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**The path from research-based interventions to policies aimed at improving prescribing practices in family medicine clinics.**

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# Outline

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- Mexican Institute of Social Security (IMSS) overview
- Results of research-based medical education interventions aimed at improving family doctors' prescribing practices
- Evidence into practice: Large-scale medical education programs
- Current research agenda to improve prescribing practices and improve quality of care

# Mexican Institute of Social Security

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**Coverage**                      **48 million people**

**Services provided  
in each level of  
care**

**Infrastructure**

**%**

**40 tertiary care  
hospitals**

**3%**

**217 secondary care  
hospitals**

**12%**

**1527 family medicine  
clinics**

**85%**



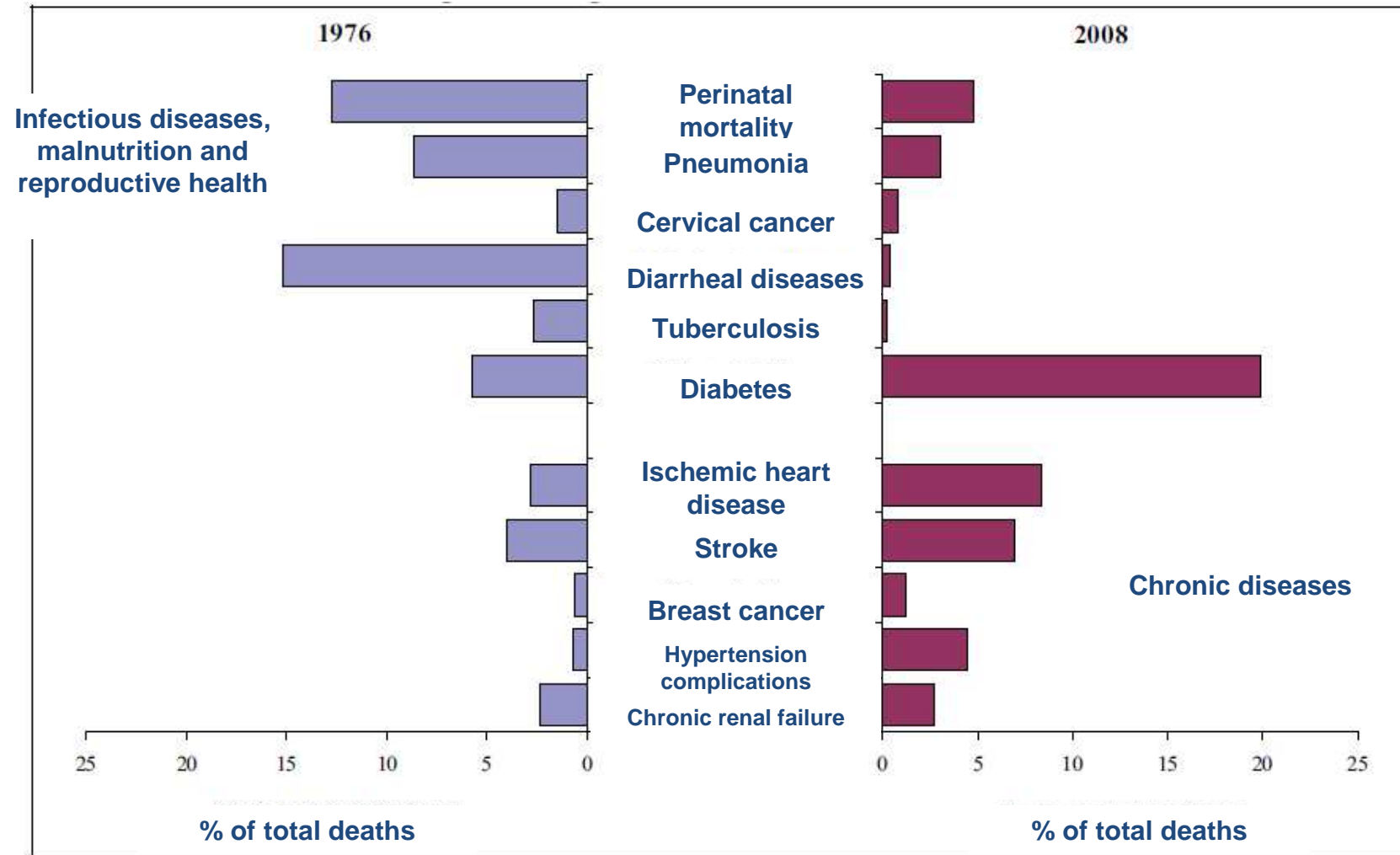
# Family medicine clinics

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**STATEMENT OF THE PROBLEM: Two important challenges to overcome: epidemiological changes and substandard performance**

