. The fact that physicians are not yet included in this process will have to be addressed.

Shared care model

As mentioned above, growing experience with new models of chronic disease care suggest ways in which the problem of complex chronic disease can be addressed:

- Building on successful shared care experiences in mental health, cancer care and maternity care.
- Better utilizing concepts such as self-management, navigation, clinical guidelines and treatment protocols.
- Support with electronic health records and data systems.
- The incorporation of primary prevention as appropriate for patients with chronic disease (e.g. influenza and pneumococcal immunization, falls prevention).

Summary

In summary, Canada faces a growing burden of chronic disease that threatens the sustainability of its publicly funded health care system. Critical to addressing this issue is more effective prevention and management of chronic disease through primary health care re-design. Although there have been many studies and commissions and considerable funding in Canada devoted to stimulating primary care reform, there has been little progress made.

It is time to act on the recommendations to establish a primary health care system that has its foundation interdisciplinary teams (including physicians, nurses, public health professionals, dietitians, physiotherapists, counselors, social workers and others) that is focused on the improvement of the health of a defined population through more effective prevention and care.

This will require vision, leadership, investments in an EHR, financial incentives to encourage integration and the use of the best available evidence.

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Community Medicine in Israel: Reform of Primary Care and Renaissance of Family Medicine

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Introduction

By all accounts Israel is a small country. Its land mass is about 20,000 square kilometers (not including the areas under the jurisdiction of the Palestinian Authority). Israel's population at the end of 2003 was 6.748 million people; more than 10 fold the size of the population upon entering statehood in 1948.¹

With a long history of unregulated migration into the country, Israel has an ample supply of physicians. Perhaps paradoxically, Israel has not been immune from a problem that many other nations share: the lack of physicians in the periphery while at the same time experiencing growth of the highly specialized hospital sector in urban centers.

With the aim to increase quality of care while making it more equitable, and at the same time increasing its efficiency, Israel embarked on a long term reform policy with a variety of programs, often highly debated and contested, that focused on enhancing and redistributing primary care in the community. These policies comprised establishing specialized family medicine as a recognized specialty of high standing and changing medical education and training, as well as altering the organization and management of the health care system.

In this paper we summarized the reform efforts, outlining the challenges, the solutions, and the achievements.

Community Care, Primary Care and Family Medicine

For the purposes of this paper, we define community care as medical care given in the community as opposed to care given in hospital. Community care includes

* Ben Gurion University of the Negev, Israel

† The National Institute for Health Policy and Health Services Research, Israel

practically all types of care –preventative, curative, and specialized care of all kinds. As such, day care provided by hospitals qualifies as community care for the purpose of this discussion.

In general, the primary care physician is considered to be the initial source of medical attention.* Historically, defining the role of the primary care physician has been varied. According to McWinney,³ the primary care physician is the physician whose primary obligation is to give comprehensive personal care on a timely basis. According to Spiegel and Rubinshtein,⁴ the primary care physician is the physician who provides the most care to the patient, and who directs and guides diagnosis and treatment. According to Moore and Priebe,⁵ the primary care physician is who deals with family medicine or internal medicine without having any specialty or is a pediatrician without a major specialty. Until recently, the management of risk factors, i.e. preventative care, has not been considered the major role of the primary physician.

The primary care physician operates as a solo practitioner or in a team environment in the community. At the same time, a physician may qualify for the above definitions even if he/she works in the hospital. In the context of primary care, family medicine has become a recognized specialty as defined, at least in the Israeli context, later in this paper.

The issues of definition clearly go beyond semantics. The fundamental question is whether the primary care physician, even if a recognized family specialist, should operate as a 'gate keeper' for managing the patient throughout the system. As a gate keeper, the primary care physician has the following fundamental responsibilities:

- Be the first in the medical system to see the patient
- Assess the patient's situation and medical needs
- Assemble all relevant data, and guide the patient through the system and the cycle of his/her disease (and, by implication, of his/her life)
- Empower the patient to informed medical decisions in his/her best interest

The application of this managed care approach has been facilitated by modern information technology that tremendously reduced the costs and skills required for data assembly, organization, and management.

* This section is based on Pilpel et al. (reference 2).

The underlying issues concern first and foremost quality of care and economic efficiency.⁶ In reference to quality, the relevant philosophy has been that 'educated referral' of the patient by his 'gate keeper', an entity that also assures continuity of care, leads to superior care. Evidence cited by Pilpel, Shemesh, Smetannikov, and Dor² argue that, contrary to the primary care 'generalist', the specialist has a 'narrow' perspective coupled with excessive testing following 'defensive medicine'. This view is coupled by an apparent preference by patients that they be referred to specialists by their primary care physicians. This is more typical of patients with a lower level of education. And, some of those who approached a specialist directly, cited –as a reason– dissatisfaction with their primary care physician.⁷

Efficiency concerns add incentive to the quality argument. Rising costs of care and the pressures they put on the economy lead to constant efforts to avoid duplication of services and minimize unnecessary exposure of the patient to expensive technology, which are usually specialized and hospital based.

The views about the quality and efficiency enhancing role of the primary care physician has not been universal, however. Counter arguments have been that specialized care, at the outset, can promise better and more efficient outcomes, following correct application of advanced diagnostic and curative technology,^{8,9} add savings of time and money due to decreased duplicate activity. Moreover, Nash et al¹⁰ prove that cardiac patients treated by specialists have a higher chance of survival than if treated by primary care physicians and internists.

Regardless, the Israeli system has ruled in favor of the gate keeping concept. This required, however, training and educating physicians and other allied professionals and managers to assume this role, as well as educating patients to learn to understand and accept this role of the primary care physician. And, not in the least, there has been the need to reorganize the health system and patient care in support of the gate keeping role.

The Israeli Health Care System

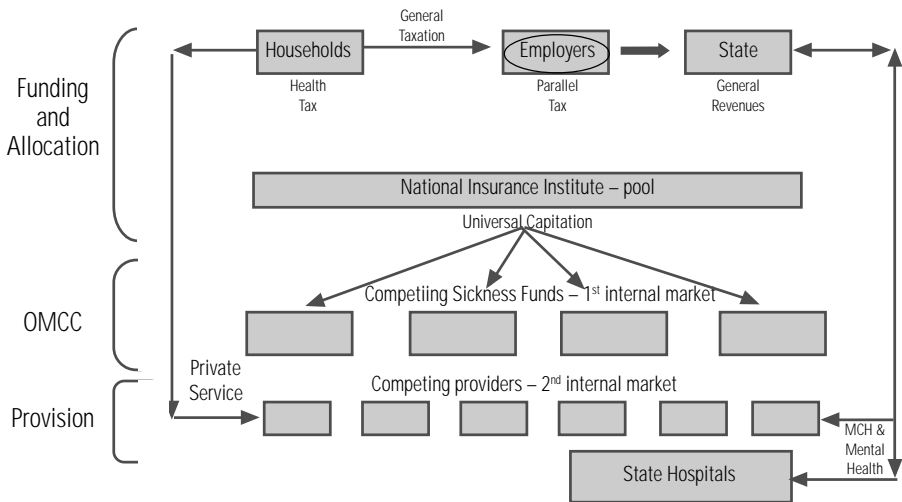
On June 15, 1994 the Israeli parliament voted to enact on January 1, 1995 the National Health Insurance Bill (NHIB) extending universal entitlement to all Israeli residents. Prior to passage of the bill, Israel's health care system was based on a fragmented, yet state supported, system run by four sickness funds as well as by the state.

The legislation followed the reform proposals of a State Commission of Inquiry assembled for the purpose of investigating the Israeli Health System (the Netanyahu Commission). Their findings were reported to the Government in 1990.^{11,12}

The institutions making up the Israeli health care system by functional layers, as of June 1, 1995, are depicted schematically in figure 1. The scheme focuses on three core functions –funding and allocation, organization and management of care consumption (OMCC), and provision of care under universal entitlement.*

Funding and allocation. The upper panel indicates direct funding sources, comprising households, employers, and the state. Households are financially responsible for co-payments, supplemental insurance, and dental and other privately funded care. Households also fund tax-based contributions via an income-based health tax as well as a general progressive taxation. Employers’ contributions via a “Parallel Tax” were abolished in 1997-8 and replaced by general revenues. All funds are pooled by the National Insurance Institute – Israel’s social security taxation and administration – that, in turn, allocates moneys according to an age-based capitation formula to four competing sickness funds (SF).

Figure 1
Israeli System – Following 1995 Legislation



* OMCC concerns the role of sickness funds and other health maintenance organizations (HMOs) of different kinds, to present the patient with the options and ways to consume care (see reference 13).

Organization and management of care consumption. The four sickness funds depicted in the second panel must accept every applicant, regardless of health or economic status. Residents can change sickness funds every six months. The SFs operate different models for OMCC. None of the funds operates a pure model; the different types of operations can be found in each fund, but there is a dominant model.

According to the first model, typical of the Maccabee Health Services (MHS), the SF purchases primary, secondary and tertiary services from freestanding providers. The SF determines the working arrangements with specific suppliers, and the client is then entitled to choose service providers from among the list of providers working with the SF.

According to the second model, typical of the Klalit Health Services (KHF), the SF provides all or most of the services within establishments that the institution itself operates, usually with salaried employees. The fully integrated institution, in effect, organizes, manages and supplies services to its enrollees. Enrollees are entitled to services primarily from those establishments.

In accordance with the third model, more typical of the Meuhedet and Leumit sickness funds, the SF operates primary services with mostly their own salaried employees. However, the SF purchases other services, mainly hospitalization services, from additional institutions. In this case, primary services operate as gatekeepers for referrals and regulate quality and expenditure control. All SFs may also permit the choice of a provider not on their list, or establishment, upon additional payment by the patient or his private insurer. This particular model allows customers maximum freedom of choice among providers.

The different models are associated with two critical aspects that determine the outcomes of the system: payment to physicians and the infrastructure available to those physicians. At the extremes, MHS pays according to a fee-for-service (with a capitation element) and does not provide the infrastructure to individual practitioners; whereas KHS pays salaries and provides most of the infrastructure. However, recent years have seen a convergence of models.

As an OMCC institution, the government has direct contracting responsibility for maternal and child health (MCH), mental health and some long-term care (shown at right in figure 1). Some of those services, mainly MCH, the government provides directly in its own facilities; other services, such as long term care, it contracts from a variety of institutions (SF and private).

Households, on the other hand, can purchase additional private services, some of which do not come under public entitlement, notably dental and long-term care. Households also contract for services that are under public entitlement,

but are insufficient for some households. An increasing amount of care is purchased through Supplementary Insurance provided both by sickness funds and commercial insurers. Thus, some household health care is insured directly through sickness fund providers, while some is via contracted insurers, either non-profit or for-profit.

Provision. The third and lowest layer in figure 1 indicates the provision function, shouldered by community clinics and hospitals, and by-and-large controlled by SF and the government.

It is clear from the above discussion that the different sickness funds practice different hiring practices with regard to community physicians. While KHS employs physicians directly, others hire independent physicians paid on a combination of fee-for-service plus per capita payment. The trend in all sickness funds has been by-and-large to employ independent physicians on the basis of a personal contract, to the extent possible, largely as a way to avoid labor union and related issues.

Supply of Physicians*

Under the “Law of Return”, Israel has an open-door policy reserving full citizenship rights to all Jewish immigrants upon arrival in the country. This has resulted in an unplanned and unchecked stream of immigrants, including doctors, into the country. Until 1987, stipulations for obtaining a general practice license required that an immigrant obtain an acceptable level of competence in Hebrew and present documents of proof of completion of studies at an institution listed by the WHO. The individual was then given a one-year license to practice under supervision. If an internship was not included in the course of studies at the foreign institution, a year of internship in Israel was required. The Scientific Board of the Israeli Medical Association was responsible for administering evaluations for licensing of medical specialties. Physicians in specializations that were already “saturated” were offered retraining courses to enter a field of shortage – including family medicine. This practice served to meet Israel’s obligation to give immigrants employment in general practice, even if the individual had been a specialist in their former country. The policy also served to buffer quality control with regards to specialties. Until 1987, Israel was one of the only Western countries that licensed immigrant physicians without a qualifying exam.

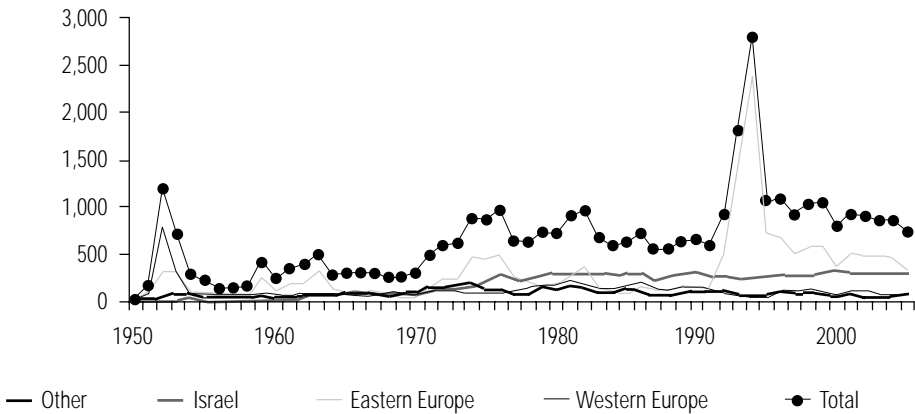
* The discussion is focused on Physicians. It reflects other, nursing, personnel as well.

Indeed, the number of new licenses issued in Israel mirrors the waves of migration into the country with large waves in the early 1950s - following the Second World War and statehood – and in the early 1990s – following the breakup of the Soviet Union (figure 2). As a result of the high ratios of physicians amongst migrants, Israel boasts one of the highest ratios of physicians to population – 4.61 (3.64 up to age 65, presumably employed) per 1 000 – in the world (figures 3, 4).

This state of affairs has led to two outcomes. First, the ratio of Israeli graduates in the physician population has been at about a 30% (table I). Second, and related to that, the physician population has been aging (figure 5).*

Israel’s attempts to limit the number of graduating physicians from within, at its own medical schools as opposed to not restricting migration – contrary to the practice of any other developed nations – met with severe criticism, due to the varied educational level of immigrants arriving from countries throughout the world.

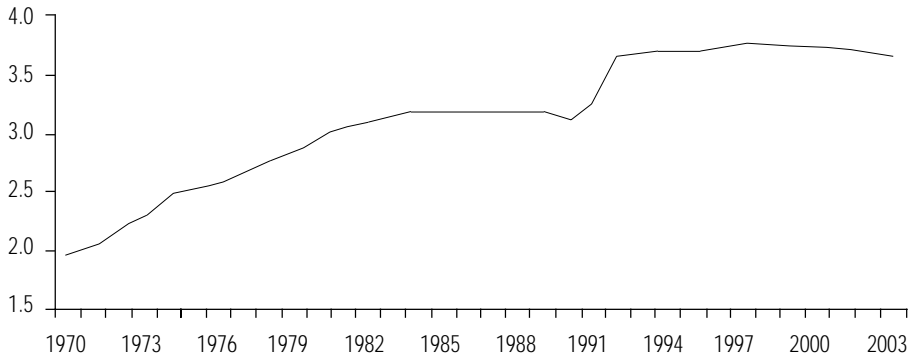
Figure 2
Licenses by medical school location and year, 1948-2003



Source: Ministry of Health (reference 14)

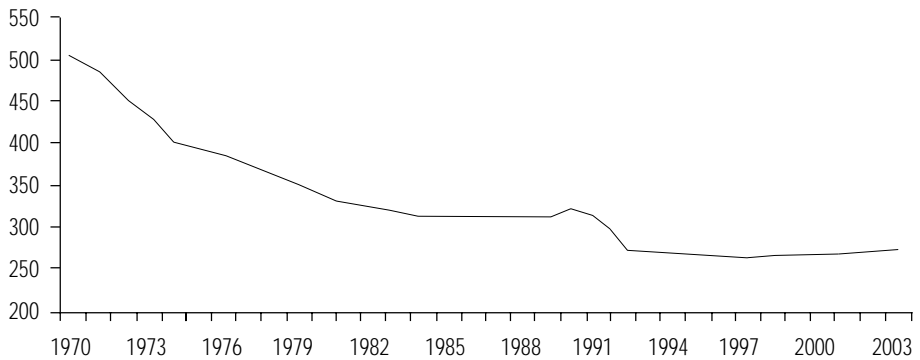
* Competition for jobs has in turn increased the number of Israel trained physicians searching abroad for jobs, but at a disproportionately smaller number (reference 15).

Figure 3
Number of doctors under the age of 65 per 1 000, 1970-2003



Source: Ministry of Health (reference 14)

Figure 4
Number of people per doctor under the age of 65, 1970-2003



Source: Ministry of Health (reference 14)

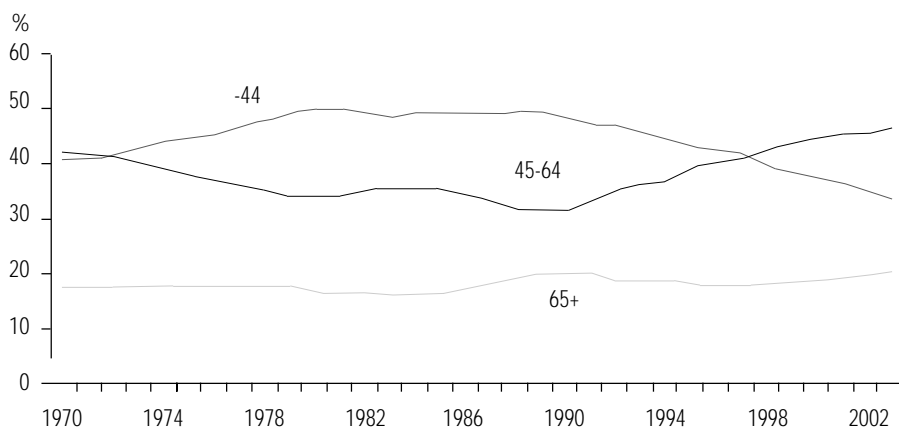
Table I
Birthplace and medicine school location
of doctors under the age of 65.

2003	Total*	Israel	Western Europe	Eastern Europe	USA	Asia/Africa
Birthplace	24 577	8 501	11 625	1 061	2 112	1 261
	100%	35%	47%	4%	9%	5%
Graduation location	24 577	8 495	10 709	2 962	1 711	569
	100%	35%	44%	12%	7%	2%

* Includes an unknown continent

Source: Ministry of Health (reference 14)

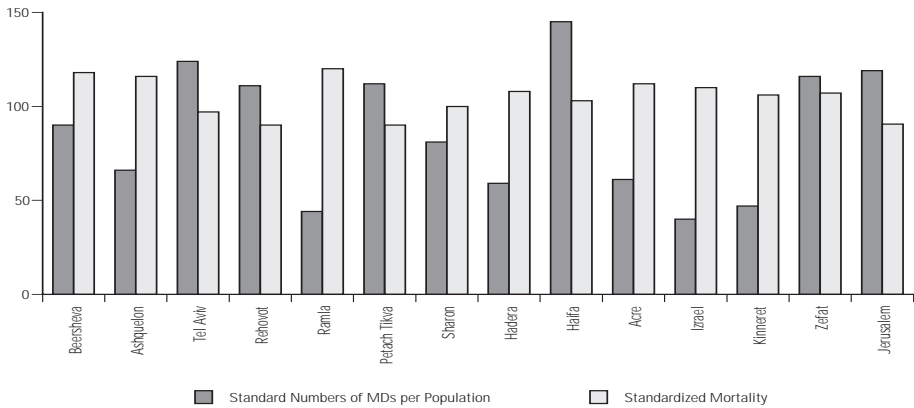
Figure 5
Percent of doctors by age, 1970-2003



Source: Ministry of Health (reference 14)

There was expectation that decreasing the number of Israel-trained physicians would sharply affect the quality of medical care. Therefore, Israel set policy to assure that licensing foreign trained physicians ensured that they met a minimum of standards.

Figure 6
Standardized mortality and number of physicians*



* Israel = 100, 1993 Index

Source: Chernichovsky & Shirom (reference 17)

In 1987 Israel reformed its previous licensing procedure in an effort to increase quality control. As it now stands, physicians trained outside Israel, including Israelis, are required to pass an examination before licensing for general practice –with exemption given to those trained in Canada, United States, or South Africa. To maximize the ability of the government to employ such a large number of immigrating physicians, many have been shuttled into the primary care sector, especially those choosing not to obtain a specialty license.

Traditionally, primary care practice has been viewed as less desirable than hospital practice. Less than half of immigrants enter specialty practice, while the majority of Israel-trained physicians do enter specialties. This stratification led to the need for major reforms.¹⁵

Distribution of Physicians

In spite of growing numbers, the distribution of physicians across the country has been an issue. Matters have been critical from the early days of the state; more than 90% of physicians were distributed between Israel’s three major cities – Jerusalem, Tel Aviv, and Haifa. Many lacked a recognized specialty and were over 50 years of

age.¹⁶ While things have improved with time, the challenge still exists. As illustrated in figure 6, the distribution of physicians across the country has been fairly uneven. While the three key cities have benefited from the relatively high supply of physicians, other peripheral areas have shorter supply even though they experience a relatively higher level of mortality. The distribution of specialists has been even worse. Moreover, the distribution of medical manpower has been negatively correlated with mortality.¹⁷ This reality continues to challenge the Israeli system.^{18,19}

Philosophy and Policy

Israeli policy efforts in the areas of community care and family medicine culminated in the recommendation of two public commissions: the “Netanyahu Commission” which submitted its recommendation to the government in 1990,¹¹ and the “Amorai Commission” which submitted its recommendations in 2002.*²⁰ Since that time, recommendations from these two Commissions guide both public and professional debates as well as pertinent legislation (see the Israeli Health Care System).

