

# The primary care clinic as a setting for continuing medical education: program description

Ricardo Pérez-Cuevas, Hortensia Reyes, Héctor Guiscafré,  
Norma Juárez-Díaz, Mario Oviedo, Sergio Flores, Onofre Muñoz

## Abstract

THE MEXICAN INSTITUTE OF SOCIAL SECURITY (IMSS) IS MEXICO'S LARGEST state-financed health care system, providing care to 50 million people. This system comprises 1450 family medicine clinics staffed by 14 000 family physicians, as well as 240 secondary care hospitals and 10 tertiary care medical centres. We developed a program of continuing medical education (CME) for IMSS family physicians. The program had 4 stages, which were completed over a 7-month period: development of clinical guidelines, training of clinical instructors, an educational intervention (consisting of interactive workshops, individual tutorials and peer group sessions), and evaluation of both physicians' performance and patients' health status. The pilot study was conducted in an IMSS family medicine clinic providing care to 45 000 people; 20 family physicians and 4 clinical instructors participated. The 2 main reasons for visits to IMSS family medicine clinics are acute respiratory infections and type 2 diabetes mellitus. Therefore, patients being treated at the clinic for either of these illnesses were included in the study. The sources of data were interviews with physicians and patients, clinical records and written prescriptions. A 1-group pretest-posttest design was used to compare physicians' performance in treating the 2 illnesses of interest. We found that the daily activities of the clinic could be reorganized to accommodate the CME program and that usual provision of health care services was maintained. Physicians accepted and participated actively in the program, and their performance improved over the course of the study. We conclude that this CME strategy is feasible, is acceptable to family physicians and may improve the quality of health care provided at IMSS primary care facilities. The effectiveness and sustainability of the strategy should be measured through an evaluative study.

**M**edical practice is the set of procedures and techniques used to prevent, diagnose and treat illnesses. Without continuing medical education (CME) to update physicians' knowledge and skills, such practice can become automatic, rather than reflective. CME should promote an interactive environment<sup>1,2</sup> where physicians can recognize and discuss their opinions and experiences<sup>3,4</sup> and learn from each other. This approach is applicable in any clinical setting, since CME is an ongoing, iterative process. Nevertheless, CME should be continually evaluated to determine its effectiveness in improving medical practice.<sup>5,6</sup>

The Mexican Institute for Social Security (IMSS), Mexico's largest public health care institution, provides care to workers (mainly those in the private sector) and their families on the basis of prepaid fees. The IMSS covers approximately 50 million people, half of Mexico's population; the rest of the population receives care from other health care institutions, primarily the Ministry of Health. The IMSS is a 3-tier system. The first level comprises 1450 family medicine clinics, all similar in organization and structure, staffed by a total of 14 000 family physicians. The second and third levels consist of 240 hospitals and 10 tertiary care medical centres respectively. Medical staff members, both family physicians and specialists, are paid a fixed salary according to the number of hours they work, not the number of pa-

*Review*

*Synthèse*

From the Epidemiological  
Investigation and Health  
Services Research Unit,  
National Medical Centre  
for the 21st Century, Mexican  
Institute of Social Security,  
Mexico City, Mexico

*This article has been peer reviewed.*

CMAJ 2000;163(10):1295-9

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tients they see. There are no performance-based incentives. Physicians work 6-hour shifts. On average, each family physician sees 20 patients per shift, and the specialists provide a similar number of consultations. The family medicine clinics provide ambulatory care 12 hours a day; those offering emergency services are open 24 hours a day.

In Mexico, the medical school program lasts 6 years, and those wishing to become family physicians must complete a 3-year residency training program. The Board of Family Medicine certifies both the residency training programs and the CME activities of its members, and family physicians must be recertified every 3 years. The IMSS allows its medical staff to participate in such academic activities on a voluntary basis. Physicians are entitled to receive their full salary while attending short-term, full-time CME activities.

Because of its size and complexity, the IMSS encounters problems in ensuring quality of care.<sup>7,8</sup> In addition, its physician staff need CME activities tailored to the organization,<sup>9</sup> so that they can keep pace with the changes in primary care services<sup>10</sup> that have resulted in the need for new competencies.<sup>11</sup> Therefore, it is worthwhile for the IMSS to offer such activities in-house.