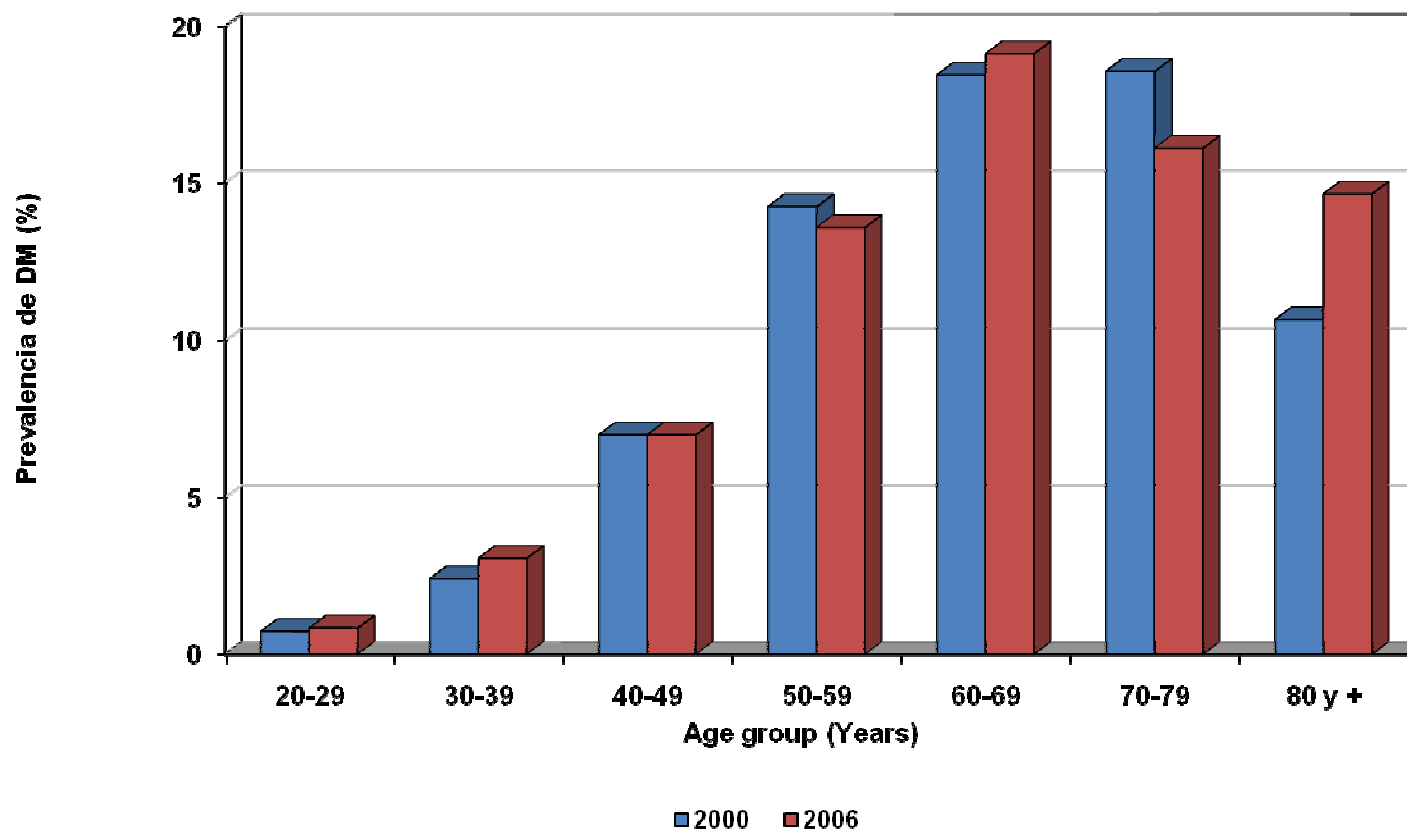
# Changes in causes of mortality 1976-2008



Source: IMSS

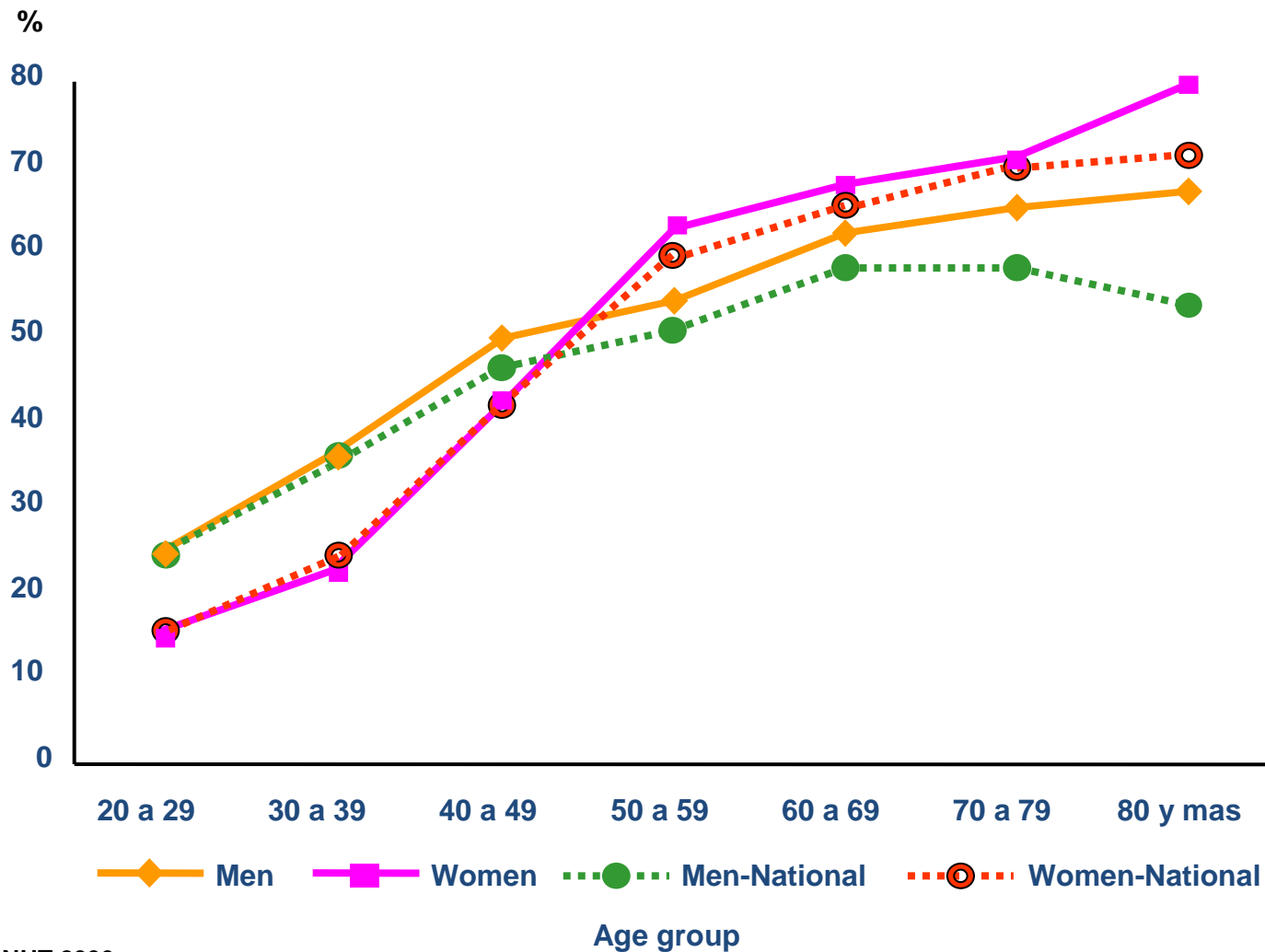
# Prevalence of type 2 diabetes mellitus by age group 2000-2006

In the year 2000, there were 2.8 millions of patients with diabetes in Mexico.  
In 2006 the figure increased to 4.2 millions