The Netanyahu Commission cited three basic advantages of a gate keeping arrangement for primary care in Israel:

1. To shift the focus of care to the primary level –at the patient’s first interaction with the medical system.
2. To reduce unnecessary use of community-based specialist and hospital services.
3. To improve the coordination between the variety of care suppliers and to ensure continuity of care.

Consequently, the Commission recommended integrating all community services encompassing preventive care. These services are defined as primary care, including nursing care, and specialized care, including mental health.

The Amorai Commission endorsed the philosophy and views of the Netanyahu Commission with regards to the gate keeping role of the primary care physician in the community, especially considering the advent of advanced infor-

* It is common on Israel to name commissions, colloquially, by the persons chairing them. The first was a judicial “State Commission” of enquiry (the equivalent of a Blue Ribbon Commission in the US or a Royal Commission in the UK. The second was a “public commission” of a somewhat lesser public standing than the first mainly because the latter lacked judicial powers.

mation technology which can be useful in assisting the primary care physician to improve the quality of care management.

The Amorai Commission emphasized the following particular aspects of care in the community:

- Due to modern technological innovations, most care can be given at the community level.
- Patients prefer access to care close to home rather than institutionalized care; community care is less costly
- Unlimited and uncomplicated access to a highly technical medical center as necessary.

As the Commission's explicit mandate focused on the standing of the physician, the Commission reflected on the need to counteract the tendencies eroding the standing of community practitioners. These tendencies, according to the Commission, were fueled by (a) technological advancement in hospital care, surgical technology in particular, which led to a relative rise in the standing and income of specialists in hospitals rather than to those operating in the community; (b) increasing specialization in care, which hindered efforts for a general integrated approach; (c) changing attitudes in the preferences of medical residents, encouraging specialization in highly profitable specialties; (d) the ethical withholding of hospital information, which is considered 'confidential' and therefore not shared with the primary care physician, even though it may be crucial information concerning the care of his patient; (e) a separation in ideology between hospitals and community clinics discouraging cooperation between the two; (f) insufficient compensation for community work, and (g) an inadequate job description guiding clear responsibility between the physician and administrative and nursing staff.

In addition, there was observation that primary care physicians contribute to the decline in standing in two ways. The first was the lack of knowledge needed to fully utilize available modern technology in the community; and the second, an inability to confront the more sophisticated patient, who today has a wealth of information available to him.

Given economic pressures for physicians to accommodate as many patients as possible each day, the Commission expressed concern about the potential for overuse of primary care physicians as gate keepers. The constant flux of patients in and out could transform physicians into mere traffic controllers, undermining their position. The Commission feared that overwhelming the primary care physician would lead to merely pointing patients in the right direction, rather than fully managing a patient through his care. The pressure to provide quick treatment was

also fostered by competition from the sickness funds, which provide an increased level of service rather than an increased level of quality.

Consequently, the Amora Commission recommended that:

- As of 2005, only specialists, particularly specialists in family medicine, would be hired for community practice.
- Physicians lacking a specialty would join adequate recognized retraining programs.
- The position of Director of the Clinic would require specialization and at least five years of experience in the community.
- The role of nurses would be expanded and more staff added.
- Training in primary care clinics would be expanded to include up-to-date training in the use of information management systems.

These efforts should be coupled with: (a) development and enforcement of quality of care guidelines established by the Ministry of Health, including concerns of the staff workload; (b) integration of work between physician, nurse, pharmacist, dietician, and managerial staff; (c) adjustment of clinic hours of operation to population needs, and (d) the assignment to each patient a 'personal' primary care physician, who will manage the patient at each step and he maneuvers through the health system.

The philosophy and recommendations reflect a long standing philosophy that was first formulated by the Mann Committee, the first, but non-State sponsored, committee to deal with the structure and organization of medical care in Israel.¹⁶ The Committee submitted its recommendations to the Israel Medical Association in mid-1969.

Amongst many other recommendations, the Committee recommended re-designing the concept of the family physician or the family team, defining the family team as a physician and a nurse. Furthermore, it recommended that each primary care physician be associated with the internal medicine department of a regional hospital. Each department with above 30 beds would accommodate about 20-30 family practitioners serving a population of up to 40 000.

The family practitioner would act as a gatekeeper for each patient through all the services of that medical center. Additionally, the chief of the internal medicine department would be responsible for promoting health care in the community.

The Committee further recommended that family medicine would be a recognized specialty in internal medicine. It was also stipulated that medical training would be extended into the community in addition to more training in hospitals.

In doing so, the Commission also expected that many of the duplications in the system would be avoided.

Organization and Management of Personal Care - The Medical Team

Forming a medical team has become a major task in the reform of community care in Israel. This team was originally confined to the physician and the nurse, but gradually expanded to include social workers and other staff contributing to patient care in the clinic, which was proposed by the Amorai Commission. The team concept followed both practical as well as philosophical perception about care and medicine.

Restructuring of the basic doctor-nurse system in primary care clinics had several objectives. The first and most superficial was to diminish the congestion around the doctor's office and allow more time per patient. First seen by a nurse, many minor ills were cared for without the necessity to see the physician, unless the patient requested.

The second objective was to improve patient education. The new role of nurses involved educating the patient regarding all stages of health, emphasizing aspects of disease prevention, such as controlling blood pressure and glucose levels, etc.

The third objective involved integration. The purpose of the nurse was to integrate all the branches of health within the framework of primary medicine: prevention, cure, and rehabilitation. This included the control of chronic illnesses in both ambulatory and bed confined patients.

Eventually, with a forceful drive in the 1970s and 1980s, social workers were added to the team. Their incorporation into the team was facilitated by the philosophical shift from a strict biomedical paradigm to a social bio-psycho paradigm. This shift was necessary, so as to not limit health care to a strictly organic process, but to incorporate all aspects of the human social and psychological experience. Policy makers and administrators advised that all aspects of patient care –prevention, diagnosis, treatment, rehabilitation and chronic care – be carried out with increased awareness of the patient's socio-economic environment. Care in Israel has thus taken on a holistic approach to care in the community, recognizing that many medical problems may have social and psychological roots.

Moreover, the team moved quickly from just treatment of disease to efforts in early detection (i.e. monitoring hypertension to decrease the morbidity and mortality of cardiovascular disease). Teams also initiated preventive care and health promotion measures in the community. This approach was facilitated by treatment in clinics rather than in solo practices. For this reason, clinic based sickness funds such as KHS were better able to incorporate the medical team concept. MHS, which uses free standing doctors, mostly in solo practices, has had more difficulty adapting.

Medical Training and Education

Transforming medical education and training was clearly the crucial aspect in the reform process. Many changes in medical education were instituted to accompany the new philosophy of providing enhanced primary health care. Reforms included the addition of continuing education for primary physicians, the recognition of family medicine as a unique discipline, the addition of residencies in family medicine, and the creation of a new medical school with a revolutionary orientation.

The first efforts were modest. In the early 1960s, to give primary doctors a better grasp of emerging methods of treatment, practitioners of the KHS were allowed educational days for continuing education in hospitals. The amount of training was increased to one day per week in a medical hospital, participation in continuing education courses (lasting from 1 week to 10 days), and participation in individual training exercises according to an agreement between the physician and the specific department with which the physician was associated. The Medical School at Hebrew University also established additional education of primary care physicians regarding alternative methods, with the addition twenty-four days in the curriculum devoted to the topic.

The establishment of the second Israeli medical school in Tel Aviv in 1966 sparked profound philosophical debate about the role of medical education and training in primary care. One view, spearheaded by Prof. Soroka, at the time head of the KHC, was that in order to resolve the crisis in the Israeli medical care services in the community, primarily in remote areas, medical training would need to change in ways that will take into account the special needs of the community. Medical schools would have to develop practitioners with a special orientation. This view was not shared by all, most notably by the heads of the schools of medicine. They argued that the failure of the health care system with respect to community care had to do with lack of organization and mismanagement of services rather than with medical training and education. Therefore, they claimed there was no need to change the established pattern of hospital-based training: continuing to accept students with a profound background in the sciences and biology which thereby eliminated students with backgrounds in humanities, or other fields. This debate notwithstanding, the school of medicine of Tel Aviv University opened a department in family medicine three years after its establishment, with the contended curriculum.

The School of Medicine at Ben Gurion University of the Negev, established in 1974, is noteworthy because from its inception the school made a revolutionary promise: to first and foremost serve community-based medical services in the southern region of Israel. This was a challenge for the settlement and establishment of medical services due to extreme desert conditions in the area. With the agreement

of KHS, which at the time insured about 90% of the region's population, there was full integration between the hospital, community services, and the medical school. In fact, the Dean of the medical school served also as the head of family medicine. The school established a division of primary care, whereby the head of the division was responsible for services both in the community and in the hospital. This arrangement had to be coupled with reform in the organization of medical services in the community, as it was apparent that unless the organization of services changed, there was little chance for the integration of new graduates of the university into medical services. Indeed, this subsequently became a major issue, as graduates of the schools that did have the intention to specialize in family medicine found it impossible to work in highly centralized and downgraded clinics where they could not apply their skills.

To serve its goals, Ben Gurion University has several innovative features: admitting students, regardless of background, on the basis of an extensive interview focusing on personality and motivation; development of a community oriented curriculum taking a holistic approach of medicine; and extensive training in the community. These programs were complimented by establishing schools in medical sociology, economics, management and nursing.

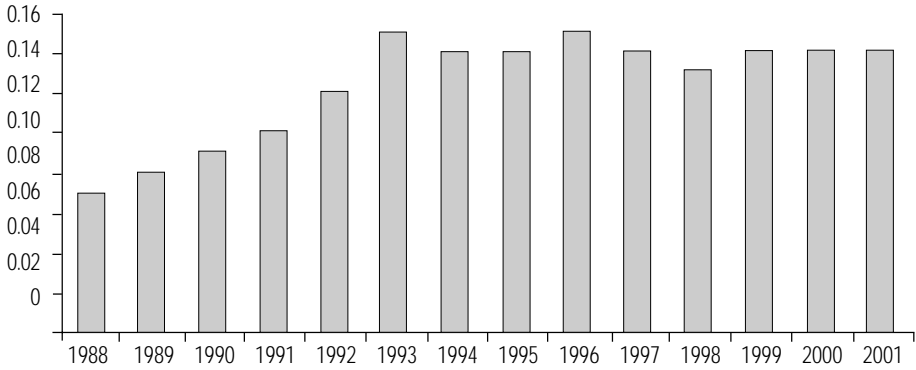
Family Medicine – The New Specialty

In 1969, the Board of the Israeli Medical Association approved a four year residency program in family medicine. Its implementation, however, took time, as there hesitation from the medical schools and sickness funds. As evident in the recommendations of the Amorai Commission, there was still a need for a final push to make employment as a general practitioner in the community conditional on acquiring this specialty.

The residency in family medicine includes two major phases. The first phase of twenty-seven months comprises work in the hospital. This time is divided between rotations in internal medicine, pediatrics, mental health and an area of choice. The second phase includes work in community clinics, which are structured specifically to accommodate medical resident in family medicine. The work includes twelve months of work under the guidance of a physician in practice in the community clinic. In addition, the residents attend an academic course in family medicine and are required to complete a research project within this specialty.

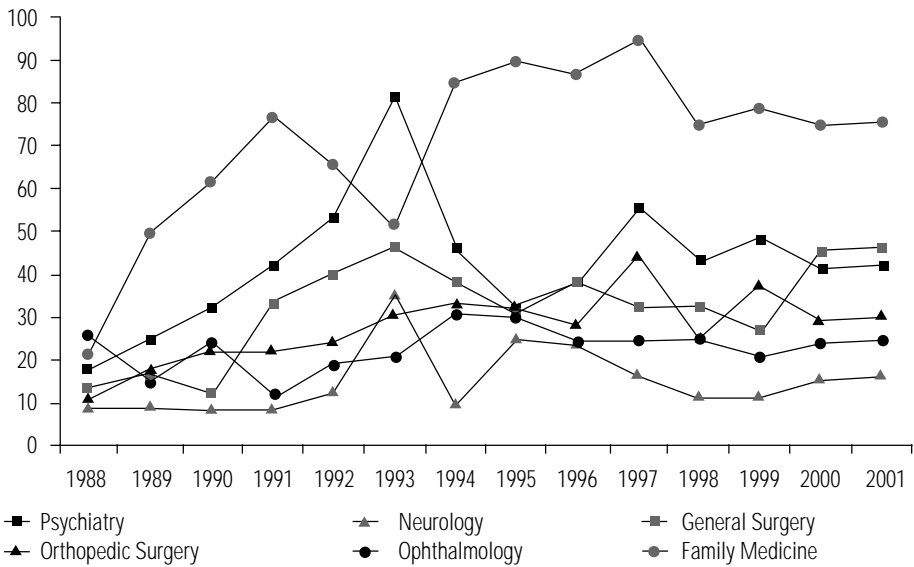
Family medicine has risen to become a respected specialty, taking the lead over other recognized specialties in medicine in Israel. In contrast to a constant number of specialists in the population (figure 7), there have been marked increases in the composition of residents in favor of internal medicine and, notably, family medicine (figures 8, 9, table II).

Figure 7
Number of new interns per 1 000 citizens



Source: Reference 21

Figure 8
Number of new interns by specialty – from 1988 to 2001



Source: Reference 21

Figure 9
Specialists under the age of 65 per 1 000

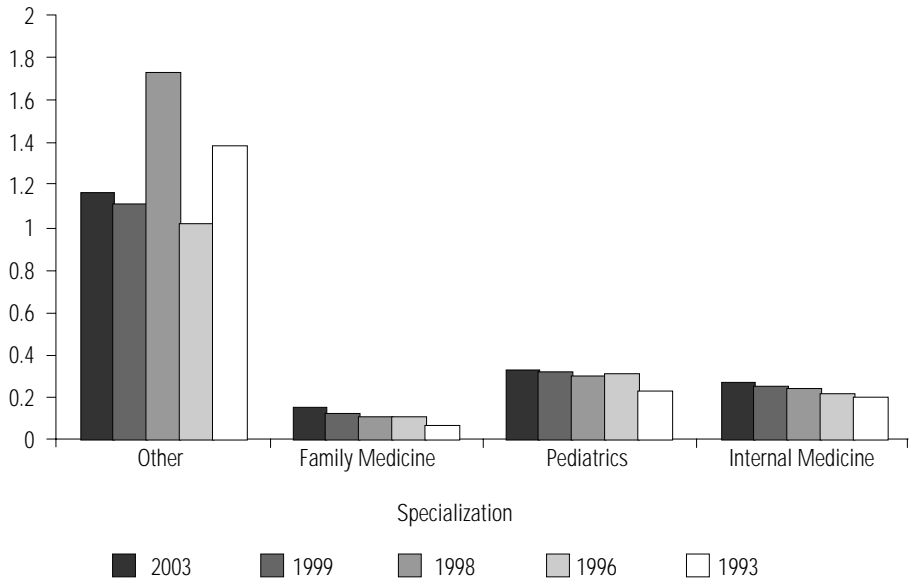


Table II
Index of growing number of specialists under age 65 per 1 000

Specialization / Year	1993	1996	1998	1999	2003
Internal medicine	100	115	126	131	142
Pediatrics	100	134	130	139	143
Family Medicine	100	157	157	171	214
Other	100	73	125	79	84

* 1993 is 100

Source: references 14, 22-26 17

As shown in table III, physician hours increased overall during the nineties, with a two fold increase in time allocated to community care compared to hospital care. The established centers of Tel Aviv and Jerusalem –where hospitals have been concentrated– benefited from increases in supply of community doctors, while the periphery benefited, relatively speaking, from increases in the supply of hospital doctors. These differential trends may reflect, among other things, the evening out of services, with relatively more community care in centers that rely on hospitals, and more hospital care in the periphery that rely on community care.

Table III
Total of weekly work hours of doctors per 1 000 by year and region

	1990-1994	1995-1997	1998-1999	Rate of Change*
All Doctors				
Total	117.1	161.2	164.4	40
Jerusalem	157.0	202.9	207.9	32
North	64.4	100.6	105.5	64
Haifa	141.1	191.2	207.5	47
Center	134.2	141.5	137.2	2
Tel-Aviv	117.8	225.3	220.9	88
South	84.4	124.6	147.1	74
Community Doctors				
Total	31.6	44.8	53.2	68
Jerusalem	29.6	49.1	65.0	120
North	18.2	31.6	35.1	93
Haifa	39.8	45.3	71.8	80
Center	42.2	54.3	41.3	-4
Tel-Aviv	27.2	47.7	69.6	156
South	27.0	38.7	48.9	81
Hospital Doctors				
Total	82.2	111.6	107.3	31
Jerusalem	123.9	150.7	130.5	5
North	43.1	68.6	70.4	63
Haifa	96.3	140.5	131.3	36
Center	88.7	84.4	93.7	6
Tel-Aviv	86.8	166.6	147.5	70
South	56.3	81.3	95.3	69

* Comparison between 1990-94 and 1998-99

† Total also includes doctors that were classified into the category of "other/unknown"

Source: Reference 21

Conclusion

It is naturally hard to evaluate the impact that the revolution of primary health care and family medicine has had on the performance of the Israeli health system. Much of such evaluation concerns the counterfactual “what if not?”

Israel is progressing in all performance indicators: mortality is declining continuously especially amongst weaker populations; growth in health spending has been checked at about 8-9% of the GDP, the OECD average;²⁵ and consumer satisfaction has been generally high.

As for specific indicators, the share of spending on hospitals as a percent of total spending has been eroding steadily, from 46% in the mid eighties, to 38 % in 2002-3. Correspondingly, the share of spending in the community has changed from 34% to 40%.^{25,26} Simultaneously the use of community (and hospital) care has declined per capita, in spite of a fast aging population.²⁷

The above data are consistent with the general trends of a relative increase of medical manpower to the community when compared with hospitals. While improvement in the distribution of medical personnel across regions has been modest, the current situation is a vast improvement over the dire conditions of the 1950s when Israel first began the movement to improve community medicine.

Thanks

We are indebted to Ms. Kyla Pepper and Ms. Inna Gurevich for their assistance.

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Primary Health Care in New Zealand: A New Beginning

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Introduction

The New Zealand health system, including the areas of general practice and primary health care, has undergone significant reform since 2001. Most of the reforms relate to the establishment of District Health Boards (DHB) funded according to a population-based funding formula, and to the formation of Primary Health Organisations (PHO). General practice patients, previously registered with practices, now enrol both with practices and with PHO that are charged with taking population-based approaches to primary health care. In this chapter, we discuss the primary health care reforms, and the outcomes and opportunities provided for patients and clinicians within the PHO. General practice at the dawn of the 21st century in New Zealand is experiencing the most significant reform that it has undergone in over 40 years.

Background

First, we offer readers some context to recent developments in the health system by summarising physical and population geographies of New Zealand. Lying in the mid-latitudes of the South Pacific Ocean, New Zealand has a small land area (268 000 km²; about the size of Colorado) and a population of approximately four million people. These inhabitants enjoy a warm, temperate climate, with distinctive regional contrasts, and a diverse physical landscape.

They live in an egalitarian and resilient parliamentary democracy with independent membership of the Commonwealth of Nations. Per capita incomes in New Zealand now lie 20th out of the 30 industrialized nations known as the Organisation for Economic Cooperation and Development (OECD).¹ Life expectancy

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at birth was approximately 81 years for girls and 76 for boys during the period 1999-2001.² Over recent decades New Zealand has lessened its economic dependence on agriculture. Its increased industrialisation and service oriented free market economy has allowed it to compete in international markets, with increased access to new global technologies for communication and finance.

Four-fifths of the population live in urban areas, and over 70 percent live in the North Island. The Auckland region accounts for almost one-third of New Zealand's population² and, as of the 2001 Population Census in which people could identify with one or more ethnic groups, four-fifths of usually resident New Zealanders self-reported as New Zealand European. New Zealand Māori, the indigenous population of New Zealand, accounted for almost 15 percent, whereas Pacific and Asian peoples respectively constituted one in every fifteen residents.³ Two-thirds of the New Zealand population is of working age (15-64 years).² Compared with other members of the OECD, New Zealand has a 'young' population.

Health care reforms 2001

The health reforms included the formation of 21 DHB with geographically aligned boundaries. Seven democratically elected members and four members appointed by the Minister of Health govern each of the boards, which generally include two Māori members. Each DHB is responsible for providing hospital services and funding all health services for its population, including: general practice and primary health care, Māori health, mental health, disability support, and public health.

The Government set out its direction for improving the health and independence of New Zealanders within the New Zealand Health Strategy and the New Zealand Disability Strategy.^{4,5} Besides prescribing long-term health goals, the New Zealand Health Strategy identifies key objectives for immediate action (e.g. reducing smoking, reducing the incidence and impact of cancer, reducing disparities in health between Māori, Pacific peoples and other New Zealanders), as well as priority concerns (e.g. public health, primary health care, and reducing waiting times for public hospital elective services).

In addition to these two strategy documents, the government also published other key strategies including the Primary Health Care Strategy, the Māori Health Strategy, and the Pacific Health and Disability Action Plan.⁶⁻⁸ Major reforms have been made to primary health care through the introduction of population-based approaches involving patient enrolment with PHO, and needs-weighted capitation funding for low-cost access to primary care services. Greater emphasis is being

placed on prevention and screening, health promotion and the reduction of health inequalities.

The Primary Health Care Strategy

Recent health policy developments in primary health care in New Zealand are redefining general practice to align with the 1978 Alma Ata Declaration.⁹ These developments include the gradual introduction of capitated primary care as part of a larger policy shift towards 'population health care'. This reflects a desire by the New Zealand government to reduce health inequalities between different population groups, and protect and promote the health of its population. Such changes are seen to require a strong primary care system and its integration with public health. To meet these requirements, the New Zealand Government introduced its Primary Health Care Strategy in February 2001 (The Strategy).⁶

The Strategy aims to improve access to an expanded range of publicly funded primary care services, including general practice. It envisions implementation over the next 5-10 years of the changes summarised in Table I. In looking to improve and maintain the health of individuals and populations, it commits to funding and providing policy developments that, for example, can improve patient access to comprehensive primary health care delivered by the usual provider and coordinated across service areas. The Strategy recognises the need to develop a primary care workforce with a range of health professionals that can work together; with local communities; and with enrolled populations. It also indicates a requirement to continuously use good information to improve the quality of care.