Beginning in the late 1980s, the IMSS encouraged family physicians to participate in research-based educational interventions by linking academic activities with clinical practice through workshops and peer groups. Our focus was on improving physicians' prescribing behaviour in the treatment of acute diarrhea.<sup>12</sup> Physicians who participated in that early program increased their use of oral rehydration therapy and decreased their prescription of unnecessary antibiotics, antidiarrheal drugs and restrictive diets.<sup>13</sup> Subsequently, our strategy was modified to address both acute diarrhea and acute respiratory infections, and it became an educational program at both district and state levels.<sup>14</sup> Both the initial intervention and its subsequent modification were effective in increasing the appropriateness of physicians' prescribing behaviour, although effectiveness declined when the strategy was expanded to the district and state levels.<sup>15</sup> Our next research-based approach was to develop a clinical training unit, where public and private physicians received hands-on training, without workshops or peer groups. As in the previous projects, acute diarrhea and acute respiratory infections were the target illnesses. This hands-on training was conducted in settings different from the physicians' workplace, and some physicians expressed concern about the difficulty in transferring what they had learned to their own clinics.

In contrast to these earlier experiences, the strategy presented in the current paper includes not only workshops and peer groups, but also a tutorial activity, which took place in the physicians' clinics and which involved hospital-based specialists as instructors. This format served to further personal interaction between clinical instructors and family physicians, while ensuring that patients under the care of the family physicians received appropriate treat-

ment. In addition, the new approach emphasized comprehensive case management, rather than simply aiming to improve physicians' drug use. This multifaceted strategy allowed us to test the effectiveness of combining theoretical learning with the provision of actual care, through the participation of expert clinicians as trainers.

This article describes the development of this CME strategy, which could serve as a model for an inservice training program, and presents the results of a pilot study. The main objectives were to evaluate the feasibility of incorporating a CME strategy into the daily activities of a family medicine clinic and to estimate the acceptance of such a program and its potential impact on physicians' performance.

## Program description

In developing the CME program at the IMSS, we aimed to foster a stable learning environment within the family medicine clinics and to further interaction between family physicians and specialists from the hospital to which the clinic refers patients (the referral hospital). In addition, we sought to promote critical appraisal among physicians and attempted to lay the groundwork for evaluation of clinical performance.

There were 3 main stages in the CME program (Table 1).

The first stage was the development of clinical guidelines, which have been defined as "systematically developed statements to help practitioner and patient decisions about appropriate health care for specific clinical circumstances."<sup>16</sup> For this project, we developed guidelines for treating acute respiratory infections and type 2 diabetes mellitus, the leading reasons for visits to IMSS family medicine clinics. A panel of experts in the field, along with a group of family physicians and specialists, participated in the guideline development (Table 1). Most of the participating clinicians were doing clinical work and clinical research related to 1 of the disease entities. Consensus-building techniques and evidence-based medical information were used to ensure suitability of the guidelines for use by family physicians. The guidelines were grounded in current international standards<sup>17</sup> and IMSS procedures and resources.<sup>18,19</sup> The participants developed the guidelines over a 2-month period, while continuing their usual clinical and administrative duties.

The guidelines for acute respiratory infection focused on antibiotic prescription and education of patients or their mothers (or both) regarding warning signs and the need to seek health care. The guidelines for diabetes focused on prescription of antidiabetic drugs and recommendations for diet and exercise. The guidelines also emphasized screening criteria, diagnostic procedures, follow-up, referral and evaluation of health outcomes.

The second stage was the training of clinical instructors. Referral and consultation are integral to patient care within the IMSS, and family physicians share responsibility for pa-

tient care with the specialists. Therefore, specialists from the referral hospital were invited to become the clinical instructors.

The instructors comprised 2 pediatricians (for the acute respiratory infection guidelines) and 2 internal medicine specialists (for the diabetes guidelines). The researchers trained the instructors to use the clinical guidelines, to run the intervention and to interact with the family physicians. The training lasted approximately 8 hours and consisted of both theoretical and practical activities.

The third stage was the educational intervention itself. Before starting the intervention, family physicians were given a complete explanation of the intervention and were asked to give consent to participate. The medical director and the chiefs of clinical departments were also involved to ensure that the process ran smoothly. The intervention consisted of 3 sequential activities.

The family physicians first participated in a 5-part interactive workshop (Table 1). During the first session they were given an overview of the intervention, along with an up-to-date bibliography of references supporting the development of the clinical guidelines and describing the management of acute respiratory infections<sup>20-22</sup> and diabetes.<sup>19,23</sup> The clinical instructors discussed the bibliography with the group during the second session. In the third session the instructors and the researchers presented the results of a baseline evaluation of the physicians' prescribing practices (see below). Next, the instructors presented and discussed the clinical guidelines, stressing that the guidelines were not "set in stone" and could be adapted to a family physician's particular work setting. During the final session, the family physicians practised applying the clinical guidelines using scenarios developed by the instructors and the researchers.<sup>24</sup>

The second part of the intervention consisted of individual tutorials, during which the family physician worked with the clinical instructor while providing clinical care to patients. The patients involved in these tutorials provided informed consent to participate. Each family physician met with a clinical instructor once a week for a total of 3 to 5 sessions, each lasting 2 hours. The instructor worked with 2 family physicians every time. The tutorial, based on the clinical guidelines, consisted of discussion of the diagnosis and treatment, patient counselling and education, and timely referral.