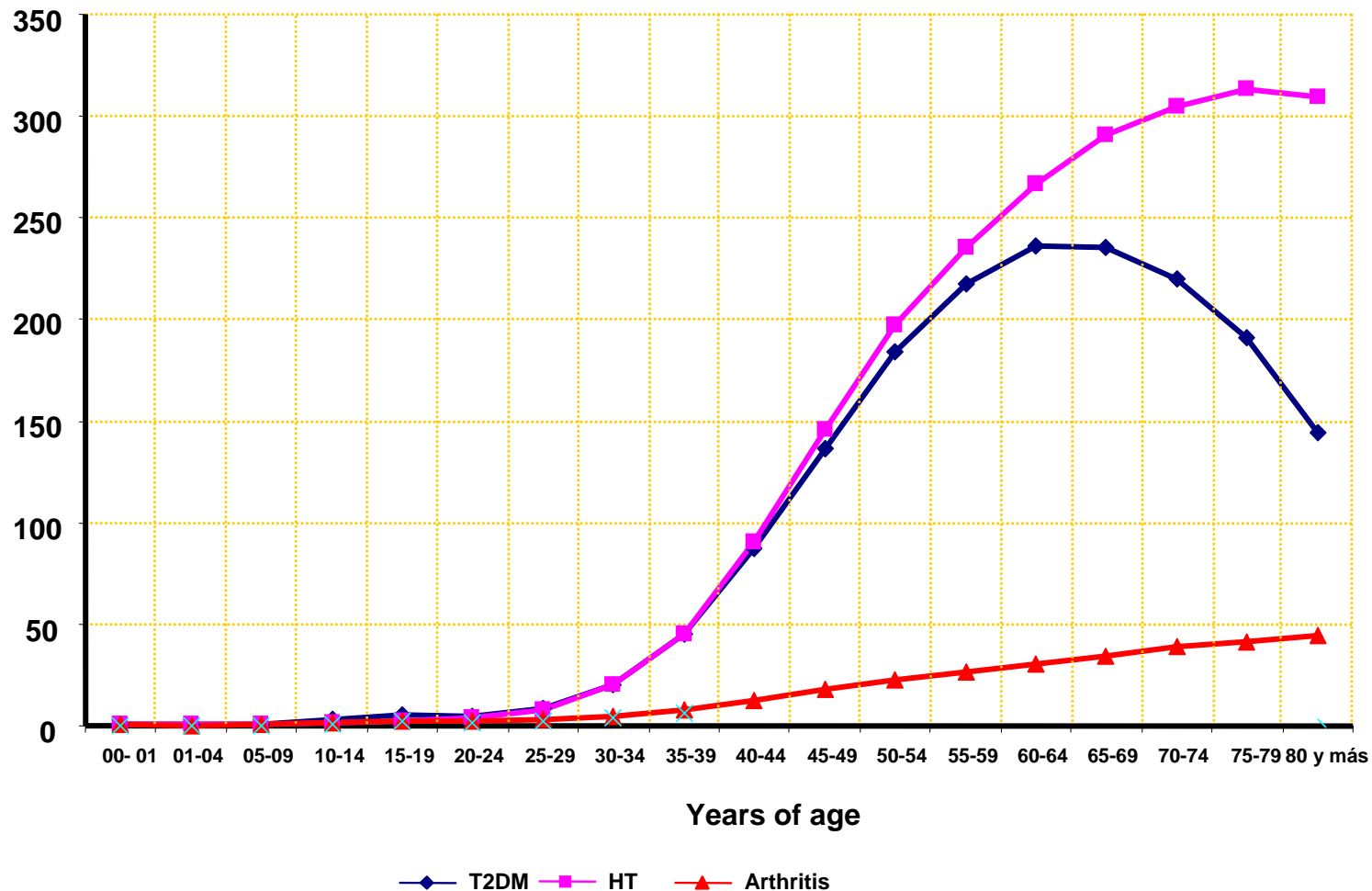
Source: SSA-INSP Encuesta Nacional de Salud, México 2000. SSA-INSP Encuesta Nacional de Salud y Nutrición, México 2006

# Prevalence of hypertension by sex and age group IMSS and National



Source: ENSANUT 2006.

# Rate of ambulatory visits\* T2DM, Hypertension and arthritis by age group 2006



\* By 1,000 visits

# Statement of the problem: Substandard performance

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- Outdated knowledge to manage common diseases
- Inappropriate prescribing practices
- Increase in health care costs
- Professional dissatisfaction of family doctors
- Poor health outcomes

# T2DM quality of care evaluation

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Indicator	N= 728 patients %
Blood glucose control	17.7
Screening for proteinuria in the last year	11.2
Treatment with glibenclamide	82.2
Appropriate dosage of glibenclamide	34.5

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# **RESEARCH BASED EXPERIENCES**

**The interventions began in 1987 addressing common diseases: acute respiratory infections and acute diarrhea**

# Intervention III

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Multifaceted strategy integrated by three components

1. Creation of evidence-based clinical guidelines

2. Training of clinical tutors

3. Educational intervention

- a. Interactive clinical workshops
- b. in-service training
- c. Round-table peer review sessions

# Description of the educational intervention to family physicians

Stage	Description of component	Type of activity	Duration of activity
Interactive workshop	Family physicians participated and were coordinated by the clinical tutor	Small groups discussion for: •analysis of the guideline •solution of clinical scenarios Plenary session	Five one-hour sessions
Individual tutorial	Provision of health care to patients by one family physician advised by the clinical tutor	Hands-on training for a single physician	Three two-hour sessions
Round-table peer review sessions	Participation of 3-4 family physicians guided by the clinical tutor	Group discussion of actual clinical cases for management analysis based on the clinical guideline criteria	Three one-hour sessions

Reyes H, Flores S, Tome P, Pérez-Cuevas R. A multifaceted education intervention for improving family physicians' case management. *Fam Med* 2009;41(4):277-84.)