Early priorities have been to emphasise multidisciplinary approaches to services and decision-making; encourage primary health services to join a PHO; and reduce the barriers to accessing health care, particularly cost, for those with the greatest health needs.

Primary Health Organisations

The DHB are using a national needs-based capitation formula to publicly fund services for populations enrolled in PHO. These are not-for-profit, non-governmental organisations that are fully and openly accountable to DHBs for all the capitated funds they receive from them under service agreements. PHO are required to involve community representatives in their governing processes in order to ensure community participation in decision-making. PHO must also involve health professionals and build coordinated relationships with local providers and practitioners who are all encouraged to join, and influence decision-making by the

Table I
Differences between existing arrangements
and the Primary Health Care Vision.⁶

Old	New
Focuses on individuals	Looks at the health of populations as well
Provider focused	Community and people-focused
Emphasis on treatment	Education and prevention important too
Doctors are principal providers	Teamwork - nursing and community outreach crucial
Fee-for-service	Needs-based funding for population care
Service delivery is monocultural	Attention paid to cultural competence
Providers tend to work alone	Connected to other health and non-health agencies

PHO. They must define health issues of local relevance and respond to the health needs and priorities of local communities, including the groups with unmet health needs, by planning and delivering appropriate care. At a minimum, these services are directed at improving and maintaining the health of the population, and restoring people's personal health when they are unwell (Box 1). Most community members are choosing to enrol voluntarily with a first-contact provider who has joined a PHO. People can enrol with only one PHO at a time but cannot otherwise be refused enrolment.

Funding of Primary Health Organisations

The new payment system considers the number of patients enrolled in the PHO, not the number of times that a patient is seen. The system recognises that it may be more appropriate for a nurse rather than a doctor to see patients, with payment not dependent on which professional the patient sees. Capitation rates for the population enrolled in a PHO are determined according to gender, age, ethnicity and socio-economic deprivation, and they include an additional subsidy for practice

Box 1 Minimum requirements of Primary Health Organisations¹⁰

- PHO will aim to improve and maintain the health of their populations and restore people's health when they are unwell. They will provide at least a minimum set of essential population-based and personal first-line services.
- PHO will be required to work with those groups in their populations (for example, Māori, Pacific and lower income groups) that have poor health or are missing out on services to address their needs.
- PHO must demonstrate that they are working with other providers within their regions to ensure that services are co-ordinated around the needs of their enrolled populations.
- PHO will receive most of their funding through a population needs-based formula.
- PHO will enrol people through primary providers using consistent standards and rules.
- PHO must demonstrate that their communities, iwi and consumers are involved in their governing processes and that the PHO is responsive to its community.
- PHO must demonstrate how all their providers and practitioners can influence the organisation's decision-making.
- PHO are to be not-for-profit bodies with full and open accountability for the use of public funds and the quality and effectiveness of services.

nurse services. The PHO is also intended to cover 24 hour services, although NZ General Practitioners (GPs) are contesting this presently. Fee for service payments still exist, but at a greatly reduced rate because of the increase in Government capitation payments made through the PHO. For example, a child under 6 years would pay NZ\$14 to the practice; other age groups will pay between NZ\$20-27 per consultation (normal total fee is approximately \$43-50).

Care Plus is a new service that was introduced to PHO in July 2004. It is aimed at people with significant chronic illness who need to visit a GP frequently. The service covers such conditions as diabetes, heart disease, mental health, terminal care and others. Care Plus provides an additional 10% capitation funding for these patients, and 8.5% of PHO enrolled patients are eligible for Care Plus.¹¹ The Government introduced this programme at the time of the commencement of capitation payments to PHO, particularly to assuage the concerns of those GPs in PHO that were unable to start on the new capitation formula. These GPs had populations that were not among those targeted initially (these being either more than 50% Māori or Pacific people, or the majority of patients belonging to the two lowest deciles of an index of relative socioeconomic deprivation, NZ Dep Index.⁹⁻¹⁰ Care Plus aims to improve the management of chronic conditions, reduce health

inequalities between population groups, improve teamwork within PHO, and lower the cost for high-need patients.¹²

A Care Plan is developed for each eligible patient, and there are reviews on a regular basis. One target is to improve a patient's self-management with support to identify and achieve realistic health goals and improve health outcomes. Early indications are that this is a successful programme associated with moderate levels of satisfaction among patients and the primary health care team. In the experience of the pilot practices, the key barriers to implementing the programme are the time involved for patients and practitioners, patient apathy towards a more active role in their own care, and staffing.¹³

Organisational and management structures

PHO have taken various legal forms including, charitable trusts, companies, and incorporated societies. They employ staff to lead services that are designed to improve access, manage referred services such as laboratory and pharmaceutical services, and undertake chronic disease management and integrated care projects. The capacity of a PHO to provide services is linked in part to its size and related resources. Management costs include those of governance, general management, planning control and coordination, performance monitoring and reporting, and referred services management. In a review of the management costs for PHO it was found that smaller PHO (fewer than 20 000 enrolees) were not delivering on all required management services, primarily because they do not have sufficient resources, including staff, to undertake all the requirements. Medium PHO (between 21 000 and 75 000 enrolees) were better able to meet the requirements than were the small PHO.¹⁴ So far the Ministry has not addressed the issue of management costs, and consequently significant numbers of PHO are not meeting their targets for service delivery to patient populations.

Population-based approaches

The Strategy states that 'Primary Health Organisations will be expected to respond to the needs and priorities of their communities, and involve communities in their governing processes'.¹⁵ Health needs assessment is implicitly referred to in this statement, but is formally required within the primary care contract between DHBs and PHO.¹⁶ Health needs assessment for New Zealand has been defined as 'assessment of the population's capacity to benefit from health care services, prioritised according to effectiveness, including cost-effectiveness, and funded within available resource'.¹⁷ Whilst in the UK, health needs assessment is commonly

undertaken by Primary Care Trusts and sometimes at the practice level, in New Zealand it is mandated for DHBs. However, so far, PHOs have only occasionally undertaken them, mainly due to pressure from other priorities and lack of expertise. Needs assessment at the practice level is particularly uncommon.

The Strategy gives increased emphasis to health promotion and preventative care. It aims to connect the preventative care of individual patients (through screening, risk factor assessment and immunisation, and activities to help them take health promoting action) with whole population health care (via health education and the development and implementation of strategies for social and environmental change in the community).

The National Screening Unit provides stewardship over programmes screening for breast cancer and cervical cancer in order to reduce the incidence and impact of these diseases and reduce health disparities between population groups. No national population-based screening programme has been set up for prostate cancer but such a programme is now considered likely for colorectal cancer. A programme to screen for Hepatitis B operates in New Zealand's northern region.

New Zealand offers immunisation and some health checks free to eligible children. It also provides a free influenza vaccination to those aged 65 and over, and to younger persons with one or more chronic conditions. As New Zealand has a current epidemic of meningococcal B disease, a programme has been established involving free immunisation to all infants, children and young people aged less than 20.

The New Zealand Health Strategy⁴ defines health promotion as a 'comprehensive social and political process... of enabling people to increase control over, and to improve, their health.' This takes account of New Zealand's 1840 Treaty of Waitangi (regarded as the founding document of New Zealand and sets out the obligations between Māori and the Government), and the 1986 Ottawa Charter for Health Promotion.¹⁸ Provisions and principles of the Treaty provide a framework for Māori and non-Māori to maximise choices and exercise decision-making control over their own health as defined by a balance between spiritual, mental, physical, and family elements of well-being. The well-being of the environment also contributes, and context is derived from the social, economic and cultural standing of each group.

New Zealand's new approach to population health care, as exemplified by an imperative for health promotion, requires closer working relationships between general practice and public health, and the sharing and integration of certain population functions. These functions include participation in intersectoral activities in order to address social, cultural and economic causes of ill-health. This policy shift is redefining the nature and scope of general practice (and public health), including the role of clinicians as providers of personal care. As a result, 'the margins

between primary care and public health will become blurred in the future'.¹⁹ Arguing for a restricted range of general practice services, critics such as Buetow & Docherty²⁰ have suggested that New Zealand's population health approach is inappropriate to the extent that it weakens personal care in general practice and involves health promotion activity (such as weight loss to reduce overweight) of unknown safety and effectiveness.²¹⁻²⁴

Services to improve access

A key priority for the implementation of the Strategy is to improve health by means of additional services as well as improving access to existing general practice services by reducing the barriers faced by those in greatest need of primary health care. The Strategy also identifies the need to promote multidisciplinary approaches to services and decision making, including linking with secondary care, public health and community-based services. The Ministry of Health proposed a new scheme in 2004 to reduce health inequalities and meet the above objectives, called Services to Improve Access (SIA). The target populations are those known to have the worst health status: Māori, Pacific people, and those living in NZDep index⁹⁻¹⁰ decile areas.²⁵ The funding provided for SIA services is in addition to the capitation funding for population groups within the PHO. High quality primary care services that are culturally competent for Māori and Pacific people are identified as most important.

In planning initiatives to improve access to health care for Māori and Pacific people, PHO are required to consider: the need for partnerships in the planning and delivery of services; the value of services delivered on Marae (a tribal meeting place for Māori), in churches and other locations that are acceptable for the people receiving the service; and the benefits to Māori and Pacific health professionals and community health workers. Table II gives examples of strategies to improve access for these groups of people.

Disease state management

In New Zealand, disease state management requires an expanded role within PHO for all providers and practitioners. Recent changes to the regulation of professionals allow for increased flexibility in clinical practices across professional groups, as new nurse prescribing arrangements exemplify, and support expectations for increased teamwork, as in the use of clinical guidelines. Since 1999, the New Zealand Guidelines Group has produced and made electronically available 55 clinical

Table II
Strategies to improve access to health services
for Māori and Pacific people²⁶

Strategy	Programme
Location of service delivery	<ul style="list-style-type: none"> • Marae based programmes for Māori • Community based health programmes for Pacific communities • Mobile nurse-led outreach services in high need areas
Enhancing existing services	<ul style="list-style-type: none"> • School based clinics • Increased screening/management for high need patients with diabetes • Oral health for high need under 5 year olds • Out of hours clinics in high need areas
Workforce development	<ul style="list-style-type: none"> • Ethnic bi-lingual health workers • Cultural competency development for health professionals
Other	<ul style="list-style-type: none"> • Transport especially in remote areas and areas of high need

practice guidelines and other publications across 25 categories as an aid to clinical decision making (<http://www.nzgg.org.nz/>). These documents systematically summarise and grade research evidence for practice and patients respectively, and offer clinical recommendations in support of patient care. Review criteria have been developed for the primary care management in New Zealand of stable angina and congestive heart failure.²⁷

In the face of barriers to guideline implementation in New Zealand general practice,²⁸ a web-based tool (known as PREDICT-CVD) has been developed to integrate nationally-agreed patient management guidelines for addressing cardiovascular risk with individual patients' own electronic medical records in selected patient management systems in general practice. The clinical information generated, in a standardized but locally adaptable form, estimates patients' own absolute risk of a major cardiovascular disease event within five years and offers real time 'moment of care' and personalised electronic decision support. It can also

be used to risk profile populations, aid clinical audit and quality improvement, and help produce new risk prediction tools for other conditions and settings.²⁹

Information technology likewise drives the implementation of integrated care programmes for patients with specific chronic diseases.³⁰ These emphasise reducing avoidable hospitalisations³¹ through interventions that include a diabetes disease management system^{30,32} and clinical pathways, such as myocardial infarction.³³ Within general practice, disease management programmes are acceptable to patients, practice nurses and GPs,³⁴ although Buetow and his colleagues³⁵ have articulated continuing limitations associated with the use of so-called evidence-based medicine.

Changing roles for nursing in primary care

The Strategy required the Ministry of Health to 'facilitate the development of a national approach to primary health care nursing that will address capabilities, responsibilities and areas of professional practice, as well as setting educational and career frameworks and exploring suitable employment arrangements'.³⁶ In responding to this mandate, the Ministry established an Expert Advisory Group, which reported in 2003 on a framework for activating primary health care nursing.³⁷ The vision for the framework is 'To create the environment that enables nurses to provide integrated comprehensive nursing care to individuals and population groups in New Zealand primary care settings, and that strengthens the primary health care team towards improving health for all' (p. viii). The goals to achieve this vision are: 'to align nursing practice with community needs; to develop innovative models of nursing practice; to achieve governance, leadership, and education and career development for primary health care nurses' (p. vii).

Traditionally, primary health care nurses (including nurses working in general practices, public health, district nursing, mental health and the wider community) have largely been accountable to medical staff in the clinical areas in which they have worked. The new Strategy offers nursing an opportunity to critically evaluate and redefine the scope of practice, address the current constraints to effective practice, and ensure that nurses are strong, effective and visible members of the primary health care nursing team. This will certainly involve shifts in care and to achieve this objective a large number of primary health care nurses have engaged in postgraduate education at the various nursing schools throughout the country. At the University of Auckland a large number of nurses are now involved in postgraduate education, of which over half will be working within primary health care nursing scopes of practice.

The new funding progressively injected into primary health care through the needs-based capitation formula (NZ\$450 million per annum) has led to a significant reduction in co-payments by patients attending general practices. In explaining the background to the current primary health care reforms, Coster and Gribben noted that, 'If services are not substantially free to the user at the point of contact the financial incentives to health promotion and prevention disappear, the incentives to efficient use of nurses' skills are diluted, and capitation becomes merely risk shifting'.³⁸ The effect of the most recent reform has been to allow, and even promote, shifts in care within primary health care teams from medical staff to nursing staff within agreed scopes of practice. Currently a patient can receive nursing services without seeing a doctor, whereas previously in a fully fee-for-service arrangement the patient had to be seen by the doctor in order to claim the General Medical Services subsidy. So the scene is set for the professional development of the primary health care nursing role within the primary health care team in New Zealand.

Quality improvement

In September 2003, New Zealand's Ministry of Health³⁹ published a strategy, 'Improving Quality,' for nationally consistent standards and quality assurance programmes. It describes a systems approach to guide, plan and better coordinate improvements in the health and disability sector. Figure 1 depicts this approach which is founded on the Treaty of Waitangi principles of partnership, participation and protection. On these foundations sit key dimensions of quality that cut across different levels of the system, and centre on people. Building on a report by the National Health Committee⁴⁰ and a background paper,⁴¹ the Ministry strategy recognises, for example, an increased need for leadership, teamwork, and consumer participation in quality improvement activity. Underpinning the strategy is a vision of people 'receiving people centred, safe and high-quality services that continually improve and that are culturally competent'.⁴² All individuals and teams, as well as organisations and government, are recognised to have a shared responsibility to improve quality as an integral part of health care.

In defining quality improvement as including 'continuous quality improvement and quality assurance', the strategy signifies 'a commitment to supporting continuous quality improvement.' While commending this focus, we have questioned the emphasis on continuous quality improvement alongside the relative neglect of other approaches to quality improvement.⁴³ Buetow⁴⁴ has also suggested six lessons from an ideal type of New Zealand Māori quality improvement in health care. These complement key principles for improving the quality of care for Māori.⁴¹

Key mechanisms for quality improvement in New Zealand include the development of new approaches to measuring and managing PHO performance. New Zealand lacks a nationally agreed set of primary care performance indicators, and international performance indicator frameworks might not be suitable for this country.⁴⁵ However, recent years have seen development of initial sets of indicators, both of clinical performance⁴⁶ and of the management of referred services (community prescribed pharmaceuticals and laboratory services).⁴⁷ Despite a need to refine these indicators, discussions are now underway to link quality payments to clinical performance. Meanwhile, the Royal New Zealand College of General Practitioners (RNZCGP) has produced and validated quality indicators that are applicable at the practice level for national use in a voluntary system of practice accreditation.^{48,49}

In New Zealand, safety is considered a key component of quality improvement in health care. Adverse events characterise an estimated 13% of hospital admissions, of which approximately one-third are believed to be highly preventable.⁵⁰ Whilst aiming for excellence, the health system must at least meet the requirements for physical and cultural safety enshrined in legislation (such as the Health Practitioners' Competence Assurance Act 2003) and regulation. In general practice, the RNZCGP Maintenance of Professional Standards programme helps GPs to demonstrate their commitment to safety and quality improvement, and maintain their vocational registration by meeting requirements for recertification. Most New Zealand GPs undertake this programme.

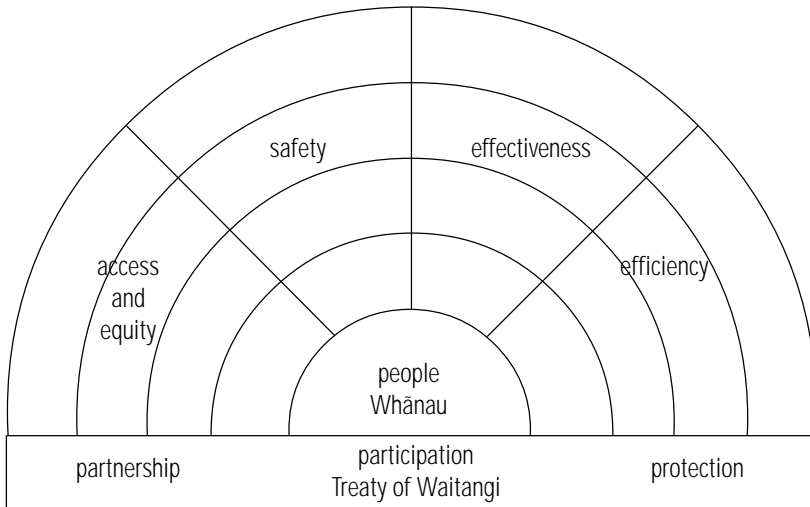
Electronic health record

The electronic health record has had increasing use in New Zealand since the late 1980. In 2000, the New Zealand Health Strategy stated:

The ability to exchange high-quality information between partners in health care processes will be vital for a health system focused on achieving better health outcomes. Better access to timely and relevant clinical information can improve clinical decision-making and, therefore, health outcomes for individual patients.⁵¹

Virtually all practices in New Zealand today are maintaining electronic databases for claiming purposes, and are using electronic prescribing. Over 70% of practices are using the electronic health record and this use is on the increase. A number of the PHO use disease state coding for consultations so that patients can be readily identified for enrolment in disease state management programmes facilitated by the PHO. Recall systems for immunisation, cervical smears, breast screening and well-person checks are now universal. Fast broadband technology is allowing the implementation of web-based practice management systems, so

Figure 1
A framework for improving quality
in the New Zealand health and disability system³⁹



* (Whanau is the Māori term for the extended family)

that patients seen in one practice within a PHO can have their records accessed elsewhere. On the West Coast of the South Island of New Zealand nearly all the practices in the single PHO within the DHB can now be connected. If a patient is seen in one location within the DHB and a GP or practice nurse sees the patient later in the day at a location 300 km away, the clinician can access the patient electronic health record including the previous consultation of that day. The following table gives an indication of the West Coast DHB health information systems available to support patient health care.

Although there is a long history of use of electronic health information in New Zealand, the incentive to progress its development came from the WAVE Project (Working to Add Value through E-Information). Its intention was to improve health outcomes through effective use of health information.⁵² Key outcomes for primary health care are advances in knowledge management, use of the electronic health record, data management and transmission standards, improved data architecture, and systems design.

Table III
West Coast District Health Boards - health information systems

Service area	Health information system
Primary health care	<ul style="list-style-type: none"> • Fast broadband technology interconnecting nearly all practices • Same practice management software offered to DHB owned and private practices (most now use MedTec 32 PMS) • Patient databases in practices and Primary Health Organisations • Most clinicians using clinical record keeping • Disease state coding increasing • Electronic prescribing common • Electronic receipt of X/Ray and Laboratory results four times per day • Rural nurse specialist clinics being connected to information system
Secondary care	<ul style="list-style-type: none"> • Fast broadband technology interconnecting hospitals • Hospital clinical information system • Digital transmission of X/Ray pictures

Primary health organisations in rural areas

The Strategy identified extra challenges in regard to the provision of rural health services in primary care. Specifically these relate to professional isolation, distance to secondary and tertiary hospital services, after hours arrangements, availability of practitioners to attend medical and trauma emergencies, servicing of peripheral clinics, the territory covered by medical practices and the recruitment and retention of rural health professionals, especially GPs.^{53,54}

The issues of professional isolation make collegiality difficult. To meet the demands for locum cover in rural areas and to allow for professional continuing education and holiday time, the Government established a short-term Rural Locum Support Scheme. Generously funded by the Government and managed by the New Zealand Rural General Practice Network, this scheme provides for the recruitment, supervision and subsidy of locums for rural practices. Recruitment of rural GPs is aided by a long-term locum scheme as well as through community trusts and schemes. Moreover, DHBs provide housing, cars and attractive salary packages to attract GPs to enter rural general practice.

In addition, Government has provided funding for rural primary health care workforce retention and recruitment. The package is in two parts: Workforce retention – a flexible resource for supporting and retaining the primary health care team – and Reasonable rosters – a targeted resource aimed at supporting those experiencing onerous on call arrangements. This funding amounts to NZ\$12.9 million in 2004/05. Rural practices are also supported by a rural bonus calculated on the basis of a Rural Ranking Scale, which assigns points to the following factors: travelling time from the practice surgery to a hospital, on-call duty, on-call for major trauma, travelling time to nearest GP at place of work, travelling time to most distant practice boundary, and regular peripheral clinics. In some rural towns, DHB secondary care facilities in a neighbouring town now provide after hours cover.

In some DHBs, rural nurse specialists are providing clinical care at various rural localities, without a doctor being present. These nurses are under the supervision of a GP who may visit once per week. They provide a valuable service to distant communities, which would otherwise have infrequent medical services. The New Zealand Institute of Rural Health is providing support to rural communities in order to help establish their rural health services within the new PHO environment, and to rural health professionals for continuing education (available at: <http://www.instituteofruralhealth.org.nz/>).