The third aspect of the intervention consisted of roundtable peer group sessions, which were used to promote self-criticism among the family physicians and to further their interaction with the clinical instructors. Three family physicians, the clinical instructor, and 1 medical director participated in each session. During each session, the participants discussed randomly selected clinical records, with reference to the clinical guidelines. For each disease entity, there was 1 session per week, and physicians were asked to attend a total of 3 of these sessions.

Overall the CME intervention would take 7 months to implement in a typical clinic with 10 physicians per shift (the time varies according to the number of participating physicians).

The CME strategy included some evaluation of physician performance. The baseline evaluation measured physicians' performance and the health status of chronically ill patients before the intervention. These baseline data were discussed during workshop session 3, to ground the intervention in the clinic's day-to-day practice. The intermediate and final evaluations measured any changes in physicians' performance and health status of chronically ill patients. The information was taken from patient interviews, clinical records and written prescriptions.

**Table 1: Characteristics of and participants in a continuing medical education strategy in a primary care setting**

Activity	Participants	Time required
<b>Development of clinical guidelines</b>		2 months*
Acute respiratory infection	4 pediatricians 3 family physicians 2 researchers	
Type 2 diabetes mellitus	3 internal medicine specialists 3 family physicians 2 researchers 1 endocrinologist	
<b>Training of clinical instructors</b>	Specialists from referral hospital† Chiefs of clinical departments	8 h over a 1-mo period
<b>Educational intervention</b>		
Interactive workshops	Family physicians Clinical instructors Chiefs of clinical departments	5 h (1 h/day for 5 days)
Individual tutorials	Family physicians Clinical instructors	Once weekly for a total of 6-10 h‡
Peer group sessions	Family physicians Clinical instructors Chiefs of clinical departments	3-5 h over a 2- to 3-mo period§

\*For each guideline (the 2 groups worked independently).

†Two pediatricians for the guidelines on acute respiratory infection and 2 internal medicine specialists for the guidelines on diabetes.

‡The clinical instructor worked with the family physician while the latter was providing care to patients. Each weekly one-on-one session lasted for 2 hours, and there were a total of 3 to 5 sessions, for a total of 6 to 10 hours of instruction. The total time required for this stage of the intervention (for all family physicians) was 2 to 3 months.

§The group met 3 to 5 times, and each session lasted 1 hour.

## Pilot study

The study took place from April to September 1997 in a 20-physician family medicine clinic in northern Mexico City. The clinic was randomly selected from a cluster of IMSS clinics of similar size in this part of the city. The clinic was typical of IMSS clinics, covering approximately 45 000 people. The clinic has 10 examining rooms, an emergency room, a pharmacy, preventive medicine services, a laboratory and a radiology laboratory.

The IMSS Research Council provided ethical approval to conduct the pilot project, which involved shortened versions of the intervention and the evaluations. Three main outcomes were evaluated.

First, we assessed feasibility by observing the reorganization of daily activities within the family medicine clinics to accommodate the intervention. These clinics exist to provide health care, and the physicians' workload prevents them from undertaking academic activities. However, it was possible to reschedule appointments and walk-in visits to allow time to conduct this CME intervention. Clinic staff were responsible for any reorganization, without interference from the researchers.

Next, we determined the acceptability of the intervention, which encompassed physicians' willingness to participate, the extent to which they read and used the printed materials, their attendance for classroom activities and their willingness to have the clinical instructor in the examining room for tutorials.

Finally, we assessed the potential impact of the CME strategy on clinical decision-making, by observing changes in physicians' prescribing practices in the management of acute respiratory infections and diabetes. Data were collected (by nurses trained for this purpose) from 3 sources: direct interviews with patients, a review of clinical records and a review of prescriptions. A 1-group pretest-posttest design was used to test any differences.

## Results

Here, we present a brief summary of the results of our pilot study.

All 20 family physicians at the selected clinic agreed to participate. They reacted positively to the clinical guidelines and the educational strategy. Their suggestions for the guidelines were taken into consideration so that the guidelines would be suitable for daily practice and would fit the physicians' needs. For example, on the basis of family physicians' suggestions, the guidelines for diabetic patients were modified to include diet and exercise recommendations.