# Intervention III

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Cause of visit	Outcome measures
Acute respiratory infections	<ul style="list-style-type: none"><li>● Prescription of antibiotics</li><li>● Children mother's education regarding pneumonia alarm signs</li></ul>
Type 2 diabetes mellitus	<ul style="list-style-type: none"><li>● Prescription of hypoglycaemic drugs or insulin</li><li>● Dietary and exercise recommendations</li></ul>
Hypertension	<ul style="list-style-type: none"><li>● Prescriptions of hypertensive drugs</li><li>● Dietary and exercise recommendations</li></ul>

# Evaluations

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- Acute respiratory infections:
  - baseline evaluation
  - follow-up evaluations after every intervention stage
- Hypertension and type 2 diabetes:
  - baseline evaluation
  - Patient's follow-up at six and twelve months

Evaluations consisted of:

- Interviewing patients
- Reviewing clinical records
- Reviewing prescriptions

Proportion of Physicians With Positive Performance in Acute or Chronic Disease Before and After the CME Intervention

	<i>Baseline</i>		<i>Final</i>		<i>Absolute Change</i>	
	<i>Intervention %</i>	<i>Control %</i>	<i>Intervention %</i>	<i>Control %</i>	<i>Intervention % (95% CI)</i>	<i>Control % (95% CI)</i>
Acute respiratory infection (ARI) (n=105)*						
Appropriate case management	2.6	5.2	40.3	4.9	37.7 (26.8, 48.1)	-0.3 (-0.4, 0.3)
Type 2 Diabetes (DM2) (n=113)**						
Appropriate case management	21.2	13.5	48.1	28.2	26.9 (16.6, 35.8)	14.7 (7.6, 21.8)

CI—confidence interval  
n=number of physicians

\* ARI: Intervention n=56, Control n=49

\*\* DM2: Intervention n=58, Control n=55

# Impact of the educational intervention on the treatment of acute respiratory infections

## Differences-in-differences model

Evaluation stage	Appropriate prescription of antibiotics		Education about worsening signs		Appropriate case management	
	Intervention n=48	Control n=58	Intervention n=48	Control n= 58	Intervention n=48	Control n= 58
<b>Baseline</b>						
Mean proportion	21.7	30.6	18.7	28.9	4.7	9.6
<b>Post-workshop</b>						
Mean proportion	35.9	29.5	36.0	33.6	14.2	9.9
Difference of mean proportions (95% confidence interval)*	14.2 (2.6 to 25.8)	-1.2 (-10.6 to 8.3)	17.3 (5.5 to 29.0)	4.7 (-6.2 to 15.6)	9.5 (2.7 to 16.3)	0.3 (-5.9 to 6.6)
<b>Post-individual tutorial</b>						
Mean proportion	32.7	26.3	47.8**	27.6	17.3**	8.5
Difference of mean proportions (95% confidence interval)*	11.0 (-0.7 to 22. 7)	-4.4 (-14.1 to 5.3)	29.1** (17.8 to 40.3)	-1.3 (-12.4 to 9. 9)	12.6** (4.8 to 20.3)	-1.1 (-7.5 to 5.3)
<b>Post-round-table peer-review sessions</b>						
Mean proportion	44.3**	32.1	48.5	30.9	24.3**	6.9
Difference of mean proportions (95% confidence interval)*	22.6**† (10.3 to 34.9)	1.46 (-8.6 to 11.6)	29.8**† (17.2 to 42.4)	2.0 (-8.4 to 12.4)	19.6**† (11.2 to 28.0)	-2.7 (-8.5 to 3.0)
n = number of physicians; *Reference category: Baseline stage; † p < 0.01 between baseline and final evaluation within group; ** p < 0.05 between intervention and control group at the stage						

Reyes H, Flores S, Tome P, Pérez-Cuevas R. A multifaceted education intervention for improving family physicians' case management. Fam Med 2009;41(4):277-84.)

# Lessons learned

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- Educational interventions provided evidence to have a positive impact in improving case-management of these three causes of visit
- Educational interventions were conducted during the routine working conditions of the clinic
- Family doctors participated voluntarily
- The workload of family doctors placed severe time restraints to participate
- Modifying the organisation and process of care could improve the results, particularly to manage chronically ill patients
- Interventions were time and resource-consuming

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# **EVIDENCE INTO PRACTICE: LARGE SCALE CME PROGRAMS**

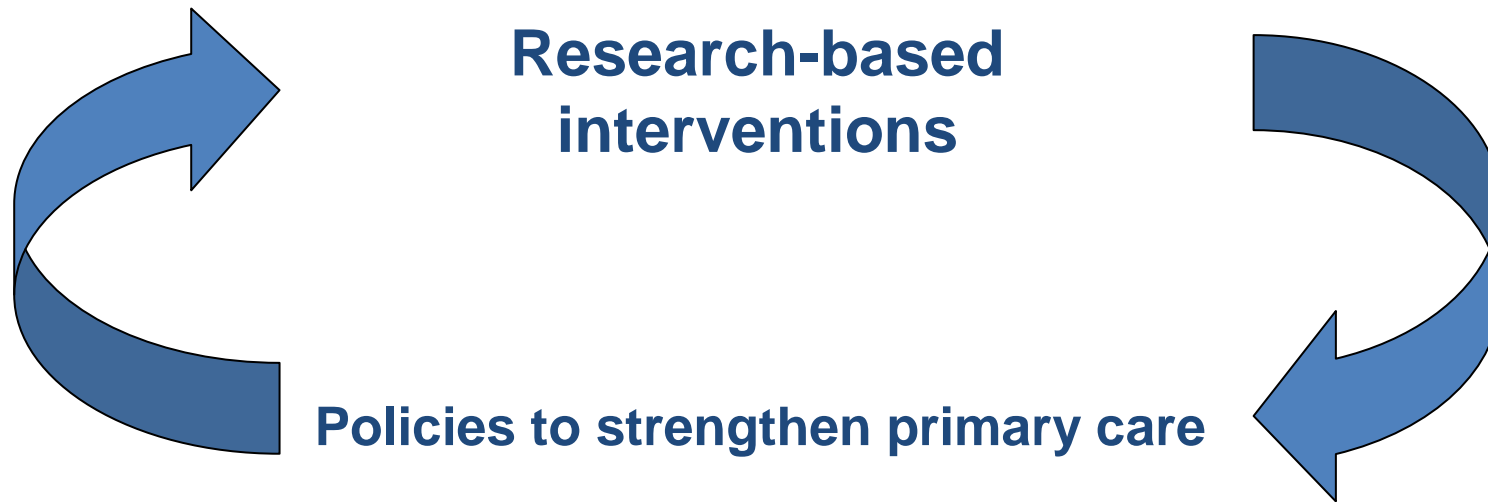
Statement of the problem:  
updating family doctors is a challenging task

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- IMSS is responsible of organizing, providing and/or facilitating educational activities to update family doctors
- Challenges:
  - Amount of family doctors: 14,000
  - Shortages of resources
  - Workload of family doctors
  - Medical education is not a compulsory activity
  - Medical education programs are not always related to FDs daily work
  - Organizational restraints to participate and apply what has been learned