Challenges facing general practice and primary health care

The present primary health care reforms introduce population-based approaches to general practice through the formation of PHO. These organisations are responsible for delivering a range of population-based health services to an enrolled population, funded through a needs-based capitation formula. The changes for general practice are the most radical since the introduction of subsidies for patient consultations in 1943. Instead of doctors being able to focus on the consultation alone, they are now part of organisations that hold contracts to deliver health promotion and screening, and participate in disease state programmes for populations managed according to best practice guidelines. Within the practice there are shifts of care between the doctor and the practice nurse team, with tasks previously the responsibility of the GP now being undertaken by an upskilled nursing workforce. The challenge for nursing will be to obtain professional recognition of new scopes of practice within the GP practices. The challenge for general practice and primary health care will be whether PHO can advance and deliver the services promised for their populations, without compromising the personal care of individual patients. A real risk is that PHO will underperform

owing to inadequate management funding and lack of resources to undertake depersonalised population health programmes that are inconsistent with clinicians' own vocation and professional training to deliver personal care.

Presently there are issues regarding how a range of health professionals and others, including communities, can have a voice in the governance of the PHO, including how Māori interact and participate in decision-making. Also unclear is the ultimate size of PHO for maximum efficiency. Smaller PHO are likely to amalgamate or be absorbed into larger PHO. The increasing burden of administration is a high price to pay for increased GP incomes. The electronic health record is now in common use, with laboratory and X-Ray results arriving electronically four times per day. Disease state coding of consultations allows new data to be obtained on the outputs from consultations, and to determine eligibility for various population health programmes. However, not known is the accuracy and consistency of the usage of disease codes.

The forces driving government reform of general practice are the increasing costs of secondary care; the need for better access to general practice and both more preventative health care and health promotion, where the evidence supports this; the introduction of new technologies; and nursing drawing attention to its new skill base and demanding greater involvement in primary health care service provision with consequent shifts in care.

Further challenges are to improve access by extending the removal of financial barriers to attendance by all New Zealanders for GP visits, and address other barriers, such as lack of patient understanding about clinical aspects of their illness through patient education via 'consumer health informatics'. The latter includes the use of incorporating patient electronic decision-aids into systems such as PREDICT and the potential to use electronic health records as a portal to the internet.

Increasing demands for quality improvement will soon see the introduction of performance indicators into PHO, with a portion of payments to PHO linked to health outcomes. This is similar to the quality payments system in the United Kingdom, but initially it will be on a much smaller scale. A challenge will be to manage the tension between measuring performance in the delivery of health care and both protecting and improving unmeasured elements of care. This tension threatens to fragment primary care and impose an increased biomedical orientation that runs counter to the commitment of government to purchase and provide 'people-focused' and holistic care.

General practice and primary health care in New Zealand has been remarkably responsive to the challenges brought about by the rapid introduction of the new primary health care reforms. Although there is much to be done to develop the PHO, New Zealand general practice is at the leading edge of international developments in primary health care at the dawn of the 21st century.

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The experience of the United Kingdom

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Quality improvement has been the central driving force of government policy to improve health care within the United Kingdom since 1997. These initiatives are part of a ten-year strategy focusing upon the entire health care system and more recently by financial incentives within primary care. This chapter discusses developments in quality improvement in the United Kingdom and the chances of the success and failure of these initiatives.

Background: Framework for quality improvement

Since 1997 there have been major organisational changes to the health system in the UK, as part of the Labour government's modernisation programme.¹ These changes affect all health organisations and all health professionals.

In April 1999, Primary Care Groups were created to develop primary and community care services, to improve the health of local people and address health inequalities and to commission community and hospital services. These were based around geographical groupings of general practices, and had responsibility for organising primary care services and commissioning services from secondary care. These Primary Care Groups have subsequently evolved in to Primary Care Trusts, which have responsibility for quality of care in all sectors of the National Health Service but most directly as providers for primary care and community services. Primary Care Trusts have stronger accountability mechanisms and are also responsible for commissioning secondary care services.² These events coincided with the development of a three-part national systems-based strategy for quality improvement (figure 1).³ The three components are the development of national guidelines, the development of mechanisms for quality improvement (clinical governance) and lastly, a national system for monitoring performance. This strategy

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focuses equally upon monitoring existing care to ensure minimum standards are being met and improving future care.

Systems based strategy

National guidelines and standards

National standards and guidelines are designed to foster improvements in, and standardize, future care. There are two key elements: National Service Frameworks (http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/HealthAndSocialCareArticle/fs/en?CONTENT_ID=4070951&chk=W3ar/W) and the National Institute for Health and Clinical Excellence (www.nice.nhs.uk).

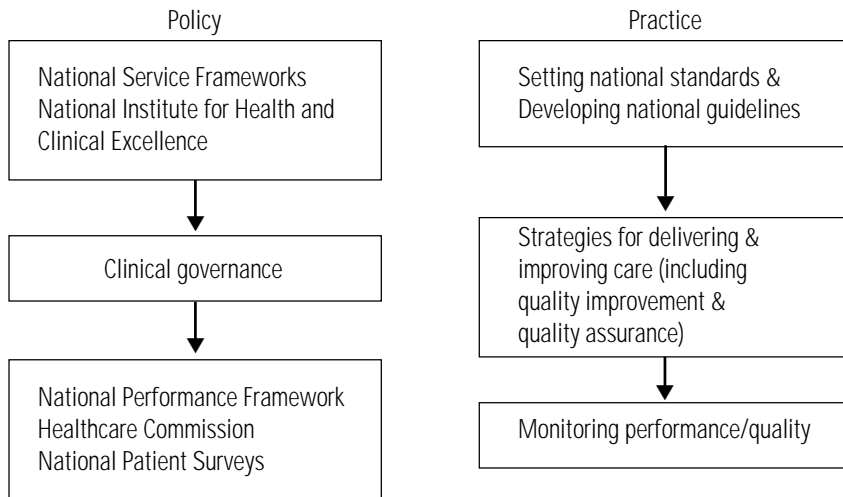
National Service Frameworks are system level models (relating to the whole National Health Service in England). They confer a statutory duty on all organisations and set minimum standards for the delivery and monitoring of health services, including primary care; for example, for mental health,⁴ coronary heart disease,⁵ diabetes,⁶ and childrens' services.⁷

The National Institute for Clinical Excellence (NICE) was set up in 1999 to undertake and publish evidence-based appraisals and clinical guidelines. On 1 April 2005 the National Institute for Clinical Excellence merged with the Health Development Agency to become the National Institute for Health and Clinical Excellence (also known as NICE). It is an independent organisation responsible for providing national guidance on the promotion of good health and the prevention and treatment of ill health. This guidance takes several forms. Firstly, technology appraisals are recommendations on the use of new and existing medicines and treatments, for example devices such as hearing aids, diagnostic techniques such as tests, surgical procedure and health promotion activities like helping people with diabetes manage their own care. Over forty technology appraisals have been published, mostly relating to the use of medicines. Secondly, clinical guidelines are evidence-based recommendations on the appropriate care and treatment of people with specific diseases or conditions such as diabetes in 2002 or coronary heart disease in 2001. Thirdly, intervention procedures used for diagnoses or treatments are recommended in terms of their safety. Since January 2002 Primary Care Trusts have had a statutory obligation to fund treatments recommended by the National Institute for (Health and) Clinical Excellence.

Clinical governance

Clinical governance is defined as 'a framework through which National Health Service organisations are accountable for continually improving the quality of their

Figure 1
Clinical governance in the United Kingdom National Health Service



Source: Adapted from reference 3.

services, safeguarding high standards by creating an environment in which excellence in clinical care will flourish'.⁸ It aims to improve care and prevent poor care on a continuous basis as part of everyday routine. Clinical governance seeks to join together within a single entity previously often fragmented policies⁹ and combine professional approaches to measuring and improving quality of care (e.g. clinical audit) and managerial approaches (e.g. risk management)¹⁰⁻¹¹ in a systems-based strategy. Clinical governance is not voluntary. It places a mandatory duty to improve quality on all staff and organisations. This duty is on a par for chief executives of National Health Service organisations to their other statutory responsibilities such as financial probity.

Primary Care Trusts have employed a plethora of strategies to implement clinical governance.^{2,3,12} The most common strategies have been incentive schemes, education and training events open to staff in all practices, audit and risk management. Other strategies include, critical event analyses, patient surveys, mentoring, local protocols and guidelines, benchmarking, practice accreditation,

analyses of complaints and the use of practice and/or personal learning plans. Many Primary Care Trusts have also developed local medical networks, with leadership by mostly general practitioners for particular issues such as diabetes.¹³

Primary Care Trusts have used 'soft-leadership' or 'soft-governance' to implement clinical governance, characterised by persuading practitioners that clinical governance will benefit patients by using standards developed by fellow practitioners.¹⁴ As such collaborative, developmental, supportive and educational approaches to implementing clinical governance have been advocated.^{3,12} However, since 2002 Primary Care Trusts have also been using harder-edged strategies as part of their statutory responsibility for ensuring at least minimum standards are met by their providers and particularly to address the issue of poor performance,^{2,3} which is discussed on page 12.

Strategies at a practice level have paralleled Primary Care Trust approaches, by focusing upon multiple approaches to clinical governance. These approaches have been mostly developmental and formative, such as education and training and staff appraisals. However, they have also included audit and also significant event analyses, which focuses on why a significant event, such as the suicide of a patient, occurred and how such an event might be prevented in the future.^{12,15}

Monitoring and inspection

The final part of the Framework focuses upon monitoring existing care provided by National Health Service organisations and practitioners. There have been a number of reforms of the organisations involved. In April 2004 the Healthcare Commission was created. Its full title is the Commission for Healthcare Audit and Inspection. The Healthcare Commission replaced the Commission for Health Improvement and Assessment, which had replaced the Commission for Health Improvement, which was initially set up in 1999. Inspection and monitoring and the role of the Healthcare Commission will be discussed in more detail on pages 8-10.

The three arms to this Framework do not occur in isolation, reflecting the emphasis on a systems-based strategy. For example, Primary Care Trusts used national guidance within National Service Frameworks as priorities for developing services and strategies for clinical governance. The Healthcare Commission is responsible for monitoring and reviewing the implementation of standards set out in National Service Frameworks and guidance from the National Institute of Clinical Excellence.

There have also been initiatives from professional organisations. For example, the General Practitioners Committee's 'Good Medical Practice for

General Practitioners'.¹⁶ This defines what a general practitioner should do in terms of good clinical care, maintaining a good practice, working with colleagues, teaching and training, maintaining good relations with patients and probity (http://www.rcgp.org.uk/corporate/position/good_med_prac/GMP06.pdf). There have also been two other important developments in recent years, focusing upon new contractual arrangements and financial incentives respectively.

Government by contract

Government by contract has become increasingly common in the UK with the intention of making public sector services and professionals accountable for service provision and quality of care. The foundation for this strategy was voluntary and compulsory competitive tendering, introduced in the 1980s and followed by the experiment of the internal market in the early 1990s. Using contracts was based on delineating what was expected from a service but there was a reliance on vague block contracts up to the mid-1990s, since when the use of new contractual arrangements in the public sector has accelerated and they have become increasingly more specific. Examples include total purchasing pilots where general practices were able to negotiate local contracts for purchasing services,¹⁷ followed by Personal Medical Services Pilots from 1997 onwards.¹⁸ However, both were characterised by greater specificity of objectives than monitoring of those objectives.

The NHS (Primary Care) Act in 1997 offered Personal Medical Services (PMS) contracts that allow individual general practices or groups of practices to negotiate new practice based contractual arrangements for providing primary care.¹⁹ Approximately 30% of English patients are now registered with Personal Medical Services doctors. The idea underpinning these contracts is to foster flexibility by responding to local needs rather than relying on the standard General Medical Services contract; for example, to fix a quality deficit (e.g. poor standards or problems with recruitment of general practitioners), or to focus on locally determined priorities (such as the homeless). Personal Medical Services-plus contracts also allow practices to commission secondary care services.

Financial incentives

Financial incentives have been used sporadically within primary care in the United Kingdom; for example, contractual financial incentives for cervical cytology and immunisation in the 1990s.^{20,21} Incentive schemes have also been used by a majority of Primary Care Trusts, particularly in relation to prescribing or meeting standards

and targets stipulated within a National Service Framework, especially for coronary heart disease.³ They have also been used to reward practice staff for participation in audit, attendance at education or training events or improved access to appointments.

New General Medical Services contract and Quality and Outcomes Framework

On April 1st 2004 a new General Medical Services contract began between general practitioners and the National Health Service. The intended consequences of the new contract and Quality and Outcomes Framework are to improve quality of patient care and hence patient outcomes, define a minimum standard of care in all practices and to improve doctor-working arrangements.

The contract represents three significant departures from the past. General practice in the UK is most commonly organised in partnerships of between two and ten GPs working in a practice, though some GPs work as single handed practitioners. The first change is that responsibility for services/quality and income moves from the individual general practitioner to the practice. Secondly, practices have been able to opt-out of 24-hour provision of care since April 2004. Thirdly, up to 30% of practice income can now relate to incentive payments for achieving quality of care standards as part of a Quality and Outcomes Framework.²² Prior to this date most general practitioners' income was composed of approximately 40% capitation (number of registered patients), 30% salary, 15% fee-for-service (such as vaccination) and 15% capital and information technology. The majority of general practitioners held a contract with the Department of Health, which had no specific requirement for evidence-based clinical practice and with quality control relying on ad-hoc self-imposed measures such as professional licensing. The new contract and Quality and Outcomes Framework have therefore been described as radical²³ and the most ambitious²⁴ and boldest²⁵ attempt yet to incorporate quality incentives into general practitioner remuneration. A full set of quality indicators can be found at http://www.nhsconfed.org/docs/annex_a_quality_indicators.doc.

The Quality and Outcomes Framework uses financial incentives attached to 136 quality indicators to assess and reward the quality of primary care.²⁶ A total of 1 050 points can be scored by a practice with payment also linked to the list size of the practice. At the beginning of 2005 a point was worth approximately £120. For practices with an average list size of 5 500, this represents a potential increase in gross income of £42 000 per physician or over £1 billion (US\$1.8 billion) in total per annum. These figures are gross, so they do not take account of the additional costs, e.g. employing nurses that the physicians may incur in order to deliver the high

standards of care. The percentage increase for individual physicians will therefore depend on the extent to which they have already invested in quality systems in their practices. The payments represent around 20% of the government's total family practice budget. The Framework includes clinical care provision (10 chronic conditions including heart disease, diabetes and asthma; 550 points across 76 indicators), organisational development (184 points across 56 indicators) and patient assessments of care (100 points across 4 indicators). The clinical indicators combine both process measures (e.g. record of cholesterol) and intermediate outcomes (e.g. level of cholesterol achieved). Practices will be audited to assess adherence to these indicators. In addition, there are 10 indicators (36 points) focusing upon cervical screening, child health surveillance, maternity services and contraceptive services. 180 points are also available reflecting achievement across the organisational, clinical and patient domains. Tables I and II give examples of organisational and clinical indicators contained in the Quality and Outcomes Framework respectively.

Under the new contract all practices are expected to provide, and are remunerated for providing, essential services, which relate to the management of patients who are ill or believe themselves to be ill, and the management of chronic disease in the manner determined by the practice and in discussion with the patient. Practices are also expected to provide but can opt-out of additional services such as cervical screening, contraceptive services, childhood vaccinations and immunisations, child health surveillance and maternity services. In addition, some practices will provide enhanced services, which will be commissioned by their Primary Care Trusts either according to national specifications such as services for the treatment of depression or in response to local need such as diabetology.

While the new General Medical Services contract applies only to GMS practices, excluding minor differences both Personal Medical Services and General Medical Services practices can apply for the Quality and Outcomes Framework incentive payments.

Within a few years virtually all the data for the clinical indicators will be downloaded automatically from general practice computer systems. Central collection of claims data will allow the government to monitor overall implementation of the quality framework, and mechanisms will be established to update the indicators, initially in 2007.

In summary the new contract and Quality and Outcomes Framework incorporate aspects of several previous initiatives such as new contractual arrangements, standards within National Service Frameworks, financial incentives and audit. One central element of both the Quality and Outcomes Framework and the overall national based strategy is inspection and monitoring.

Table I
Examples of clinical indicators in the Quality and Outcomes Framework

	Points	Payment Stages
Condition: Secondary Prevention in Coronary Heart Disease The practice can produce a register of patients with coronary heart disease	6	
Condition: Hypertension The percentage of patients with hypertension who smoke, whose notes contain a record that smoking cessation advice or referral to a specialist service, if available, has been offered at least once	10	25-90%
Condition: Diabetes The percentage of patients with diabetes in whom the last HbA1C is 7.4 or less (or equivalent test/reference range depending on local laboratory) in the last 15 months	16	25-50%
Condition: Chronic Obstructive Pulmonary Disease The percentage of patients with COPD with a record of FeV1 in the previous 27 months	6	25-70%
Condition: Epilepsy The percentage of patients aged 16 and over on drug treatment for epilepsy who have been seizure free for the last 12 months recorded in the last 15 months	6	25-70%
Condition: Asthma The percentage of patients aged 16 and over with asthma who have had influenza immunisation in the preceding 1 September to 31 March	12	25-70%

Inspection and monitoring

As discussed on page 4, the third part of the national Framework for quality improvement focuses upon monitoring existing care provided by National Health Service organisations and practitioners, to ensure at least minimum standards are being met.

The Commission for Health Improvement was created in 1999 to address unacceptable variations in patient care in England and Wales. Its aims were to identify both good practice and areas where care could be improved. This was

Table II
Examples of organisational indicators in the Quality and Outcomes Framework

	Points
Records and Information about Patients	
Each patient contact with a clinician is recorded in the patient's record, including consultation visits and telephone advice	1
There is a designated place for the recording of drug allergies and adverse reactions in the notes and these are clearly recorded	1
The practice has an up-to-date clinical summaries in at least 80% of patient records	8
Information for Patients	
The practice has a system to allow patients to contact the out-of-hours service by making no more than one telephone call	1
The practice supports smokers in stopping smoking by a strategy which includes providing literature and offering appropriate therapy	2
Education and Training	
There is a record of all practice-employed clinical staff having attended Training/Updating in basic life support skills in the preceding 18 months	4
All practice-employed nurses have personal learning plans which have been reviewed at annual appraisal	3
Practice Management	
Person specifications and job descriptions are produced for all advertised vacancies	2
The practice offers a range of appointment times to patients, which as a minimum should include morning and afternoon appointments five mornings or four afternoons per week, except where agreed with the PCO	3
Medicines Management	
The number of hours from requesting a prescription to availability for collection by the patient is 72 hours or less (excluding weekends and bank/local holidays)	3
A medication review is recorded in the notes in the preceding 15 months for all patients being prescribed repeat prescriptions standard 80%	8

underpinned by four main statutory functions: clinical governance reviews of National Health Service organisations, specific studies of the implementation of the National Service Frameworks and recommendations from the National Institute of Clinical Excellence, investigations of serious service failures, and dissemination of good practice.² In 2003 the Commission for Health Improvement merged with

the Audit Commission and the National Care Standards Authority to become the Commission for Healthcare Audit and Inspection, responsible for collecting, collating and publicly reporting data relating to the performance of National Health Service Trusts, hospitals and general practices. The Trust reviews included compliance with standards in National Service Frameworks and guidance from the National Institute of Clinical Excellence. The Commission for Healthcare Audit and Inspection also published comparative information about organisations. Sanctions were imposed for consistent poor performance, including the replacement of managerial and/or clinical leaders.

On 1 April 2004 the Commission for Healthcare Audit and Inspection, known as the Healthcare Commission, replaced the Commission for Healthcare Audit and Inspection. The Healthcare Commission has a statutory duty to assess the performance of all healthcare organisations in England both in the National Health Service and the independent/private sector and awarding an annual rating of each organisation's performance. Its role is to drive the improvement of standards in healthcare by ensuring minimum standards are being met but also promoting quality improvement. Specific functions include regulation of National Health Service organisations, regulation of the independent healthcare sector, reviewing formal complaints about the National Health Service and dealing with complaints about the private and voluntary healthcare, investigating serious failures in services, managing patient and staff national surveys and providing funding for clinical audit. In addition, the Healthcare Commission is statutorily responsible for monitoring and reviewing the implementation of standards set out in National Service Frameworks, for example, coronary heart disease, or guidance from the National Institute of Clinical Excellence.

The Healthcare Commission is responsible for publishing its findings in a number of ways. It produces an annual report to Parliament on the provision of healthcare by or for National Health Service organisations. The Healthcare Commission also publishes themed reports, for example about primary care or mental health.

The Healthcare Commission's system for assessing public and private health services in England is called the 'Annual Health Check', which aims to assess and report on the performance of healthcare organisations. Performance is measured against published 'core' and 'developmental' standards. These standards are spread across seven dimensions, which are safety, clinical and cost effectiveness, governance, patient focus, accessible and responsive care (including patient experiences when moving between organisations), care environment and amenities and public health. The purpose of these Annual Health Checks is to provide and share information about best practice and to focus attention on areas of concern.

Two questions underpin the assessment of each National Health Service Trust -'is the organisation getting the basics right?' and 'is it making and sustaining progress'? The answers to both questions feed in to each organisation's annual rating. Getting the basics right includes meeting existing and core standards and the way in which Trusts use their resources. Sustaining progress refers to assessing performance in meeting new targets and an improvement review, which incorporates the experiences of patients. This dual role reinforces the core remit of the overall national framework of focusing equally upon monitoring current care and improving future care, by inspecting an organisation's performance and informing it how well it is doing with a view to improving future performance.