Interaction between family physicians and the clinical instructors was successfully promoted. The family physicians were aware that the instructors would be present during patient visits to help provide care and to discuss cases. Although this situation was unusual, none of the family physicians refused to work with the clinical instructors.

The family physicians reported that the instructors were supportive and did not place any constraints on their clinical decisions. In addition, the family physicians understood the clinical guidelines better after explanations from the clinical instructor, and they found that the guidelines eased their decision-making.

The chiefs of the clinical departments and the family physicians reorganized their daily work so that they could attend the educational activities. The appointment system was modified to facilitate the tutor-based activities. The family physicians did not complain about the increase in their activities or about modifying their routine.

With regard to the potential impact of this CME strategy, we found that the likelihood of study physicians using appropriate strategies to manage the target illnesses was greater after the CME intervention than before. For patients with acute respiratory infection, the appropriateness of antibiotic use increased, as did counselling about how to seek health care in a timely manner and how to recognize warning signs. For diabetic patients, counselling about diet and exercise increased, as did the number of patients joining support groups, and inappropriate use of drugs declined.

Preliminary results of a cost evaluation of this intervention indicate that the average cost per physician was approximately US\$800 (US\$400 per disease entity). This estimate includes payment of the physicians and the clinical instructors, cost of supplies and cost of supervisory activities by the clinic's medical directors. The estimate was based on the number of hours spent by family physicians and clinical instructors and their monthly salaries.

## Interpretation

This CME intervention has several strengths. The close interaction between physicians at different levels in the IMSS system during the actual provision of care promoted learning from each other. The physicians (both instructors and family physicians) agreed to participate because they recognized the practical way in which the intervention addressed the clinical problems they face every day. The intervention also encouraged a reflective approach to care by helping the physicians to develop critical thinking skills. However, because this was a new activity, more specific training is needed on this aspect.

The drawbacks of the intervention are the time needed to train the instructors, the changes needed in the daily activities of the clinic and the complexity of evaluation. Both family physicians and specialists must be afforded the time to participate. It is probably a mistake to believe that such activities require little time.<sup>25</sup> Therefore, when planning an intervention such as this one, it is crucial to coordinate clinical and teaching activities at the clinic and at the hospital. In addition, the evaluation criteria should be precisely defined and should be tailored to the particular clinic situation. Another challenge is the potential cost of the program.

Our pilot study has shown that this CME program is

feasible and may improve the quality of health care and the health status of patients at IMSS primary care facilities. In addition, the program was acceptable to the family physicians and to the medical directors. Preliminary results support the decision to continue this program through an evaluative study to obtain definitive evidence of its effectiveness.

*Competing interests:* None declared.

*Contributors:* Drs. Pérez-Cuevas and Reyes developed the conceptual framework of the continuing medical education (CME) strategy and designed the research project. They also invited family physicians to participate in the pilot project and helped to arrange the implementation phase. They designed and tested the data collection instruments, participated in analysing the data and wrote the paper.

Dr. Guiscafré's experience in implementing inservice training programs laid the groundwork for developing and improving the educational strategy reported here. He participated in the design of the research project and led the group of physicians that developed the clinical guidelines for treating acute respiratory infections.

Dr. Juárez-Díaz contributed to the organization of the educational strategy and directed development of the clinical guidelines. She was in charge of organizing and supervising the groups that developed the guidelines for both acute respiratory infections and type 2 diabetes mellitus. She also led the group of physicians that developed the guidelines for treating diabetes.

Dr. Oviedo participated in the development of the diabetes guidelines, his main contribution being proposal of a comprehensive dietary guide for use by both family physicians and patients. He also participated in implementation of the CME strategy, in particular as a clinical instructor for the diabetes component.

Dr. Sergio Flores collaborated in the development of the acute respiratory infection guidelines. He was the clinical instructor for the acute respiratory infection component of the CME strategy. He also participated in data analysis and helped with asking physicians to participate in the CME strategy and follow the guidelines.

Dr. Muñoz contributed to the theoretical development of the educational strategy and to the study design. His insights helped us to develop a feasible strategy.

All authors contributed to revising the article.

*Acknowledgements:* This study was supported by grants from the Instituto Mexicano del Seguro Social, through the fund for Medical Research Institutional Programs Support (reference FP-0038), and from the Consejo Nacional de Ciencia y Tecnología (reference 28189-M).

We acknowledge the participation of the medical staff and directors from the Unidad de Medicina Familiar No. 40.

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**Reprint requests to:** Dr. Ricardo Pérez-Cuevas, Cerezas 72-404 Del Valle 03100 México DF, México; fax 52 57-61-09-52; rtcuevas@prodigy.net.mx

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