# Strategies to improve prescribing practices

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- Medical education programs
- Construction of clinical guidelines
- Development and implementation of the electronic medical record
- Development and implementation of quality of care indicators
- Improvement of working conditions

A number of interventions have been implemented under this perspective

# Evidence-based clinical practice guidelines

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**12 clinical practice guidelines tailored to the IMSS' conditions were developed and published\***

Well child program	Antenatal care	Cervicitis
Tuberculosis	Acute respiratory infections	Urinary tract infections
Hypertension	Diabetes mellitus	Dyspepsia
Hip and Knee Arthritis	Hand trauma	Low back pain

\* Reyes H, Trejo JA, Pérez-Cuevas R. Guías de Práctica Clínica para Medicina Familiar. Editorial El Manual Moderno. 2003

# Evidence into practice

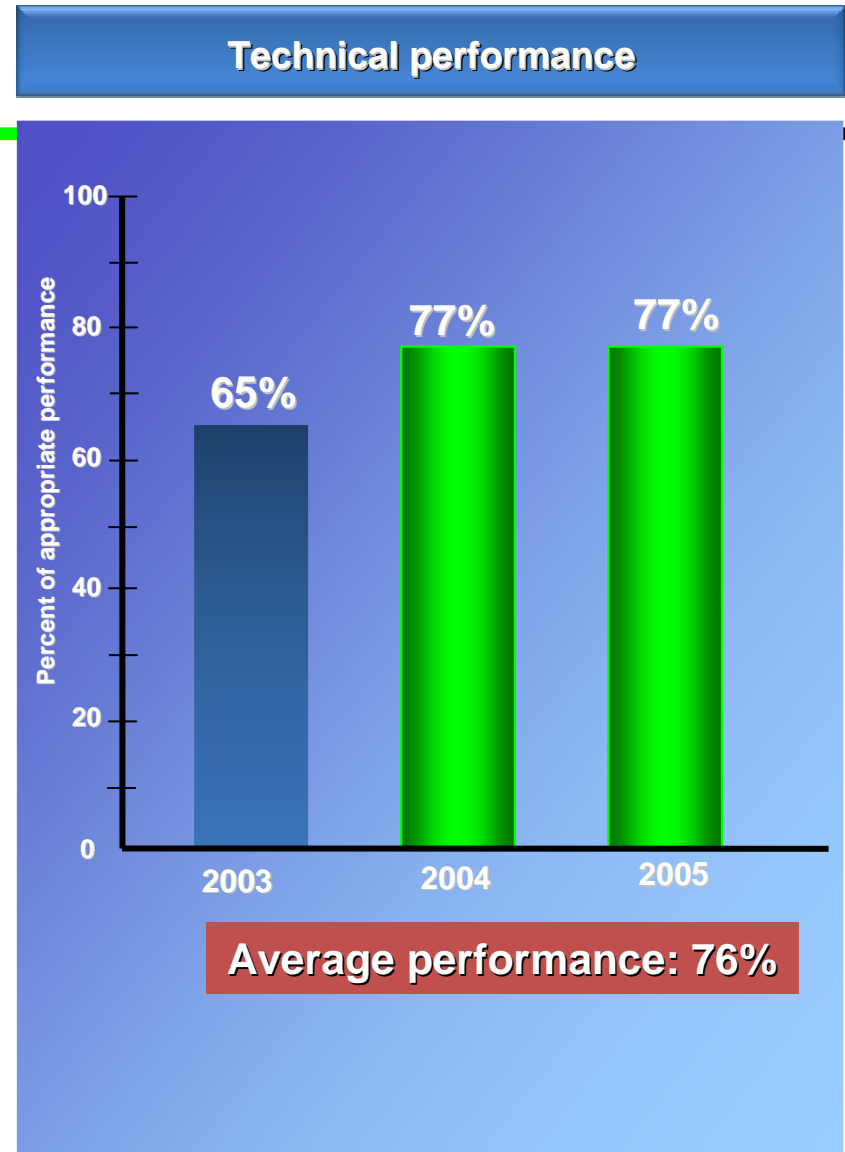
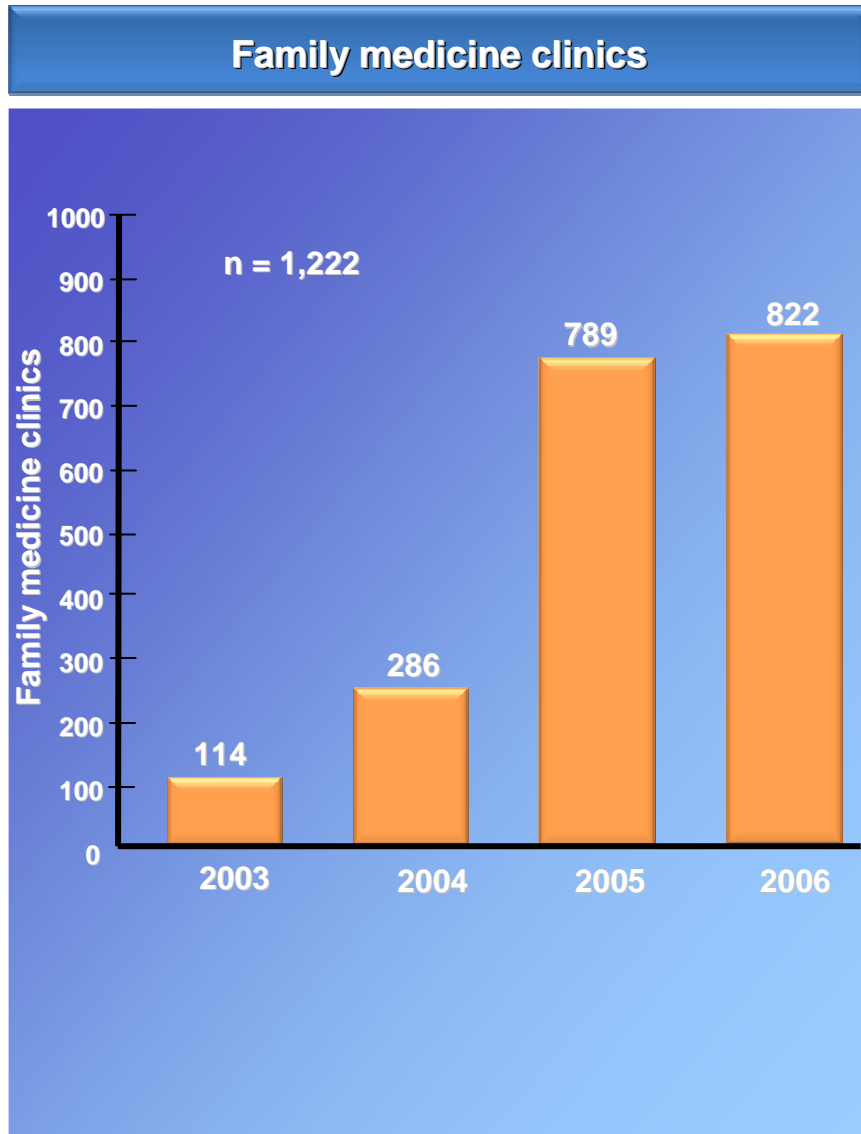
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- IMSS launched a nation-wide medical education program based upon the educational techniques used in previous interventions
- A pilot study was conducted in 8 family medicine clinics
- The full-scale program included ~14,000 family doctors in the period 2002-2006
- Quality of care and performance indicators were developed to measure the impact of the interventions