During the summer of 2005, acute, specialist, ambulance, mental health and Primary Care Trusts in England will receive performance ratings (star ratings), assessing their performance during the year ending March 31st 2005. Ratings range from zero to three stars. The key targets for Primary Care Trusts were announced in March 2004 and cover eight key areas: access to a GP, access to a primary care professional, drug misusers accessing treatment, elective patients waiting longer than standard, financial management, smoking cessation, outpatients waiting time longer than standard and total time in Accident and Emergency Departments (four hours or less). There will also be 'balanced scorecard indicators', chosen to provide a balance across a broad range of areas, to be finalised by March 2005. The balanced scorecard indicators will include issues such as cervical screening, death rates from cancer, ages under 75 (change in rate), flu vaccinations and prescribing rates of antibacterial drugs. 2005 will probably be the last year of star ratings.

The Healthcare Commission has the potential to ensure that annual assessments are conducted in a systematic way, of ensuring that good practice is widely disseminated, and that a valid and reliable set of indicators is developed for annual ratings. The challenge is to do so in a way that encompasses the right quality markers, and does not completely alienate those involved in delivering the care.

While Primary Care Trusts have been charged with the responsibility for improving quality of care, they are also responsible for the annual appraisal of all general practitioners, for reporting on measures taken to improve patient safety and to monitor the veracity of practice returns under the Quality and Outcomes Framework.

Over the last five years there has also been an increasingly widespread use of surveys. For example, the Healthcare Commission undertakes both patient and staff surveys of satisfaction. All general practices are encouraged to undertake a patient survey as part of the Quality and Outcomes Framework. Primary Care Trusts have also used patient surveys as part of their clinical governance strategies.

Dealing with poor performance

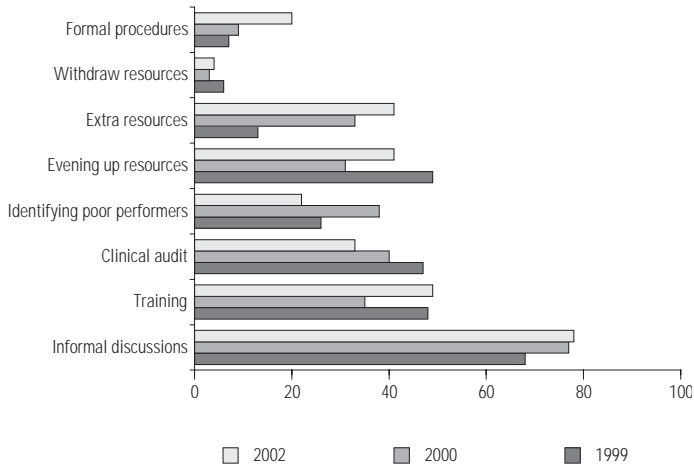
As discussed above, Primary Care Trusts have advocated supportive and educational approaches to implementing clinical governance and this approach extends to dealing with practices whose performance is perceived to be sub-optimal,^{3,12} for example, informal discussions, training or extra resources (figure 2). Formal procedures were initially less well developed partly because many Primary Care Trust staff were unsure of the 'carrots or the sticks' at their disposal¹² to deal with substandard care or to encourage resistant colleagues to engage with clinical governance. Many therefore relied on the goodwill of their 'independent contractor' colleagues to move the process forward.¹⁵

However, Primary Care Trusts are increasingly advocating formal disciplinary procedures for dealing with poor care/performance.³ This development also reflects the fact that from April 2002, Chief Executive of Primary Care Trusts became responsible for ensuring high-quality care from all its providers. Primary Care Trusts have subsequently started to develop performance procedures based on those that had previously operated at health authority level. While this formal responsibility extends to both the primary and secondary sectors, this chapter focuses upon primary care.

Procedures for detecting and managing poor performance within general practice had been developed in the late 1990s and led to a performance panel being created in each of the pre-2001 health authorities. These panels now continue under the aegis of Primary Care Trusts. Some of these panels have reacted responsively to complaints or concerns raised by patients, professionals or managers, while others have relied on identifying under-performing doctors from available health service statistics. However, many problems are unlikely to be discovered through routine statistics and the responsive mode of working is an essential part of the procedures² (table III).

Based in part on the experience of the early performance panels, the National Clinical Assessment Authority was established in 2001, which set up a series of procedures for primary care.²⁷ These procedures are used to identify poorly performing doctors and they follow earlier locally developed protocols, but introduce greater rigour, including, for example, an occupational health assessment and a formal test of knowledge as part of the assessment of each referred doctor. The National Clinical Assessment Authority carries out assessments only where it has not been possible to operate more local procedures effectively. The National Clinical Assessment Authority is soon to be incorporated into the National Patient Safety Agency (<http://www.ncaa.nhs.uk>).

Figure 2
Methods used by Primary Care Trusts
for dealing with poor performers



Source: reference 3

While the rigour of assessing under-performance has improved, what is unknown is how effective the procedures are in detecting cases of serious under-performance, or in ensuring fairness in their detection (e.g. whether there is racial or other bias in the reporting of complaints). Moreover, addressing the problems of doctors whose performance has been identified as substandard, but is not so poor that they need to be suspended from practice, remains a significant problem. However, the National Clinical Assessment Authority helps Primary Care Trusts decide whom to suspend. In addition, reflecting challenges within Primary Care Trusts generally,¹² it is still not known how effective Primary Care Trusts will be in combining and reconciling their quality improvement (“carrot”) and quality assurance (“stick”) roles.

The prospects for successful quality improvement

This chapter has described the national systems based strategies for quality improvement initiated in the UK in 1997, which are underpinned by clinical

Table III
Quality improvement for coronary heart disease
in a systems based model

National level

- National Service Framework (influence on priorities in 94% of PCTs)
- NICE guidelines (influence on priorities in 65% of PCTs)
- Monitored by Healthcare Commission

Primary Care Trust level

- Protocol for the systematic assessment, treatment and follow-up of people with CHD (96% of PCTs)
- Financial incentives to take part in quality improvement (60%)
- Collecting information from 'all or most practices' in 96% of PCTs
- Local education & training events (53%)

General Practice level

- Registers in all or most practices in 96% of PCT areas
- Practice quality scores increased from 64.18% in 1998 to 78.15% in 2001 (NPCRDC QuIP study 2005)

Modified from: reference 3.

governance, and have been supplemented within primary care settings by the new GMS contract and Quality and Outcomes Framework. The role of attribution within health services research, such as the impact of specific initiatives like National Service Frameworks or the Quality and Outcomes Framework, is problematical. This is due to the multiplicity of other concurrent initiatives, which makes ascribing change to a single issue difficult. However, this section discusses the chances of success or failure of these initiatives overall to secure quality improvement.

Initial successes in the quality improvement strategy

Considerable progress has been made in establishing the infrastructure necessary to deliver quality services.^{28,29} Moreover, the national Framework combines top-

down initiatives such as National Service Frameworks and bottom-up strategies by Primary Care Trusts, which are pursuing multiple approaches to implementing clinical governance as discussed above. There is evidence that multiple strategies are most likely to lead to changes in behaviour and quality of care.³⁰ In addition, the new GMS contract and Quality and Outcomes Framework place equal emphasis on organisational as well as clinical changes; for example, systems of data entry, appraisal, significant event analyses and written protocols. This is important because quality improvement requires a balance between focusing upon clinical and organisational aspects of care.³¹ In addition, initiatives like National Service Frameworks and the Quality and Outcomes Framework as well as Primary Care Trust schemes have also demanded increased data capture. While this raises the issue as to whether quality of care delivered or recorded has improved, data accuracy and reliability are essential for tracking quality improvement.

Quality improvement requires multilevel approaches to change, which focus on individuals (e.g. GP or nurse), teams (e.g., primary health care team), and organisations (e.g. Primary Care Trusts) and the overall system (e.g. National Health Service), in which individuals and organisations are embedded. This is what clinical governance seeks to achieve as a coherent system-wide strategy, the first of its type in the National Health Service,³ unlike previous quality strategies that were often fragmented or sector/ profession-specific. It is quality improvement approaches at each level in combination, which creates real change.³⁰ Coronary heart disease acts as a good exemplar for assessing the impact of clinical governance (table IV). It is the predominant priority for many Primary Care Trusts³ as well as the subject of a National Service Framework. Heart disease is also central to the financial incentives within the Quality and Outcomes Framework. This is the main advantage of a coherent systems-based model of clinical governance.

While the Quality and Outcomes Framework introduces financial incentives on a systematic basis, working under an incentivised environment is not new to GPs in the UK.³² Financial incentives are an effective means of influencing professional and organisational behaviour.³²⁻³⁶ Payments have the potential to change behaviour by offering economic incentives to provide more of a particular service,^{37,38} particularly if the incentives represent a sufficiently high proportion of income³⁹ or are aligned to professional values.³⁴ The absence of financial incentives/ quality payments within previous quality improvement strategies may have partially explained the failure of such strategies to lead to actual improvements in quality of care.¹ Professional motivation, while an important component of delivering quality improvement, is not sufficient on its own.⁴⁰

General practitioners do respond positively to incentives. For example, contractual financial incentives for cervical cytology and immunisation, which

Table IV
Types of concern considered by the Manchester performance panel

- Poor communication in the practice
- Poor teamwork
- Inability to work with others
- Poor communication with patients
- Negative or uncaring attitude towards patients
- Minimal clinical service
- Poor clinical decision-making or clinical knowledge
- Absence of a complaints procedure
- Low cytology or vaccination coverage
- Poor prescribing, including repeat prescribing of benzodiazepines, unnecessary vaccinations, poor repeat-prescribing system, low generic prescribing
- Health and safety requirements not met
- Poor practice management or administration, disorganised practice

Source: Roland et al 2001

improved quality and reduced socio-economic inequalities in England in the 1990s.^{20,21} Primary Care Trusts have also successfully linked financial incentives to quality improvement initiatives linked to National Service Framework targets, even within limited clinical governance budgets.³ Initial evidence suggests that general practitioners will also respond positively to the financial incentives in the Quality and Outcomes Framework.⁴¹

Eight years into the ten-year national strategy, there is some emerging longitudinal evidence that quality is improving within the environment of clinical governance. Examples include improvements in access and chronic disease management procedures between 1998 and 2001 (table V) and in the quality of care for angina, asthma and diabetes between 1998 and 2003 (table VI).⁴¹ Moreover, quality improvements have been found in first-wave Personal Medical Services sites, for example in terms of care for the elderly or mental health.¹⁹ In addition, there is evidence that the new contract will lead to substantial benefits in terms of preventing for example cardiovascular events.⁴²

One of the challenges that faced Primary Care Groups and then Trusts in implementing clinical governance was to develop a more corporate culture in which quality improvement is a shared enterprise. Previously independent contractor primary care practitioners, and autonomous practices, were being asked to work within a corporate philosophy. A more transparent quality improvement agenda is certainly emerging due to this shared-learning environment within and between

Table V
Examples of improvement in care in 23 English practices
from 1998 to 2001

	1998	2001	Significance of difference
Access procedures (changes due mainly to availability of information by phone, and availability of interpreters)	73.5	86.8	0.016
Chronic disease management (changes due mainly to increased use of registers, protocols and clinics)	58.7	92.4	0.039

Source: Campbell et al 2003

Table VI
Examples of improvement in care in 42 English practices
from 1998 to 2003

	1998	2003	Significance of difference
Quality of care for angina (from review of patient records)	60.51	77.7	0.000
Quality of care for asthma (from review of patient records)	60.15	70.33	0.001
Quality of care for diabetes (from review of patient records)	69.8	77.69	0.001

Source: National Primary Care Research & Development Centre QuIP study 2005. University of Manchester

practices. There has been progress in terms of sharing data, cross-practice audits, and staff in a general practice learning together at Primary Care Trusts sponsored educational events, which is a major cultural change for primary care. This is an evidence-based approach to take, because education and learning at the organisational level, in this case of general practices, are effective methods of improving quality of care.⁴³ Primary Care Trusts seem aware of the need to address the underlying changes in behaviour and culture, both organisational and behavioural, that are required to create successful change, although these do take time to materialise.^{43,44}

The new General Medical Services contract did not appear in a vacuum. Its legitimacy is derived from the gradual acceptance of previous strategies and it is a natural progression from previous policies and initiatives, which taken together, represent a huge cultural change on 10-20 years ago. For example, since 1990 formal contractual specification within general practice has become more commonplace, starting with the 1990 contract, through the experience of PMS, Primary Care Trust co-ordinated quality improvement initiatives and ultimately culminating in a new General Medical Services contract. Evidence of significant variation in care^{45,46} has driven calls for minimum standards. The development of Primary Care Trusts as institutions of governance over National Health Service primary care has proceeded from soft-coercion¹⁴ to increasing performance and contractual management.³ This reinforces a move from internal collegiate professional self-monitoring to external assessment of accountability throughout Europe.^{31,33}

Research in first-wave PMS sites has identified some mechanisms associated with quality improvement.¹⁹ Firstly, teamwork, shared culture and effective leadership and management were important catalysts. Others have also found that quality improvements are facilitated by team-based approaches^{31,43} and that higher self-reported team climate is associated with better quality of care in terms of access, clinical care and inter-personal care.⁴⁶ Evidence suggests that many practices are reconfiguring teamworking roles between nurses and doctors to implement the Quality and Outcomes Framework.⁴¹ Secondly, quality improvement is linked to the clarity and specificity of objectives.^{19,47} The indicators within the Quality and Outcomes Framework have such clarity. Thirdly, quality improvements are obtained at a higher cost, whether in Personal or General Medical Services practices.¹⁹ This finding replicates the evaluation of total purchasing pilots where achievement was accompanied by developmental budgets.¹⁷ However, considerable new investment and a national policy commitment underpin both clinical governance and the Quality and Outcomes Framework. Fourthly, successful quality improvement requires effective collaborative arrangements with other health care providers,¹⁹ highlighting how real improvement comes from changing systems and cultures,⁴⁷ which is the foundation of the national systems-based approach.

Areas where quality improvement faces difficulties/challenges

The ongoing reorganisations and policy initiatives have created a significant degree of reorganisation fatigue, relating, as Smith et al⁴⁸ have phrased it, to "re-disorganisation". Sweeney et al¹⁵ emphasised the degree to which the staff in Primary Care Trusts who are responsible for implementing clinical governance feel beleaguered, being faced with a lack of funding, direction and guidance; long

working hours; and lack of time to absorb and understand multiple initiatives. Stability in National Health Service organisations will enable them to develop more effective management capabilities, as well as improving staff morale. Reorganisation and mergers cause considerable disruptions to services, and appear to require greater management support than previously acknowledged.⁴⁹

A review of Primary Care Trusts by the Commission for Health Improvement published in March 2004 found that Primary Care Trusts are doing some things well, such as helping general practices meet access targets.²⁹ However, the report concluded that in general Primary Care Trusts are not driving quality improvement nor effectively collecting or using information about services or the needs of local populations.

These difficulties may be transitional ones, as the reorganisation of the National Health Service is still relatively new. However, is also concern about Primary Care Trust managers' capacity to effect change, both at primary care level, where practitioners are not used to being managed at all, and at secondary care level. For the latter, Acute Trusts have been used to dealing with purchasers since 1990. Many are large and very powerful. The ability of Primary Care Trusts, which are in most cases substantially smaller than the health authorities that used to negotiate with Trusts, to take on the powerful and vested interests within Acute Trusts is also questionable. Moreover, there have also been problems implementing clinical governance both at a Primary Care Trust and practice level due to a lack of time, resources and support.^{2,12} There is also some evidence that Primary Care Trusts are finding it easier to implement some aspects of clinical governance (e.g. the standards within the National Service Framework for coronary heart disease) than others (e.g. the standards within the National Service Framework for mental health).⁵⁰ This is because of the well-developed heart disease infrastructure within primary care compared to the nascent primary care mental health infrastructure (e.g. disease registers, familiarity with audits). In addition, the accurate identification of heart failure patients and recording of clinical information as part of disease registers needs to improve if primary care teams are to meet, for example, standards in the National Service Framework for heart disease.⁵¹

While there is evidence of quality improvement in general practice (for example, tables V and VI), there is also evidence that National Service Frameworks, as perceived by doctors, are failing to make an impact in general practice.⁵² Moreover, there is still not universal support for clinical governance with many local practitioners not engaging with the new quality improvement agenda and not convinced that Primary Care Trusts have generated quality improvements.^{2,3,53} These convictions have so far been generally backed-up by formal assessments.²⁹

There are also causes for concern in relation to the new contract and Quality and Outcomes Framework. In a random survey of 1950 family practitioners in England, undertaken in February 2004, 31 and 36% of GPs respectively expected care for acute conditions and overall quality of care to deteriorate. Many GPs also felt that the new contract would increase their administrative and clinical workloads, while reducing their professional autonomy and the overall quality of their working life.*

At this stage, it is difficult to establish what impact the Quality and Outcomes Framework incentives will have on quality of care. Quality will almost certainly improve for the incentivised areas. One key question is whether such incentive induced change will be at the expense of other areas of care? Indeed, as with any policy initiative, there may be potential unintended consequences as a result of the Quality and Outcomes Framework.⁵⁴ Examples could include reduced continuity of care, fragmentation of care and the risk of damage to health professionals' internal motivation. There is some evidence that when GPs focus on chronic disease targets, this may be at the expense of acute care, treating the whole person and psychosocial issues.³⁴ Some GPs also believe that the focus on clinical chronic disease management in the Quality and Outcomes Framework might be at the expense or dilution of the inter-personal and holistic components of quality of care.⁴¹

There may be a 'halo effect' with improved practice systems resulting in improved care in all clinical areas.⁵⁵ However, others have argued that there is a fundamental conflict between population based public health objectives and the individual focus of patient care⁵⁶ and that incentives send a signal to doctors to consider their self-interest in medical decision-making at the expense of patient centred care.⁵⁷ The effectiveness of financial incentives is also contingent on factors such as the context under which the incentives are used⁵⁸ and the impact of financial incentives is diminished when income is perceived to be sufficient.⁵⁹ While financial incentives do change behaviour, as discussed above, prevailing norms and cultures derived from training and experience also influences behaviour.

The dominant approach to quality improvement in the United Kingdom in the last decade has been audit, which is the systematic critical analysis of the quality of medical care, including the procedures used for diagnosis and treatment, the use of resources and the resulting outcome for the patient. It was first introduced on a widespread scale in the early 1990s, and it has laid much of the infrastructure for the more focused quality improvement initiatives that have developed subsequently. However, the value of audit relates less to its inherent qualities than

*Sibbald, personal communication

on how it is used. For example, only 24% of audits involved a re-audit to see if care had improved.⁶⁰ Simply setting standards and assessing whether they are met, in itself, offers only a retrospective detection of error, rather than attempts to improve care prospectively.⁶¹ The potential value of the indicators in the National Service Frameworks and Quality and Outcomes Framework, presuming they remain the same, is it will be possible to audit care longitudinally. However, for quality improvement to occur, initiatives will need to be more than a data collection exercise, with targeted guidance for practices where specific indicators (e.g. recording of weight) or conditions (e.g. diabetes) or sets of indicators across conditions (e.g. advice) are concerned. The role of feedback within quality improvement is crucial. Audit and feedback on their own are not necessarily effective. What is required is formative individualised feedback, which identifies trends in performance not in relation to averages but to strategic goals.⁶² While such an 'inspection-informing-improving' agenda is the remit of the Healthcare Commission, its effectiveness is not yet known.

Quality of care initiatives in the health service have not always affected middle range quality of care⁹ with those whose performance (year on year) is not at the extreme (either bad or good) not feeling the same pressure to improve. Quality improvement can be most relevant in practices that are neither remedial nor leading edge.⁶³ It is important that the National strategy continues to focus on all practices and practitioners not just those with excellent or poor performance.

We summarise some of the strengths and weaknesses of the new arrangements in table VII.

Conclusion

The changes since 1997 represent some significant departures from the past. For example, the multi-faceted approaches of clinical governance are mandatory and foster a corporate culture, within a national systems-based strategy for quality improvement. The Quality and Outcomes Framework takes contractual governance into clinical quality of care and attaches financial incentives to quality of care achievements. Within a rapidly changing health care system, it is not possible, nor perhaps desirable, to attribute cause with effect with certainty to any one intervention; for example, calculating the impact of National Service Frameworks compared to the Quality and Outcomes Framework. However, the experience of implementing clinical governance is broadly positive to date. While there are causes for concern, there is considerable cause for optimism that the overall national Framework, supplemented by the financially incentives in the Quality and Outcomes Framework, will generate quality improvements in primary care.

Table VII
Summary of some strengths and weaknesses
of developments in primary care: 1998-2003

Aim	Strengths / successes	Weaknesses / limitations
Managing primary care	Development of more sophisticated and proactive management functions within primary care, a sector of the NHS previously run on an administrative and reactive basis.	Limited capacity for required tasks, both in volume and experience of staff. Frequent and disruptive changes to organisational structures and to their senior management.
Increasing accountability and public engagement	Greater degree of transparency, and accountability, some local examples of successful public engagement.	Little overall evidence of impact of user involvement on service development.
Improving care through clinical governance	Successful introduction of clinical governance structures into primary care. Evidence of improvement of care for some major chronic diseases.	Financial incentives in new GP contract may broaden areas where quality improvement occurs. The effects of this on other conditions (e.g. care for unincitised conditions) is not known
Monitoring performance of primary care	More robust and transparent performance procedures introduced into primary care. Successful establishment of processes to identify under-performing doctors.	Persistent problems of how to remedy under-performance when it has been identified.