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

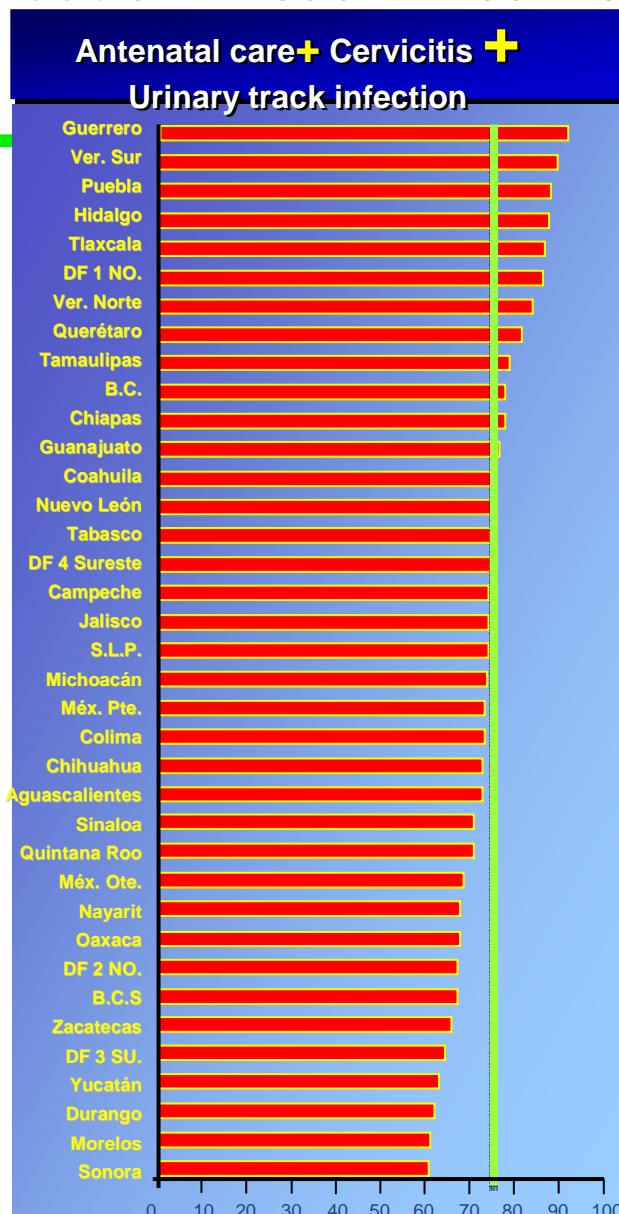
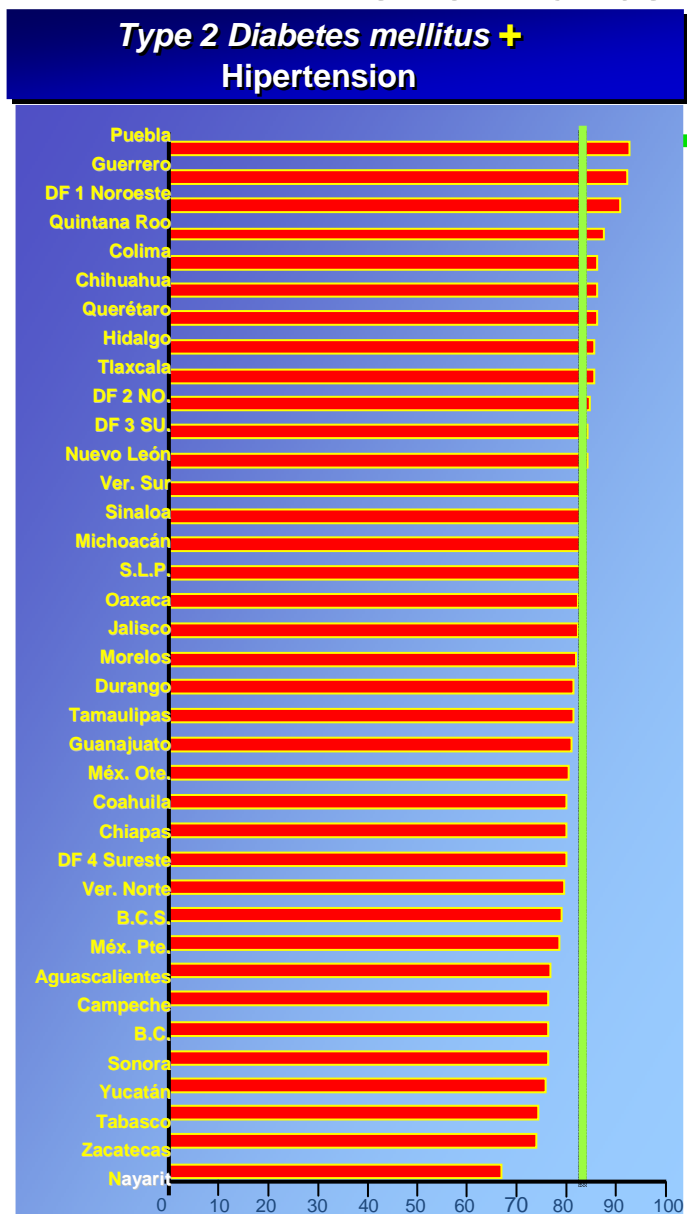
<b>Characteristics – indicator</b>	<b>Baseline evaluation N = 365</b>	<b>Post-intervention evaluation N = 320</b>
Glucose control ( $\leq 120$ mg)	17.7	18.4
Presence of proteinuria in the las year	11.2	8.1
Referral to 2 <sup>nd</sup> care level (those with proteinuria)	23.5	25
Treatment with glybenclimide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

# Results of the national program



# Medical education program

## Performance evaluation in each IMSS-Delegation



**Global performance**

	%
Antenatal care	93
Hypertension	86
Diabetes mellitus	80
Lung tuberculosis	79
Low back pain	79
Well child program	77
Hand Trauma	76
Acute respiratory infections	75
Dispepsia	72
Urinary track infection	65
Arthrosis	61
Cervicitis	53

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**CURRENT RESEARCH AGENDA TO  
IMPROVE PRESCRIBING PRACTICES  
AND IMPROVE QUALITY OF CARE**

# Current IMSS CME research agenda

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The ongoing research studies are taking advantage of the IMSS' health information system. This will allow implementing large scale interventions and evaluations in an efficient and effective way.

1. Use of the health information system to evaluate quality of care in patients with type 2 Diabetes Mellitus (in collaboration with the Drug Policy Research Group and WHO Collaborating Center in Pharmaceutical Policy Department of Population Medicine Harvard Medical School and Harvard Pilgrim Health Care)

2. Individualized system to monitor, evaluate and implement interventions to improve quality of care in family medicine clinics

# Use of the health information system to evaluate quality of care in patients with T2DM

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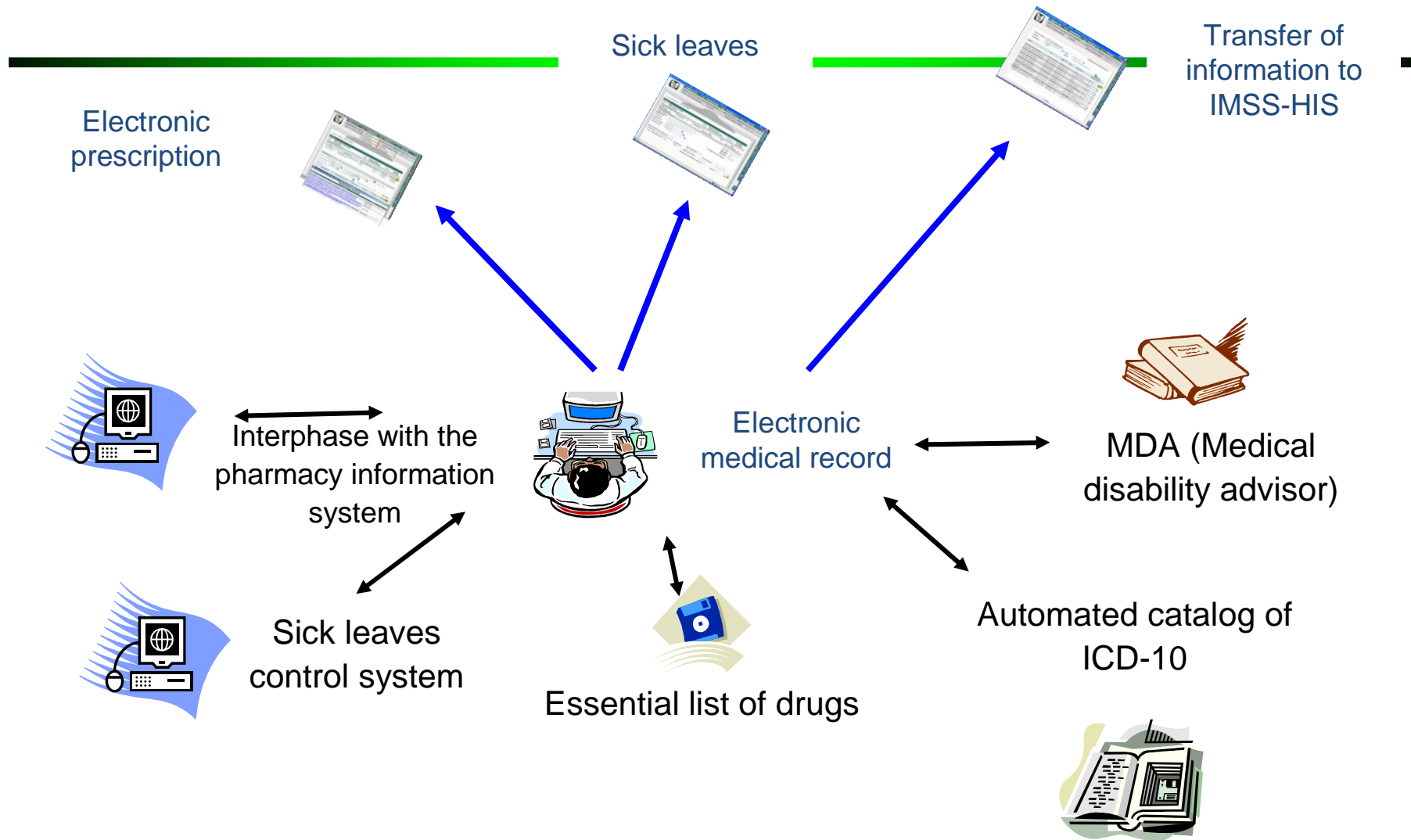
The specific aims of the proposed study are:

- 1. To validate the data in the IMSS EMR and test the feasibility of structuring extracted HIS data according to HMORN Virtual Data Warehouse (VDW) specifications; and
- 2. To evaluate the quality of diabetes care provided in IMSS, using HEDIS measures

The study will take place in 40 family medicine units

A feasibility study to ascertain availability of necessary information is currently taking place in one family medicine clinic