Useful websites

Good Medical Practice (General Medical Council): www.gmc-uk.org
Healthcare Commission: www.healthcarecommission.org.uk
National Clinical Assessment Authority: www.ncaa.nhs.uk
National Institute for Health and Clinical Excellence: www.nice.nhs.uk
NPCRDC: <http://www.npcrdc.man.ac.uk>
National Service Frameworks. Available at: <http://www.doh.gov.uk/nsf>
New GMS Contract : www.nhsconfed.org/docs/contract.pdf
Quality and Outcomes Framework: www.bma.org.uk
Royal College of General Practitioners: www.rcgp.org.uk

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Veterans Health Administration

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Introduction

The Veterans Health Administration (VHA), an agency of the Department of Veterans Affairs (VA), is the largest integrated healthcare system in the United States (U.S.). It is a nationwide medical care system providing primary to tertiary care for former members of the armed services of the U.S., caring for over seven million¹ enrolled patients. The system's quality of care is driven by wide ranging performance measures and linked by electronic medical records. It includes 157 hospitals, over 850 primary care clinics, long term care facilities, and highly specialized care including transplant surgery and poly trauma care. Other special programs include Post Traumatic Stress Disorder (PTSD), Blind Rehabilitation, and Spinal Cord Injury. In addition, Employee Education, and Research and Development are important programs.

History of VA

Uniquely among the nations of the world, the U.S. provides a comprehensive medical system for the care of its veterans. From the beginning, the British colonies in America provided pensions for disabled veterans, having passed the first law in 1636 in Plymouth, Massachusetts, providing money to those disabled in the colony's defense against Native Americans. In 1789, the U.S. Congress passed the first federal legislation to pay benefits to veterans. By 1808 all veterans programs were

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administered by the Bureau of Pensions under the Secretary of War. Laws later included benefits to veterans and dependents of the War of 1812. The Civil War of 1861 increased the number of veterans from about 80 000 to 2 million. In his second inaugural address in 1865, President Lincoln called upon Congress “to care for him who shall have borne the battle and for his widow, and his orphan”.² This was later adopted as the VA's motto.

A structured mechanism to address the health care needs and benefits of the veterans was started by the establishment of the Veterans Administration in 1930, with the signing of an executive order by President Hoover. The new agency was responsible for medical services for war veterans, disability compensation, and other benefits for veterans.

During the decade from 1931 to 1941, the number of VA hospitals increased from 64 to 91.² Demand for hospital care grew dramatically due to the Great Depression and also tuberculosis. During World War II, with growing public sentiment to help veterans return to normal life, the 1944 Congress passed the Servicemen's Readjustment Act, often referred to as the “GI Bill of Rights.” The bill had three key provisions including education, federally guaranteed home, farm, and business loans; and unemployment compensation. The GI Bill helped transform the economy and society of the U.S.²

The VA continued to evolve over the years with an increasing number of hospitals spread across the country. Many of these hospitals entered into affiliation agreements with university medical centers and medical schools. These arrangements were meant to be mutually beneficial with highly trained faculty from medical schools providing patient care to veterans. These faculty members held part-time appointments at VA, reducing the salary burden for the University. At the same time VA provided excellent academic opportunities for the universities to train their residents and medical students. VA hospitals became a key source of medical education and research in the U.S.

VA Becomes a U.S. Cabinet Department

The mission of VA is to serve America's veterans and their families with dignity and compassion and to be their principal advocate in ensuring that they receive the care, support and recognition earned in service to this nation. Given the importance of this mission, it was not surprising that the U.S. Government decided to enhance the status of VA, which was elevated to a full cabinet Department in 1989 and became the Department of Veterans Affairs. Since that time VA has been headed by a Cabinet level Secretary (nominated by the President and confirmed by the Senate). VA has three major divisions –Veterans Health Administration

(VHA), Veterans Benefit Administration (VBA), and National Cemetery Administration (NCA). Each of these divisions is headed by an Under Secretary who is nominated by the President and confirmed by the Senate.

VA had a budget of \$ 62.1 billion for fiscal year 2004, out of which VHA had a budget of \$ 29.1 billion for medical care of veterans.³ VHA, the largest division in VA, consists of 157 VA Medical Centers, about 850 community-based outpatient clinics, and more than 250 other long-term care facilities, domicilliaries, veterans counseling centers, and home care programs. VHA had 7.4 million enrollees in the fiscal year 2004 and treated about 5 million veterans. The VHA treated veterans through 54 million outpatient visits and 587 000 hospital admissions. VHA had on average 18 345 beds with 5.2 million bed days of care. VHA also operates 132 nursing homes, 42 residential rehabilitation treatment programs and 88 comprehensive home-care programs.³ As one of the divisions of the Department of Veterans Affairs, Veterans Health Administration has the main goal to ensure that quality medical care is provided on a timely basis to all eligible veterans.

In addition to providing healthcare to veterans VA delivers monetary benefits to eligible veterans through its second division, the VBA. A wide range of financial, compensatory, and educational/rehabilitative services are offered to veterans. These include compensation and pension payments, home loan guarantees, vocational rehabilitation and employment, life insurance, survivors and dependents' benefits, as well as educational assistance. The VBA disbursed benefits of \$32.4 billion to veterans in fiscal year 2004.³

VA assumes responsibility for care of the veterans through the end of their life and in a manner which bestows honor and dignity. The third division of VA, the National Cemetery Administration has a mission to honor veterans with a final resting place and lasting memorials that commemorate their service.

Even after becoming a cabinet level Department, up until the mid-90s, VHA continued to function largely as a hospital based system focusing on acute care, general medical and surgical services, specialized care in mental health, long-term care, and special programs for certain unique veterans including those with spinal cord injury and PTSD. Women veterans, constituting only a small percentage of the veteran population (3-4%) found their services to be fragmented and sometimes not user-friendly. The various VA Medical Centers operated relatively independently and without a uniformity of purpose or standardization of services. Some VA hospitals in close geographic proximity were providing duplicate services and competing for the same resources and veteran population base. Not only was VA a hospital based system but regulations required all health care services to be provided in the hospital. The need for transformation was clear.

VA - Time for Change

It was at this time that VHA began its transformation to its current status as a proactive health care organization advocating a culture of quality, accountability, customer-service, and cost-effectiveness. In 1996, the Veterans Health Care Eligibility Reform Act was passed. This allowed the system to be redesigned from a hospital system to a health care system. The structural changes were predicated on the assumption that providing the most effective, efficient care required coordination among facilities, synergy of resources, and that care be provided in the most appropriate environments.⁴

Veterans Integrated Service Networks: Organizational Effectiveness

The management of VA Medical Centers was restructured to allow greater functional autonomy while aligning them to support the common goals of improved access and quality of care. It led to the establishment of 21 geographically defined Veterans Integrated Service Networks (VISNs). Each VISN office provides oversight to an average of 4-8 VA Medical Centers, often across state lines. The VHA Central Office (VACO) in Washington, DC, is responsible for policies, guidelines, national initiatives, and funding. The Under Secretary of Health, a physician leader of national stature and academic distinction, serves as the chief executive officer of VHA.

The methodology to fund the Medical Centers was also changed. It took into consideration shifting veteran populations, complexity of care, and geographical differences. The resource allocation model was based on funding of the VISN rather than the independent medical centers. This allowed each VISN to be creative, flexible, and responsive to the needs of its constituent medical centers while creating incentives for resource-sharing and non-duplication of services. This was a new way of doing business for the VA, shifting the emphasis from competition to collaboration.

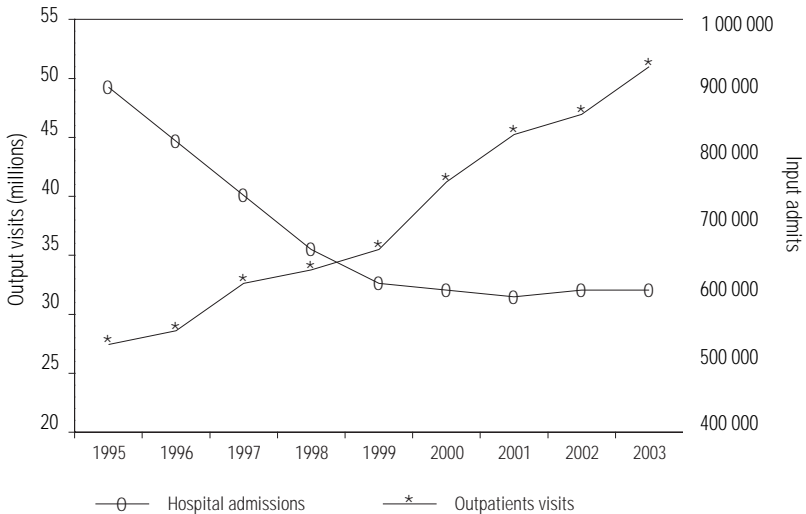
The VA healthcare system model of patient care now relies not only on its 157 Medical Centers, 878 Community Based Outpatient Clinics (CBOCs) and hospital based outpatient clinics and over 250 long term care facilities as the foundation of the health care delivery. The vast network of VA community based outpatient clinics have made primary care more accessible.

Transformation: The Move to Primary Care/ Philosophy of Family Practice and VA

This transformation of the care delivery and organizational structure effectively facilitated shifting of care from the hospital to ambulatory care settings and community home-based primary care. This coincided with a reduction of authorized hospital and long-term care beds from approximately 92 000 to 53 000, a concomitant decrease in hospitalizations, and a corresponding increase in ambulatory care visits and services (figure 1).⁴

The transformation of the VA that began in mid-90s also had an unprecedented effect on primary care. Essentially primary care was non-existent in the VA system with care being episodic, need driven, and focusing on acute illness. There was no emphasis on continuity of care, preventive care, coordination of care, or appropriate referrals and follow up. As VA started its transformation from a hospital-based system to a healthcare system, primary care became the focus and the key driver of change.

Figure 1. Decrease in hospital admissions and increase in outpatient visits, Department of Veterans Affairs, from 1995 to 2003



Source: reference 4

Each VA medical center began developing primary care teams with a focus on continuity and coordination of care. The addition of hundreds of outpatient clinics across the country helped strengthen the primary care concept and delivery model. VA has become one of the most progressive and strong proponents of primary care in the nation. Normally, veterans who receive care in the VA system are enrolled with a Primary Care Provider (a physician, physician assistant, or nurse practitioner). The care of the patient is coordinated by the Primary Care Provider with emphasis on continuity of care, preventive care, and chronic disease management.

VA primary care includes an elaborate preventive care program. What is unique is the standardization of preventive services to all eligible veterans, tailored by gender, age, and or medical history. Preventive care is promoted through the use of a performance management system. VA monitors certain elements of care nationally through an independent External Peer Review Program (EPRP). Preventive care elements are monitored as part of the EPRP thus allowing each Medical Center to be held accountable for its clinical performance outcomes based on established VA goals for compliance with preventive care and actual performance based on external reviews.

In addition to preventive care, VHA monitors the quality of chronic disease care delivered in primary care clinics through data collection and performance measures established for many elements of disease management, reviewed and monitored through EPRP (table I).

A study released in the journal *Annals of Internal Medicine*⁵ reported that patients enrolled in the Department of Veterans Affairs received preventive and chronic care at a much greater level than patients in the non-VA National Survey. In a survey sample comparing VA patients with the national survey, VA scored 72% versus 59% on chronic care.

Women Veterans and VA

Special care for women veterans in the VA system varied from nonexistent to fragmented. Following the Gulf War of 1991, VA saw an increase in the number of women veterans as potential users of the system. The transition to primary care became an effective tool for the inclusion of women veteran's focused services. The need for improvement of women's services was recognized by the passage of legislation to correct the deficiencies that existed and to enhance care and services for women veterans. Public Law 102-585, Veterans Health Care Act of 1992, Title I is devoted exclusively to women veterans and has nine relevant sections. The law required VA to provide gender specific care and general reproductive health care

Table I
Performance Measurement Setting the U.S. Benchmark
for 18 Comparable Indicators⁶

Clinical Indicator	VA 2002	VA 2003	Medicare 2003
Advised Tobacco Cessation (VA x3, others x1)	69	75	62
Beta Blocker after MI	97	98	93
Breast Cancer Screening	80	84	75
Cervical Cancer Screening	89	90	62
Cholesterol Screening (all pts.)	91	91	NA
Cholesterol Screening (post MI)	92	94	78
LDL Cholesterol >130 post MI	74	78	62
Colorectal Cancer Screening	64	67	NA
Diabetes HGB A1c checked past year	94	94	85
Diabetes HGB A1c >9.5 (lower is better) checked past year	17	15	
Diabetes LDL Measured	94	95	88
Diabetes LDL<130	70	77	63
Diabetes Eye Exam	72	75	68
Diabetes Kidney Function	78	70	57
Hypertension: BP<140/90	55	68	57
Influenza immunization	74	76	P
Immunization	87	90	P
Mental Health F/U 30 D post D/C	81	77	61

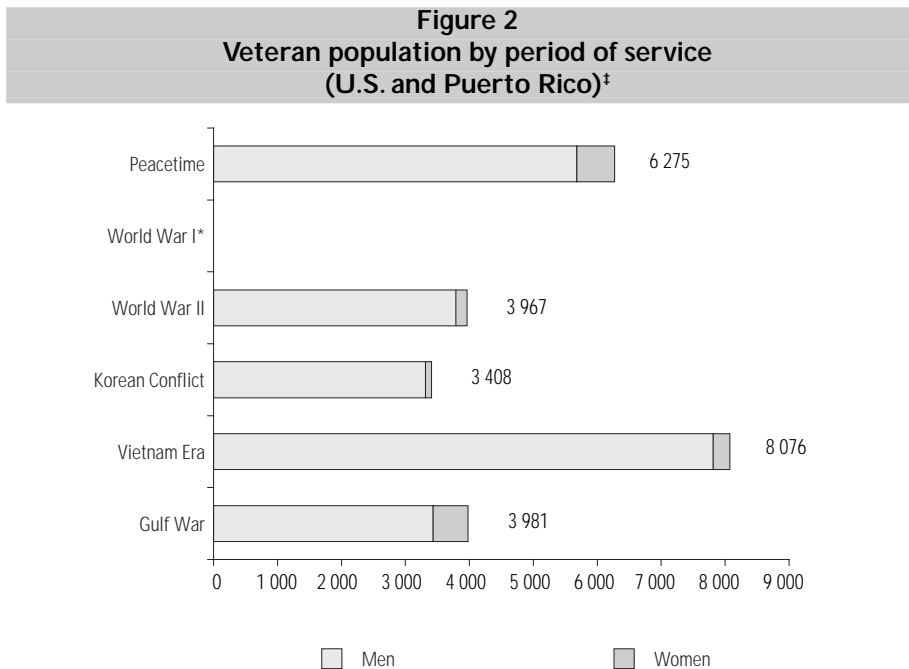
to women veterans. In addition it authorized sexual trauma counseling, established eligibility for these services, and required reports to Congress on the sexual trauma counseling programs.

Subsequently, Public Law 104-262, Veterans Health Care Eligibility Reform Act of 1996 included maternity and infertility services in the medical benefits package of the VA. As of September 2004, women veterans constituted 6.9% of all veterans.⁷ The population of women veterans as a percentage of all veterans is expected to increase as the number of women in military service continues to grow. The demographic profile of the female veteran population is generally younger

than that of male veterans with the median age being 15 years younger (45 vs. 60). The number of women veterans enrolled in VA's health care system grew from 226 000 in Fiscal Year (FY) 2000 to 378 000 in 2004, an increase of 67%. The following bar diagram displays the percentage of women and men veterans through different war periods and peacetime (figure 2).⁷

One issue for some women veterans is their experience of sexual harassment while serving in the military. A term "Military Sexual Trauma" (MST) has been coined for such diagnoses. Formal criteria have been developed to recognize it and educational efforts have been launched across the nation to educate clinicians to screen and treat MST.

The women veterans program has an office in VACO and monitors programs for the care of women veterans throughout the VHA system. Specifically it issues the national handbook on VHA services for women veterans through the office of



Data as for 09/30/04. Source: Veteran population, adjusted. Office of the Actuary, 2001

[‡] Sum by service will exceed number of all veterans due to veterans who served in multiple periods.

* There are too few living World War I veterans to estimate their number with an acceptable level of reliability.

the Under Secretary of Health. This document ensures that all VA facilities make available comprehensive primary care to women veterans and access to maternity and specialized services as needed. Many medical centers have added clinics for women while devoting considerable resources to the education and training of health care professionals who provide their care. VHA sponsors a national conference for those who provide clinical care to women veterans.

Primary Care faces challenges

Primary care has faced significant challenges; veterans had to wait inordinate lengths of time for appointments. Waiting times became a source of dissatisfaction for veterans in addition to delaying care for many. While inadequate staffing and recruiting difficulties were clearly issues at some Medical Centers, others simply did not grasp the fundamentals of primary care. They did not track the number of open slots, clinic cancellations, or no show rates. They lacked a consistent and reproducible approach to monitor efficiency.

In 1999, in order to address the system's long waiting times in primary care and (later in many subspecialty clinics), VHA entered in to a collaborative arrangement with the Institute of Health Care Improvement. These collaborative sessions were run as high profile activities inviting VHA executives from across the country, primary care chiefs, nursing leaders, and administrative support personnel to attend several major national workshops titled "Reducing Waits and Delays." New techniques were taught to systematically address excessive waiting times. The ten principles of Advanced Clinic Access became the cornerstone for progressive improvement of waiting times in hundreds of VA medical centers and clinics (table II). These effective management strategies to address waiting times have resulted in improvements in access to care.

Dr. Kizer, a former VA Undersecretary for Health, advocated five principles for change in his landmark document "Prescription for Change."⁸ These principles were as follows:

- Excellence in Quality and Service (as defined by customers)
- Exceptional Value
- Exceptional Accountability
- Excellence in Teaching & Research
- Employer of Choice

These were the mandates for the new VA and customer service seemed an obvious area to monitor. VA collects data based on veterans surveys on key elements

Table II
Advanced Clinic Access - 10 Key Principles

Shape the demand

1. Work down backlog
2. Reduce Demand

Match supply & demand

3. Understand Supply & Demand
4. Reduce Appointment Types
5. Plan for Contingencies

Redesign system to increase supply

6. Manage the Constraint
7. Optimize the Care Team
8. Synchronize Patient, Provider & Information
9. Predict & Anticipate Patient Needs at Time of Appointment
10. Optimize Rooms & Equipment

of customer satisfaction (Survey of Hospital Experience of Patients –SHEP: Access; Continuity of care; Courtesy; Education & information; Emotional support; Overall coordination; Pharmacy mails; Pharmacy pick-up; Preferences; Specialist care; Visit coordination; Overall quality; Provider wait times). Such data is made available to individual Medical Centers on a quarterly basis. Data is shared with clinical and administrative staff as a feedback; action plans are developed and implemented to address deficiencies observed through these surveys.

Multidisciplinary Teams, Growing Need for Primary Care, Provider Panel Sizes

As VA embarked on its primary care program it continued to focus on team building as well as cost-effective delivery of care. The primary care model in the VA system utilizes a team of professionals including physicians, nurse practitioners, physician assistants, clinical pharmacists and clinical social workers. Working as a team, they focus on continuity and coordination to insure the delivery of high quality primary

care to veterans. VA has been the leader in removing barriers to effective utilization of advanced practice nurses and physician assistants. Through well developed policies and programs these mid-level physician extenders are integrated as important members of the health care team.

With continued growth in the veteran population served, there was a need to establish a productivity and staffing model for primary care. Such a model must balance the need to accommodate growing numbers of patients while maintaining quality, access, and patient and staff satisfaction. VHA appointed an advisory group on physician productivity and staffing. This expert group examined a wide range of factors which influence physician productivity -support staff, clinic space user friendliness, degree of comprehensiveness of primary care provided, disease severity, implementation of principles of advanced clinic access, and educational activities such as teaching of medical students. For effective care, this advisory group issued guidelines that maximum panel sizes must be implemented for each primary care physician and physician extenders.⁹

VA and Electronic Medical Record

VA developed an innovative electronic patient record called the Computerized Patient Record System (CPRS). It provides an integrated record for clinicians, managers, quality improvement staff, and clinical researchers. The primary goal of CPRS is to give providers an easy-to-use tool to document clinical information. CPRS helps document and insure that VHA patients receive all of their preventive care. It also highlights key information using clinical reminders, view alerts, lab and radiology results reporting, and potential drug interactions. Prescription ordering through CPRS eliminates errors associated with legibility. This electronic record insures that the patient's clinical information is always available and legible. These characteristics contribute directly to quality and patient safety. VA has been using the CPRS for six years. It is a well established and reliable system which has become a health industry standard. VA receives frequent requests from health care organizations around the world interested in learning more about CPRS.

Family Medicine and VA

Due to the nature of eligible VA beneficiaries (men and women honorably discharged from armed forces), VHA is dedicated to serve the veteran population except in limited situations where care is also provided to the family members of veterans.¹⁰ So, in a traditional sense the VHA may not seem to meet the definition of Family Medicine. However, on closer analysis, since Family Medicine is delivery

of comprehensive, coordinated health care focusing on treatment, prevention, and overall well being of individuals and families, VA does meet the majority of the family practice definition. Today VA has about 325 family physicians and approximately 3 000 general internists providing primary care.

We have described various programs and priorities that VHA has established. These initiatives and practices heavily emphasize the full spectrum of health care and well being of veterans. VHA has placed very high emphasis on primary care and has extensive outcome performance measures to monitor and continually enhance the quality of primary care delivered to veterans. In essence, VHA's mission and the range of health programs facilitating comprehensive care to veterans are consistent with the essential components of Family Medicine. Rodnick in 1986¹¹ described that: "...the VA and organized family practice have in common a mandate to provide comprehensive care to millions of Americans and a strong commitment to a full range of ambulatory care including home health care, geriatrics, alcoholism treatment, and preventive care." His comments reaffirm what is quite evident, that in fact the VHA's approach to delivery of care follows the concepts and philosophy of Family Medicine. However, his article pre-dates the entire major shift to primary care in the VA. Accordingly he quotes in his article, "... most VA outpatient facilities use an internal medicine clinic model that tends to be episodic, with patients going to different specialty clinics at each visit. The VA has tried a case manager or continuity of care approach at a few facilities but so far without widespread adoption." Although his comments rightfully reflected the state of things at that point of time in VA, we have demonstrated the transition of VA from a hospital based system to a health care system and from episodic care to a model of comprehensive primary care.