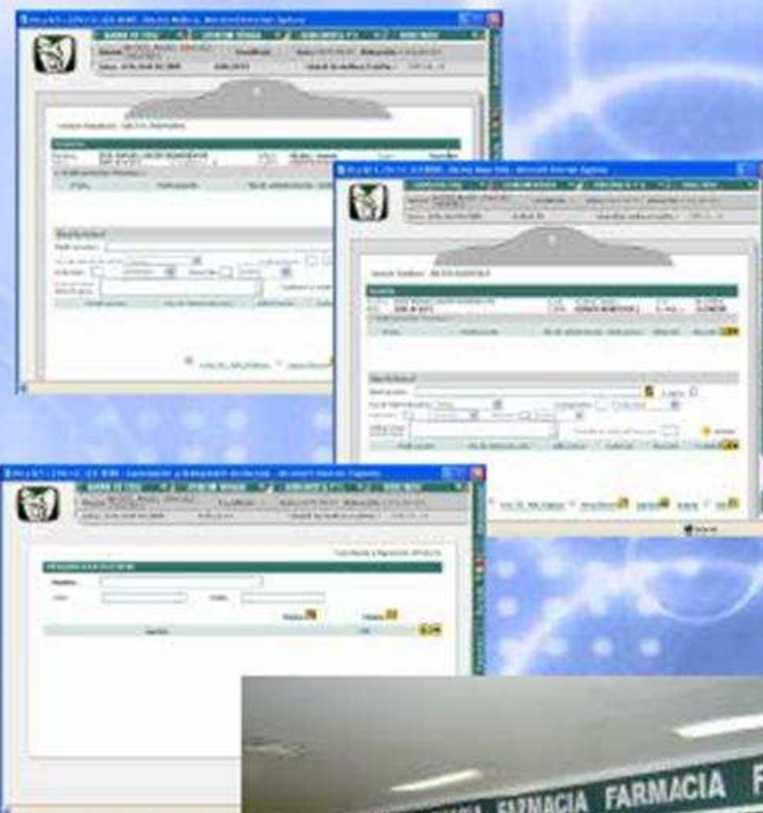
# Family medicine health information system



# Electronic Prescription

2005

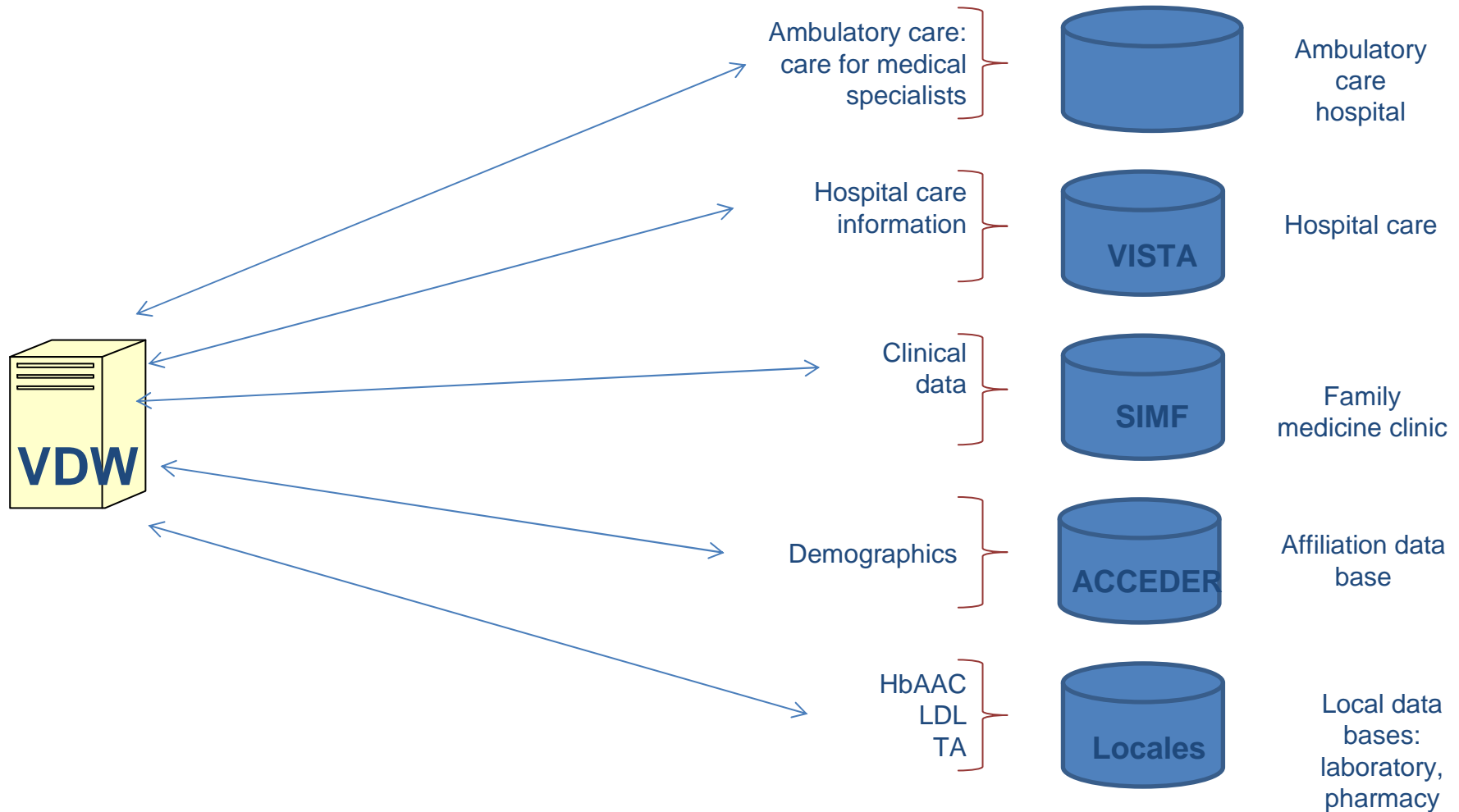
- Interface with the System of Supply of the Institute
- Prescription
  - Individual
  - Resurtible
  - Transcription
- Expedition
- Cancellation
- Re-Impression
- Separates the prescriptions by:
  - Control Drugs
  - Denied Drugs
  - Milk
  - Oxygen
- Consult the previous prescriptions



INSTITUTO MEXICANO DEL SEGURO SOCIAL  
SEGURIDAD Y SOLIDARIDAD SOCIAL

# Integration of the different sources of medical information

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## **Individualised system to monitor, evaluate and implement interventions to improve quality of care in family medicine clinics**

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### **1. Objective: To design, implement and evaluate an individualized system to monitor, evaluate and improve quality of care in family medicine clinics**

- The system will be based upon the EMR and will comprise 9 causes of visit\*
- The indicators to evaluate quality will be updated
- It includes training of family doctors to understand the use of indicators to evaluate quality
- It will serve to provide feedback to family doctors, medical directors and IMSS officials. This represents individual offices, clinics or clusters of clinics or the entire system
- The system will allow the systematic evaluation of quality of care

\* T2DM, HTA, antenatal care, well child program, cervicitis, hand trauma, arthrosis, low back pain, acute respiratory infections



**THANK YOU**