VA's Role in the Care of Veteran's Families

Care provided by VA to veterans affects not only the veterans themselves but has extended effects on their families. For example, Vietnam era veterans have a statistically higher incidence of Hepatitis-C, a disease with implications for their spouses. Similarly, PTSD may affect the ability of some veterans to fully integrate emotionally with their loved ones. In PTSD and addiction recovery programs, VA recognizes the impact on families and encourages family participation in these programs. VA provides nursing home placements for eligible elderly veterans, thus sparing the families from what could be financial and emotional hardships. These examples illustrate how the VHA programs positively impact not just the veteran but families of the veterans.

Special Programs and the VA

VA has special programs in public health and environmental hazards including unique expertise for the care of veterans who were exposed to Agent Orange, radiation, or who served in the Gulf war. In fact VA has established a separate Office of Public & Environment Health which is not only responsible for overseeing such programs but has become a national resource on related topics including decontamination programs, smallpox, bioterrorism, war-related illness and injury, smoking cessation, HIV prevention, and comprehensive emergency management.

Teaching, Research, and VA

Teaching and research are two of the four missions of VA, the other two being patient care and support for defense preparedness. VA has been the largest sponsor of academic activities among healthcare organizations in the U.S. VA Medical Centers are affiliated with 107 medical schools and 55 dental schools for joint teaching of residents and medical and dental students.¹² Currently VA funds 8,872 physician resident positions. VA is also the largest health care system sponsoring nursing education and education of allied health professions including physician assistants, optometrists, physical therapists, radiology technologists, and pharmacists. The role of VA in these academic activities has been very visible offering joint educational opportunities with affiliated schools in a state-of-art settings and diverse patient populations.

VA funds and supports both clinical research and basic science research in collaboration with its numerous affiliate university medical centers. In 2003, funding for VA research was \$392 million which was supplemented with another \$403 million from VA's medical care account for research support. VA researchers also obtained another \$656 million from non-VA sources such as the National Institutes of Health. VA currently conducts more than 10 000 research projects at more than 100 VA medical centers. Many landmark cooperative studies have been conducted in multi-center VA settings leading to outcome data which has helped shape the practice of medicine not only nationally but internationally. VA has an Office of Research & Development which oversees quality, ethics, and research administration in addition to funding of research.

VA employs (often jointly with universities) many eminent physician scientists. VA researchers publish thousands of articles in medical journals annually. VA has also been a leader in funding and support of Health Services Research and Development, encouraging research into the delivery of care, quality, and outcomes.

VA has become a world leader in such research areas as aging, women's health, PTSD, AIDS, Hepatitis-C, and other mental health issues such as substance abuse and gambling addiction.

Ongoing Transformation

VA health care has enjoyed dramatic success over the past several years, receiving accolades for its electronic health record and performance measures.¹³ Now VA faces the challenge of providing innovative care for our newest veterans, from the Global War on Terrorism, some of whom have remarkably complex injuries. Ongoing transformation will include Polytrauma centers to care for the most severely injured, research to improve treatment for PTSD, and the adaptation of our services to meet the needs of women veterans. While transformation suggests change, the fundamental principles adopted at the establishment of the American Board of Family Practice in 1969 still remain as important as ever. Those principles include an emphasis on prevention, comprehensive care, and continuity of care. Family Physicians, trained in those principles, will continue to be valued members of the VA healthcare team.

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The future of family medicine: one approach

L. Gordon Moore

The problem

Independent office practice almost became extinct in the US in the 1990s due in part to the burgeoning complexity of the administrative burden of work aimed at controlling medical costs. Most independent practices created affiliation agreements or were purchased by larger systems (hospital organizations and others) that took over practice management. In spite of this consolidation, practice life became worse over time, with an ever increasing focus on generating revenue even when the pace of “productivity” negatively impacted practice staff, clinicians, patient satisfaction, and possibly patient care.

By the end of the millennium I had had the opportunity to witness implementation of new approaches to care in pilot programs as a part of the Idealized Design of the Clinical Office Practices project (IDCOP) of the Institute for Healthcare Improvement (www.ihl.org). Presented with the possibility of true breakthroughs in process and outcomes, the typical outcomes and misery of current practice became untenable for me.

On February 26, 2001 I left the comfort of my employed position and set up my own solo practice with no staff, one room, a nice electronic practice management and electronic chart system, and the few pieces of equipment I needed to care for patients. Why did I take such a counterintuitive leap?

My ultimate desire as a family physician is to provide superb care at no extra cost to the patient while maintaining a vital and sustainable practice. A vital and sustainable practice is founded on a reasonable income and balance between work and the rest of life. I state this goal explicitly as it is the foundation from which I have tried to create my ideal practice, and against which I measure my success.

Each major element of my goal requires further explanation. What is superb care and how does one create a practice capable of its delivery? Why “no extra cost

*Family physician in solo practice. Boston, Massachusetts, USA.

to the patient?" In this day of failing practices and widespread disenchantment with the delivery of health care, how is it possible to create a vital and sustainable practice? Let us take each topic in turn.

Superb care

We must first accept that in spite of our dedication, caring, and hard work, the care we deliver is far from superb.¹ In 2001 the Institute of Medicine (IOM) published the seminal report *Crossing the Quality Chasm*,² chasm describing the gap between what we know and what we do.

We must next acknowledge that more dedication, caring, and hard work will not bridge this chasm. This is very important as it creates the realization that the mess we see in health care comes not from bad people but is an unintended consequence of inadequate systems. We are guided in this acknowledgement to systems theory as the likely source of improvement.

Superb care is therefore a result of the best possible systems of care. The best possible system of care is a set of highly interrelated and synergistic changes to the fundamental processes of office practice that create the possibility of achieving an ideal practice.

An excellent framework for exploring these changes is the Improving Chronic Illness Care's Care Model (CCM –available at: www.improvingchroniccare.org). This beautifully researched model describes the elements necessary to achieve improved outcomes through improved interaction between informed activated patient and a prepared and proactive practice team. I will use this framework to describe my approach in practice. I will give only brief mention to the rationale and science behind each major element as it may all be found on the CCM web site.

The CCM tells us that improved outcomes result from meaningful interaction between a prepared proactive care team and informed, activated patients and caregivers. Setting the stage for the team and patient are four components of practice in addition to a health care organization and community. The four components are self management support, delivery system design, decision support, and clinical information systems. The details and research behind these concepts can be found on the CCM web site. I will discuss the application of the model in my practice.

Crafting a prepared and proactive practice team

We all believe that we work in teams. Wasson's research gives us a better understanding of the meaning of team and the impact of team on patient outcomes.³ Attributes of a highly functional team include:

- Clear expectations and available tools
- Easy to understand and discuss processes of care
- Information is available when needed
- Everyone on the staff is valued; respect and sharing
- Feedback of performance and opportunities to grow
- Positive attitudes of co-workers

A practice capable of delivering superb care requires a team with these attributes. Wasson's data shows us that teams with these attributes have patients who report fewer days in the hospital, are less likely to report that their medicines are making them sick and less likely to report harm from medical error.

Wasson's team attributes guide the formation of our teams and processes. We must meet regularly, discuss processes of care, have clear expectations and available tools and so forth. These concepts fall under the Care Model elements titled: Decision Support, Clinical Information Systems, and Delivery System Design.

My team is Judy Zettek BSN RN and me. I'll describe more about how we work in Delivery System Design. Judy and I talk daily about processes of care and set aside time regularly to reflect on our practice data and how well we are meeting our goals. Precisely because our team is so small we have an advantage when it comes to communication, respect, sharing, expectations, discussing processes of care and valuing each other. Adding more people to our team would increase the burden of work required to achieve these same ends. I contend that larger teams by their very size struggle and fail more often than they succeed in creating highly functional teams. I do not believe that it is impossible to have large highly functional teams, but the likelihood of a group coalescing into a highly functional team diminishes with each additional individual. There are examples of highly functional large teams, but this chapter focuses on the small team approach.

Decision support

Information available when needed

Physicians must sift vast amounts of information and within minutes arrive at a reasonable diagnosis and treatment plan. This burden of work is complicated in family medicine when we address multiple chronic and acute conditions in a single individual. The notion that we can somehow cram all medical knowledge into our heads during training is absurd. With as many as 10 000 randomized control trials being published in a year, I'd have to read 27 a day just to keep up. The number of pharmaceuticals at my disposal is so vast as to be beyond my comprehension (to

say nothing of the drug-drug interaction, drug-illness interaction, etc). It is absurd to think that we can hold this knowledge in our heads. It is equally absurd to think we can improve our abilities by exhorting ourselves to try harder.

The realization that this effort is beyond human capability is our salvation. We become not repositories of all medical knowledge but experts in accessing, synthesizing, and translating that knowledge for our patients. To that end we need facile means to access reliable information.

For this I use the internet. I have broadband access in the exam room and at my desk and have bookmarked a number of helpful sites I use regularly. Some sites I use to help me with diagnostic or treatment uncertainty (examples: MD Consult, Up To Date, OvidOnline, Cochrane, VisualDx). Some are wonderful pharmacology engines (examples: ePocrates, Micromedex), others excellent sources of patient information, patient self-help resources (familymedicine.org, medlineplus.gov), screening tools and so on.

When a question arises during an interaction with a patient I prefer to access information at that moment rather than put it off. This instantaneous access allows me to answer more questions at the moment of interest and saves me (and the patient) another phone call or unnecessary office visit. It allows me to quickly bring up any guideline or decision algorithm I need to help me use medical evidence when advising a patient in their management of their condition. Although I have used the singular pronoun in this description, these tools are available to our entire team.

This work of accessing information does take extra time, but how can I feel right about the care I deliver otherwise? If I aim to deliver superb care I must not reject this work because of the extra time, but must instead find the time without creating burnout or further financial stress. I'll describe my office solutions to this problem under the heading of Delivery System Design and creating a vital and sustainable practice.

Clinical information systems/ available tools

The Sixth report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood pressure said that 29% of the average internist's panel of patients with hypertension was treated to their blood pressure goal.⁴ The rest we call non-compliant. As a participant in the IDCOP project (see www.ihi.org) I saw several doctors help 80% and more of their patients with hypertension achieve their blood pressure target with the use of paper and/or electronic health registries.

A registry is a tool used to track critical patient data elements. A good registry is one that allows a family physician to track multiple conditions in a single patient, compares the patient results to national standards and to the patients' own negotiated goals. A prepared and proactive team is able to use the registry to run lists of those patients who have not met their goals and give the practice feedback on performance (one of the attributes of a highly functional team).

I use DocSite (www.DocSite.com) in my practice to better help me help my patients manage their chronic conditions. When a patient with a chronic condition does not call for follow up, does not go for blood work, or in another way fails to achieve their targets, our office care team kicks into action. Judy Zettek runs reports every month to find those who might have otherwise dropped through the cracks and been written off as non-compliant.

Informed, activated patient

A patient may spend a few hours per year in our practice. The rest of the time they are out on their own doing the best they can. When faced with a chronic condition, we wonder why patients would be "non-compliant" but begin to understand human ambivalence when we ourselves try to take a TID or QID med, fill out our own health care proxy forms or contemplate our own colonoscopy.

Due to impossible time constraints dictated by bad practice finances (what I call the productivity death spiral), many clinicians are left with a large group of patients doomed to bad outcomes with the label of non-compliance –even firing patients from their practices for failure to follow through on the carefully crafted and evidenced based management plan. One solution to lack of time due to bad practice finances is to completely redesign the delivery system on lean principles. I'll discuss this more in the section on Delivery System Design. I'll describe lack of tools in Clinical Information Systems and Decision Support. I'll describe a vital and sustainable practice that pulls a physician out of the productivity death spiral.

The next biggest piece is understanding how to motivate healthy behaviors. The ICIC folks call this Self Management Support (SMS).

Self management support

People don't yearn for quarterly blood testing for A1c, fasting lipids, and liver function testing. They don't look forward to the colonoscopy and three days of cleaning out their intestines, yet some people are motivated to have these things done. It is our job to elicit and understand these motivations so that we can help

those with need understand more clearly how to have that need met. "Because my doctor told me to" becomes "so that I won't die at 50 of a heart attack like my dad."

Self management support falls on every member of the care team, but highly functional teams will clearly define roles and expectations. I describe below how we delineate roles in our office.

When a patient is in the office for a visit with me, I take on the bulk of responsibility for SMS that happens during that office visit. I assess the patient's willingness to engage in management of the condition or preventive care, give advice based on the latest medical knowledge (see Decision Support), assist them as they craft interventions that they will have to carry out, arrange for follow up.

When working with an individual with an established chronic condition, Judy has already given me the latest data set, highlighting any gaps in process or outcome. In our practice this takes the form of printing out the Visit Planner from DocSite which automatically highlights the aforementioned gaps.

I make my notes in the chart with specific mention of the goals and follow up and forward this to Judy. Patients know that we work as a team and this forwarding is done with their knowledge and approval. Judy enters new data into the registry including the follow up plan. As she plays an immense role in follow-through with patients, she often comes into the room with patients at the close of the office visit to arrange specific follow up in the mode most convenient to the patient: group visit, email, phone, letter, fax, or visit. The visit may be with Judy, me or both.

As noted above, Judy runs monthly reports from the registry highlighting those individuals with gaps in their care. She then calls them to find out what we can do to help them achieve their goals. We both (but mainly Judy) make notes in an alert box on the electronic chart of certain actions: "Sent lab slip 4/5/05 for lipids, AST, ALT" or "overdue for BP." We both use these alerts to assist us in opportunistic care.

Opportunistic care

One of the goals in our practice is to be at least as good as Pizza Hut. When I call Pizza Hut the clerk asks me for my phone number. Right away they say "Would you like the same as last time Mr. Moore? The large plain and the medium pepperoni?" It is so fast that I almost always say "Uh... sure." Judy and I use the alert box as well as the front sheet in our electronic charts to close the gap for anyone touching our office in any way. If a patient drops by to say "hello," calls for a refill on an allergy med, sends an email announcing their new job, we can catch

them with “So... How’s your blood pressure? Don’t know? Want to get us a reading or come in? And how about that mammogram, and Pap, and colonoscopy?”

Planned care

Another goal in our practice is to be at least as good as Jiffy Lube. They have some system that sends me a post-card every so often suggesting that it is time I drive over and have my car’s oil changed. With our agenda to improve health and reduce suffering, why can’t we be at least as good as Jiffy Lube? This is where we use the registry to run lists of folks who have not met their goals.

Self management support means calling, emailing, paging, or sending letters to those who have not made contact with us. In our practice, Judy takes on the responsibility of the outreach. In addition to the out bound phone calls, she leads group wellness visits and works with patients on the phone or in person to help them set personal goals in the management of their conditions as well as in healthy behaviors (diet, exercise, smoking cessation, adult and pediatric immunization, Paps, mammograms, and colorectal cancer screening).

Delivery system design

There is immense if not total overlap between this element and the ability to have a vital and sustainable practice. Many practices are financial disasters –owned by health systems that hope for losses not to exceed \$30 000 per physician per year.

I want to be explicit about the extra work that is required in the pursuit of superb care. To support self management, a practice must find extra time for the physician and care team to spend in meaningful interaction with patients. Because we understand that care is not the same thing as visits but is based instead on continuous healing relationships, we must provide non-visit means of interaction. Both of these demands on the clinician’s time are under –or completely uncompensated in most current payment schemes.

A practice team includes other members spending more time interacting with patients and tracking data. The practice must purchase information technology to support the work. With the exception of being able to bill a bit more per visit if more is done for the patient and a handful of small experiments with pay-for-email, this all comes as extra uncompensated expense. Practices struggle mightily to keep their financial heads above water. There are only four ways to improve bad

practice finances: increase revenue, decrease cost, external subsidy, or earn less. Earning less is not palatable to most, but always remains as an option.

Increasing revenue is the difficult path most have taken to solve the problem. The difficulty lies in the means to earn more. We can charge more for what we currently do, but in light of health care costs in the US it is hard to defend the position that we need more money in health care. The US spends far more per capita on health care than any other country in the world. In spite of that expenditure, US health outcomes lag behind almost every other developed country.⁵

Employers unable to support the continuing health care inflation that far exceeds the rest of the rise in consumer price index are responding by passing ever increasing amounts of the burden directly to the consumer. Employers and health care payers are focusing considerable effort into reducing health care costs, so asking for more money without offering something dramatically better is an unlikely path to success.

Another strategy to improve revenue is to do more of those things that generate revenue: more visits, more procedures, more patients. This is the productivity death spiral, driving satisfaction over the cliff for patients, staff, and clinicians as they get less time for meaningful interaction.⁶ I fear that this approach also has a negative impact on the quality of care and is one reason a RAND study finds that we deliver evidence based care only 56% of the time.⁷

Some practices unable to increase revenue enough to fix their finances have sold themselves to hospital and health systems so that practice losses may be subsidized. If the intent was to take away the pressures that make it difficult to provide world class care in a vital and sustainable practice, this maneuver has not always solved the problem. Hospital affiliation sometimes increases practice overhead due in part to expensive and inept billing and information systems, hospital regulations, and the need to support another layer of administration for a primary care network. Increased overhead leads to increased financial losses. A common strategy at this point is to work to drive up visit rates and alter compensation plans to put clinicians at financial risk/reward for visit volume. This gets us right back to the productivity death spiral.

A more pernicious problem that may arise from primary care practice affiliation with hospital is the cross purposes to which each entity work. Good primary care reduces illness burden and drives down cost by avoiding hospital admission. Hospital survival is based on admissions. Some enlightened systems choose to pursue excellence in primary care, but most perceive such excellence as running counter to their business strategy and won't invest more resources in primary care to do a better job. Until we have common financial incentives towards improved population health, hospital affiliation makes me very nervous.

When I chose to step out of an employed position into practice I chose to pursue dramatic cost reduction as the strategy to fix the financial problem. I came to this choice after witnessing breakthrough improvement in office efficiency by using principles of the Toyota production system and hearing of a study of office practice that showed 71% of practice overhead came from the salary and benefits of staff.*

I had not seen practices take on the cost side of the equation in any dramatic way, but suspected that this might be a better way to fix some of the fundamental drivers of dysfunction. If overhead were dramatically lower, there would no longer be the same pressure to see a large volume of patients each day. If the logic held, it might be possible to see fewer patients per day and even spend more time with them. If this were possible, it might be possible to have a practice with a smaller panel size where the likelihood of knowing each patient was dramatically higher.

Other industries have gone through transformation of cost, elimination of waste. Through the IDCOP project I had been exposed to Lean Thinking.⁸ The Lean folks talk about finding the value in the process. Everything else is waste and must be eliminated or dramatically reduced.

When thinking of the value in a primary care practice, it occurred to me that prior to the pursuit of superb care, I was the person adding almost all the value. (Our current practice is set up using the Care Model which increases dramatically the value added work of other team members). If I was adding the value and staff benefits and salary accounted for 71% of overhead, why not solve two issues at once by working all alone with no staff?

A number of responses came to mind right away, “because it makes no sense from an efficiency standpoint for a doctor to do non-doctor work like answering the phone, getting a patient from the waiting room, calling in a prescription, filing claims, and so on.” This statement is wrong on two grounds. It is wrong because it presumes an efficiency need based on a high flow /high volume practice. As the means to the end I proposed a low flow /low volume practice. The statement is also wrong because I’d have to pay someone else to do work, and I didn’t have the money to pay someone else. Hiring staff to answer the phones when there is a tiny patient panel and I have not that much to do makes no sense. Add staff down the road when the work load dictates.

* Smithson K. Vice President for Research, VHA Inc, of Irvine Texas. Presentation at IDCOP prototype session 1999. Document not published.

The principles of lean process seemed to apply to my ideas of creating an ideal practice, but I knew that I'd have to deal with all the back-office work that goes into billing, referral management, and information management. I selected a combined practice management/EMR system (www.alteer.com) due to its ability to flow data seamlessly from visit note to superbill to claim so that I could spend minimal time doing things not directly related to patient care.

Our approach to lean process means that we try to reduce the number of steps it takes to do anything. Rather than taking a note when a patient calls for a prescription refill, then pulling a chart and putting it into a stack to later carry back to the doctor, we work to resolve the issue immediately, while the patient is on the phone. I describe below a few processes that illustrated our approach to lean practice.

Improved communication and work flow

The work of family medicine is delivering a thousand things big and small to a defined population. The needs of the population vary in intensity and urgency. We squander countless hours of staff time sorting demand by urgency rather than taking care of the request. Because staff time is our biggest expense, if we want to reduce the financial pressures in our practices we must manage our processes very well. We have little if any training in process improvement but can learn a great deal from other industries and from the experiences of those who have been experimenting with process improvement in health care.

Telephone calls to our practices asking for medication refills are high volume. Practices that delay the turn around time experience a higher volume of calls. In my old practice we felt so overwhelmed that we put in place a policy that patients must give us five business days notice for any prescription refill request. We squabbled endlessly among ourselves as providers (myself included) subverted the policy by saying "yes" when patients bypassed the system and called us directly – "Just ask the doctor to call me back, I have a personal question I don't want to discuss with anyone else." The unintended consequence of this policy was to drive up phone calls – "Has he taken care of it yet? I'm out and I really want this medicine. The policy also created interpersonal strife when some followed it but not all, and we never solved the problem of the overwhelming demand.

Reducing turn around time results in an overall reduction in work. If a practice can respond instantly to a patient's need, the patient won't call back again asking if the work had been done. We can do this with many processes in our office. When a patient calls for a referral to a specialist, Judy can say "Well, Mr. Smith, let me check with Dr. Moore to see if he'd approve a referral to the dermatologist for that

growing mole.” Because we sit back-to-back, I’ve heard what she said and give her a thumbs-up and she can take care of the referral at that moment. Sometimes I get on the phone right then with the patient. This works only some of the time when I’m in the office and not with a patient. At other times, Judy can forward me an electronic message and I’ll respond between patients.

We have same day access for the same reason. We spend no time asking the patient to clear some illness hurdle to access a same day visit. Access delays add uncompensated work to practices. Because we very tightly manage our balance between supply and demand and through flexibility from day to day we can accommodate any request for an appointment that same day. We do not force patients to come only “today.” We do book appointments in the future –a few patients book out as far as 4 months– but most elect to call when they want to come for a visit. We don’t lose patients to follow-up as we have good reminder systems in place to track those with ongoing need such as pediatric well child care, chronic disease management, etc. (To learn more about advanced access go to <http://ihi.org/IHI/Topics/OfficePractices/Access/>).

Due to financial stress, practices accept too many insurance contracts and too many patients. This creates a supply/demand imbalance that drives up uncompensated work, drives down satisfaction, impedes continuity and thereby reduces the benefit of clinical encounters and degrades outcomes.⁹ The problem of bad practice finance is exacerbated by the misguided attempt to fix the problem. In management theory, Peter Senge describes how quick fixes often result in unintended consequences that make the original problem worse.¹⁰ Advanced Access solves this problem, but is based on the necessity of very tightly managing the portals of entry for new patients.

At some point a clinician/team reaches the limits of their capability. When that limit is reached, the team has the choice of continuing to accept new patients or not. If the team chooses to continue to accept new patients beyond their capability they will create waits and delays and care will degrade. This can be avoided if the team adds team members and increases their capacity or if the team gives up portions of their current work –i.e. shrinks their scope of practice. For instance, a practice might give up skin procedures, GYN care, or newborn care and ask their patients to have this need met by others in the community. If a practice rejects all of these options but continues to accept new patients beyond their capacity, they have accepted bad outcomes in the bargain.

If a practice closes its doors to new patients, there may be unmet need in the community. At that point we must bring to our community’s attention the unmet need and work with others to increase the number of primary care providers and teams.

Through an assiduous focus on process improvement, elimination of waste and cost, I was able to create a practice with dramatically lower overhead. With good tools supporting the work and the right team, we are able to pursue superb care.

No extra cost to the patient

The United States spends more per capita on health care than any other country in the world.⁶ It is wrong to assume that this translates to better outcomes. The high and continually growing cost of health care is being passed to the patient in a misguided attempt to restrain costs. The attempt is misguided not because it won't restrain costs, but because it will cause individuals to do without effective primary care. Princeton economist Uwe Reinhardt has modeled what happens once a person's out of pocket cost exceeds their individual threshold: they will perceive health care as a luxury and will do without unless presented with overwhelming illness.*

Shi and others have published decades of research showing that primary care can improve health and lower health care spending.¹¹ The willingness of the US health care system to spend massive amounts of money on cleaning up preventable messes exemplifies our inverted approach to health care financing. Employers faced with ever increasing health care costs further exacerbate this approach by cutting benefits, reducing the number of employees covered by health insurance, and/or foisting more of the cost directly on the consumer. Alone in the developed countries of the industrialized world the US has tens of millions of working citizens without health care coverage.

There are parts of the country where costs of doing business are high and reimbursement for care is low and it might be impossible to deliver superb care without asking consumers to pay extra. This is not the case where I practice, so I have luckily avoided the need to ask for more money to do the right thing. I hope that as more adopt a lean approach to care and demonstrate good outcomes we can convince policy makers and payers to make it possible across the country to create financially viable practices in the pursuit of superb outcomes.

Vital and sustainable practice

Hard work does not frighten us as long as it has some reasonable boundaries and predictable limits. A vital and sustainable practice is build on a realistic balance

* Reinhardt U. Keynote address at the American Academy of Family Physicians Scientific Assembly 2001. Document not published.

between work and the rest of life, reasonable boundaries around protected time, and reasonable compensation. Let me take these in order.

Balance

A reasonable balance starts with understanding the need to match supply and demand. The work of advanced access teaches us to jealously guard the door to our practices. As I noted above, it is critically important to attend to the number of patients in the practice as this drives all the work. Get this wrong and you will suffer. Get it right and you have the possibility of delivering superb care. A practice with accurate patient population data will be able to manage to an absolute patient volume target. If the absolute number is obscure, a practice can use “average patient visits per week” as a proxy for the total amount of work.

When the average patient visits per week begin to reach the target, it is time to close the practice to new patients. Many will fear that this makes it impossible to get new patients into the practice to make up for natural attrition –this is not the case. My practice has been closed for three years and we still get a number of people contacting us every week looking to become patients. It is the unfortunate experience of some who have followed me into small solo practice to find themselves with too many patients, having too many staff engaged in inefficient process, and finding themselves in the very same nightmare of the practice they were trying to leave. The pull to keep accepting new patients is immense but will absolutely destroy the balance that is the foundation of a vital practice.

A practice with good balance will be more likely to get staff home on time, but there will be late days as well as slow days as in any practice.

Boundaries and time off

I give patients my home and cell phone number, asking them to call me if they have a need. This is related to lean principles as it cuts steps and waste out of the communication process and I do not have to pay for a pager or answering service. The implied respect I give patients by giving them my personal numbers is returned ten fold. I am called after bed time once every second or third month. Unfettered access results in less misuse of after hours call. In spite of my commitment to unfettered access, there are times when I would like to put the phone away. For those times I have agreements with several colleagues locally. With our “on-call” arrangement we cover for each other ad hoc. These other physicians also provide office-visit backup when I am out of town. The hospital to which I admit patients has a hospitalist service which I may use.

Compensation

Whatever your personal financial targets, they will be easier to attain if you reduce your overhead. You may find it easier to work with others on your team, but you must pay for their salaries and benefits, so be ready to increase the volume of compensable activity to meet the burden of salary.

Summary

Dedicated caring individuals and patients are frustrated by the flaws build into our health care system. These flaws are the unintended consequences of decisions we have made and habits into which we have fallen. Changing these habits is as hard as the fundamental lifestyle change we ask of our patients every day. If you want better results, you cannot continue to do the same things.

Using lean process and the care model as a foundation I have been able to create a vital and sustainable practice and to pursue superb care. Many of these changes are challenging and counterintuitive. While lean process and the care model have been carefully studied, the combination in my practice approach has not. Careful studies of this approach are needed. That being said, I cannot wait for the research. With error rates in the RAND study approaching 50%, with JNC VI pointing out that only 29% of those with hypertension in a practice achieve their blood pressure target, I must take action now. I don't need a randomized control trial to tell me that telephone follow up increases compliance with treatment of depression –it has already been studied. I don't need to prove that collaborative goal setting and group visits increase patient self-reliance and that this self reliance translates to better glycemic control –the research has already been published.

My job is to take this existing knowledge and create processes in my practice that will allow me to reliably practice evidence based care. That I have done so in a setting that is financially sound and gives me vastly improved balance between work and life is icing on the cake. I hope you will join me.

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Comparative analysis of the international experiences in the organization of Family Medicine services

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Introduction

In this chapter we will conduct a comparative analysis of the different country experiences that have been presented in this book. Our objective is to identify the similarities in the approaches followed in the different countries for the development of family medicine; the different paths and directions that family medicine has taken; and the lessons that we can learn for its future development.

Dr. Meads in the introductory chapter of this book made an interesting theoretical and empirical analysis of the different ways in which primary care has developed in the world. The first thing that comes to mind after reviewing his very comprehensive analysis, is that there is not a single definition of family medicine and that it can almost be said: if you have seen a family physician, you have seen a family physician. This expression paraphrases the comment Dr. Luft uses to say referring to the variability in health maintenance organizations (HMO), that precluded any kind of conclusion about an average HMO.[‡] The variation in the perspectives followed in these different countries in the development of primary care health services makes a definition of family medicine at best cumbersome.

Therefore a first step in this analysis is to recognize that the assessment of the factors that may influence primary health care is so complex that demands to define a conceptual framework. For example, Dr. Barbara Starfield suggested the following model (figure 1) as a general framework to assess the main aspects in the definition of the influences on health at the population level.¹

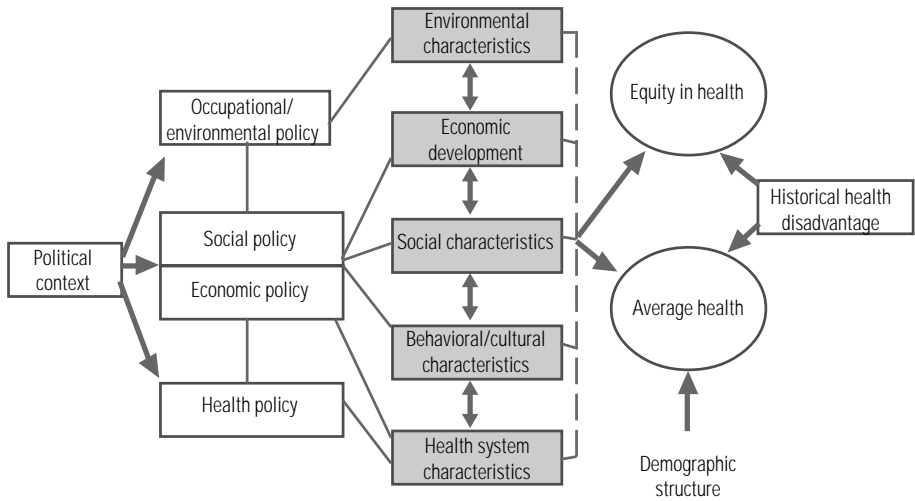
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¹ Personal communication, summer 1985 Ann Arbor Michigan, USA.

Figure 1
Influences on Health: Population Level



In this model the dashed lines indicate the existence of pathways through individual-level characteristics that most proximally influence health, and the shading represents the degree to which characteristics are measured at the ecological level (lighter color) or at the individual level aggregated to community.

It is not the objective of this paper the detailed analysis of this model, suffice to say is that it recognizes that the factors influencing health are multiple, they act at multiple levels and therefore their consequences have multiple effects. For example, the actions taken at the level of the social and economic policy could impact not only directly the health care system, but indirectly through the intermediation of the social characteristics and behavioral characteristics modified by these policies. Furthermore, their effect over the average health of the population is not only influenced by the health system characteristics, but also by the environmental, social characteristics and behavioral characteristics. And finally the present level of health and of equity on health will be also influenced by the historical health disadvantage in the population.

If we are interested in assessing a particular component of the health system, namely family medicine, it is then necessary to consider all these complexities that may influence health in a population, and as well the development of the health

system. Thus, with this in mind, we have decided that in this chapter we will use the following aspects in the comparative analysis of the family medicine initiatives in the different countries explored in the book:

- The social and economic context of family medicine
 - ▶ Family medicine in a favorable context
 - ▶ Family medicine in a hostile context
 - ▶ Family medicine in an indifferent context
- The development of family medicine
 - ▶ Origins and historical development
 - Years with family medicine strategies in place
 - ▶ Institutional development
 - Low
 - Middle
 - High
- Family medicine training
 - ▶ University participation
 - ▶ Health authorities participation
 - ▶ Public sector health institutions participation
 - ▶ Private sector health institutions participation
- Organization of family medicine services
 - ▶ Government dominant
 - ▶ Non-governmental organizations dominant (civil society)
 - ▶ Health care market dominant
- Relationship between family medicine training and the organization of family medicine services
 - ▶ Balance
 - ▶ Unbalance
- Future challenges

As you can readily see within each aspect we have postulated a set of categories that will enable to capture the variance across countries. The idea is to test whether we have a general convergence or divergence among the countries.

In the following table are summarized the results of the comparative analysis of these different aspects (table I). This then will be discussed following a comparative approach in the following sections of this chapter stressing the similarities and the differences found among the countries, or in other words the divergence or convergence hypothesis.

Table I
Comparative Analysis of the Family Medicine Country Experiences Presented in the book

Countries	Comparative aspects					
	The social and economic context of family medicine	The development of family medicine (Institutional development –ID)	Family medicine training (FMT)	Organization of family medicine services (OFMS)	Relationship between FMT and OFMS	Future Challenges
United States of America. Veterans Health Administration (VHA)	Indifferent (although in the case of the VHA has received all ways a strong support from the main political actors)	30 years Low ID (Although high in some HMOs and public sector organizations VHA has strongly developed in the past 10 years)	There is a tradition of collaboration between the VHA and universities	Health Care Market dominant (however the VHA is the largest integrated health care system in the USA)	There is a strong link between organization of primary health care services and the training of primary care providers (physicians, physician assistants and nurse practitioners)	Innovative care for new threats like global terrorism, and the emphasis on prevention, comprehensive care and continuity of care.
United Kingdom	Favorable	8 years Middle ID	There is not a specific training program for family medicine (general practitioners cannot be conceived completely as family physicians)	Government dominant. A set of initiatives has been developed at the different levels of government to improve primary health care quality.	Continuous education is the link between the training of general practitioners and the organization of the system under the primary care trusts.	Improve quality of health care, clinical decision making and health outcomes
Canada	Favorable	30 years Low or middle ID	Pioneers in family medicine training. However there are few health care training programs that jointly train health care providers to work in integrated primary health care.	Non government dominant	Fragmented and uncoordinated	Integrated Health and Social Care: Electronic health record to improve clinical decision making and health outcomes; Chronic diseases

Continues

							Continuation
New Zealand	Favorable	< 5 years Middle ID	Not a particular program of family medicine. A strong program for primary care nursing	Non-Government dominant, but organized by government	There is a strong link between organization of primary health care services and the training, in particular of nurses	Integrated Health and Social Care: use of the electronic health record to improve clinical decision making and health outcomes	
Brazil	Indifferent (but favorable under SUS)	30 years Low ID	In recent years there has been an explosion of initiatives to develop family medicine, mainly through professional associations of family physicians	Non-Government dominant	Universities have not trained in quantity and in quality the physicians that are needed by the Universal System of Health of Brazil	Integrated Health and Social Care	
Argentina	Indifferent (but favorable under recent modernization efforts)	30 years Middle ID	A 30 year tradition, however, there is a chaotic emission of specialist degrees with different levels of quality	Non-government dominant	There is an unbalance between the training of family physicians and the needs of the health care organizations. At the current rhythm of training, it will be necessary 50 years to reach a balance	Integrated Health and Care, including health promotion, disease prevention interdisciplinary and multiprofessional work.	
Mexico (IMSS)	Favorable in the social security sector	30 years High ID	There is a specific training program for family medicine	Government dominant	In the last five years there has been a strong tie between universities and the training of family physicians, nurses and public health professionals	Integrated Health and Social Care: chronic disease: aging population: use of the electronic health record to improve clinical decision making and health outcomes	

The social and economic context of family medicine

The emergence of family medicine in academic sites has no relationship with the social and economic context until the last 20 years. At this time in developed countries the increased concern with higher expenditures in the health system made the environment favorable for the role of a gatekeeper. Family medicine in its different forms then found a niche for development in the USA. In the UK, the role of the general practitioners was expanded to respond to the demands of a system greatly concerned with cost containment.

In the case of Latin American countries the context varied from country to country. In Mexico the organizational design of social security along levels of health care facilitated the development of family medicine in a context that was referred to as the Mexican economic miracle (in the 1960s). Later on once that the continuous economic crisis follow one after the other, the scheme found also a stronger support. In Argentina and Brazil it was not until recently (1990s) with their modernization efforts that the context was favorable and in fact stimulated the development of numerous innovative initiatives for the development of family medicine.

It is to call the attention that one of the countries that were pioneer in the development of academic programs of family medicine (Canada), faces a less favorable context and therefore in the organizational side it shows an slow advance in the development of family medicine until recently (2001).

The development of family medicine

In general the experience of the countries represented in the book show that there is a great variation in the development of family medicine, from experiences based in academic settings (Canada) to the formation of the role of a family physician empirically through the continuous design and redesign of the organization of the health services (United Kingdom).

It is surprising that in Canada the development of family medicine has been limited, and in some ways similar to the USA experience where there is a myriad of initiatives but not an effective national policy for primary health care. It is important to note that in both cases, Canada and the USA there are isolated successful experiences in primary care (the Veterans Health Administration program and the family health networks in Ontario). In Latin America, the image varies between a professionally based development of family medicine in Argentina and Brazil, and the strong participation of social security in the definition of family medicine at IMSS.

The stories have different duration and paths, but they seem to converge in the present time: Family Medicine needs to consider the relationship between the

patient and the health practitioners, in a more complex way, integrating their physiological, psychological, familial, economic, and social context. The issues are multiple, they include among others: maternal and child care, homelessness, work in primary care teams, smoking, and access to care for chronic diseases. They all focus on a broad scope of healthcare that demands a redesign of the health systems, as well as the need for new research approaches to look for solutions to the challenges that primary care and family medicine face in these countries.

Family medicine training

There is a long tradition of family medicine training in most of the countries represented in this book. For example, it is world renowned the Mac Master program in Canada, in Mexico, Argentina, United States of America and Brazil there have been residency programs since the 1980s. In other commonwealth countries the experience has followed the path of the United Kingdom preparing general practitioners.

In almost all the accounts presented in the book there seems to be a convergence in the gap between the academic programs and the organizational design of the health care system. This is a major issue that is confronted in almost all the countries, how to prepare or train the health professionals needed, both in the quantity, as well as in the abilities that a better primary care approach demands (primary care team work, appropriate care of chronic diseases, clinical management of the elderly).

An interesting development in Argentina and Brazil is the role of professional associations in the redefinition of family medicine and the proposal of innovative ways to train the health professionals in this field.

Another approach is the one followed in the United Kingdom and to a certain extent in Mexico, where the redesign of the health care system is directing the approaches to train the health personnel in the new organizational models. The health care reforms in primary care of England are an example to follow. In the case of Mexico, we have been able in collaboration with different universities (with a central role of the National Autonomous University of Mexico) to design the training schemes for family physicians and nurses oriented under the improved model of family medicine in the institution.

Organization of family medicine services

The organization of family medicine not only is different in all the countries, but even the denomination of the actors is different. In some countries the emphasis

has been in the definition of the family physician and his/her work, while in others the emphasis has been the definition of the role of the general practitioners under a primary care approach. In the following paragraphs we will concentrate in some aspects that exemplify the different approaches followed and their achievements in the search for an effective, accessible primary care system to improve health outcomes, keeping health costs down, and helping people lead healthy, productive lives.

Access to Care

Access to care is related to costs, and particularly to a nation's insurance system. Given often high uninsured rates and cost sharing in the USA, access is an important issue. The UK, in contrast, showed negligible cost-related access problems, while the other countries stood in between the extremes. However an example of how these issues can be confronted are the programs initiated in the Veterans Health Administration.

Although not precisely cost-containment is the driving force, but the scarcity of resources access to care, in particular in the form of timeliness of access is a major issue in Latin American countries. An example is presented under the improvement process of family medicine in Mexico.

Reliance on Emergency Rooms

Emergency rooms (ERs) are a key access point for patients in crisis, but their use is also an indicator of how well a nation's care system is responding to patients' needs; ERs function as safety nets when timely access to primary care is not available. Canadian and USA citizens are more likely to have gone to the ER for care than to regular sources of care.

A similar process is experimented, but to a lesser degree in the social security in Mexico, where even though the family physician is the point of entry into the system, still a great deal of primary care is provided in emergency rooms.

Coordination and Communication

With the exception of the United Kingdom, the Veterans Health Administration in the USA and New Zealand, coordination and continuity of care are still a major concern in all the countries. It is for this reason that in all the countries an effort is being made to develop electronic medical records to schedule appointments, avoid the duplication of tests or procedures, or to have conflicting information.

Relationship between family medicine training and the organization of family medicine services

As it is the case with the training of family physicians there is an important variability across countries. However, it seems to be a general trend of lack of coordination between the reorganization policies and the university training of family physicians. In fact in some countries, although they have developed innovative programs in family medicine, they lack behind in its organizational design to address the main challenges they are facing with chronic care (i.e., Canada). On the other extreme countries like the United Kingdom has been successful in linking training and organizational design in the reorganization of primary care. In the case of México in the last five years at IMSS there has been coordinated efforts with different universities to support the reorganization and modernization of family medicine, in particular the training of family physicians, nurses, and public health personnel. In some others, there are a lot of initiatives but still not a formal coordination of the organizational design of the system and the training of the health care personnel (Brazil and Argentina).

Future challenges

There seems to be a convergence across all the countries on the following issues:

- Integrated Health and Social Care
- Chronic disease
- Aging population
- Use of the electronic health record to improve clinical decision making and health outcomes
- Improve quality of health care

All the countries have proposals that try to address these issues in different degrees; the country that clearly takes the lead is the United Kingdom, with New Zealand following closely its steps. In Latin America, there is great interest, but limited success; in Mexico the social security institutions have made a steady progress in assessing these issues; however the population outside of social security has not progressed in the same degree. In the case of Argentina, Canada and Brazil, there are a lot of initiatives but yet not an extended redesign of the system to address these issues.

Conclusions

Family Medicine seems to be more a development of the American Continent; in at least the United Kingdom and New Zealand, the concept is not developed and defined as in the Americas. It seems to be a relationship between government organized health care systems and the emergence of family medicine. Family medicine is more developed in countries in which state participation has been greater, but even in this cases the variations are considerable.

However, despite the wide variations in the definitions of primary care and family medicine, there is a convergence around the challenges that both primary health care and family medicine are facing. As was shown in the previous section there seems to be three main challenges:

- To offer integrated health and social services
- To improve the quality of the health services provided
- To improve system performance (increase accountability).

For example, in a study of five commonwealth countries respondents called for major reforms in their nations' primary care systems.² US respondents, however, stood out as the most negative in their overall health system views. UK respondents had the most positive perspectives on their country's health system. The report cites a variety of efforts ranging from incentive-based contracting with general practitioners in the UK to emergency room learning collaboratives in Australia.

The future of family medicine needs to be redefined, we are sure that the effort that we carried out in this book is a step in the appropriate direction. However much has to be done, experimented, and shared within our countries to reach a better congruence between public health, primary health care and family medicine. Deep inside all of these initiatives look for the same goal, better health care to improve the health status of the populations.

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Social Security



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Themes and arguments

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