SALUD

SECRETARÍA DE SALUD

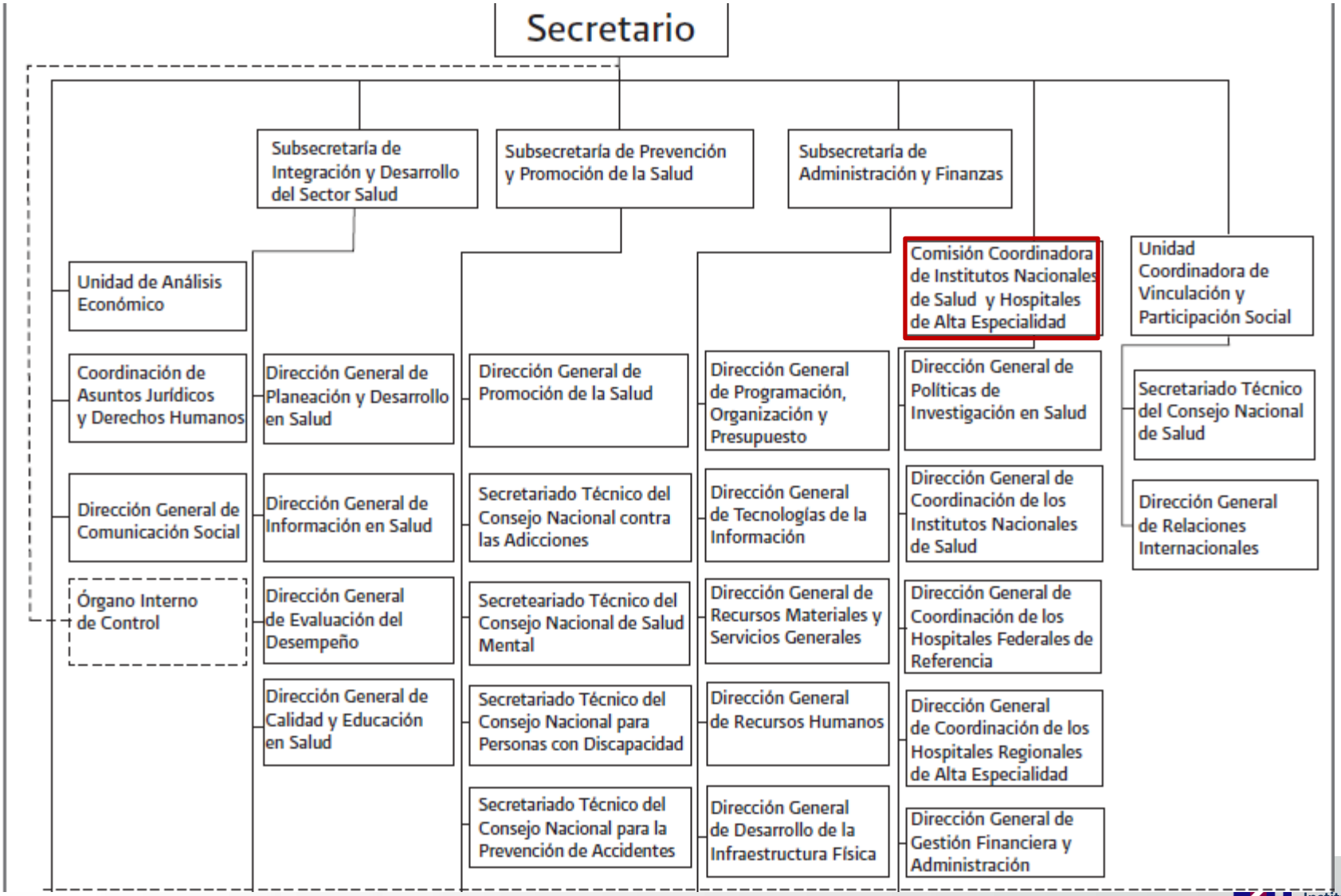
Instituto Nacional de Salud Pública

National Institute of Public Health

INSP

Dr. Mauricio Hernandez-Avila
Director General
Dean

El INSP is sectorized within the Ministry of Health



Who we are?

Mexico's National Institute of Public Health (NIPH) was founded in 1987. The School of Public Health in 1922.

Since its establishment, the NIPH has achieved one of the largest critical mass of public health researchers in Latin America.

Mission and Vision

Mission

To contribute to social equity and the full realization of the right to health protection through the generation and dissemination of knowledge, state-of-the-art training of human resources, and innovation in multidisciplinary research for the development of evidence-based public policies.

Vision

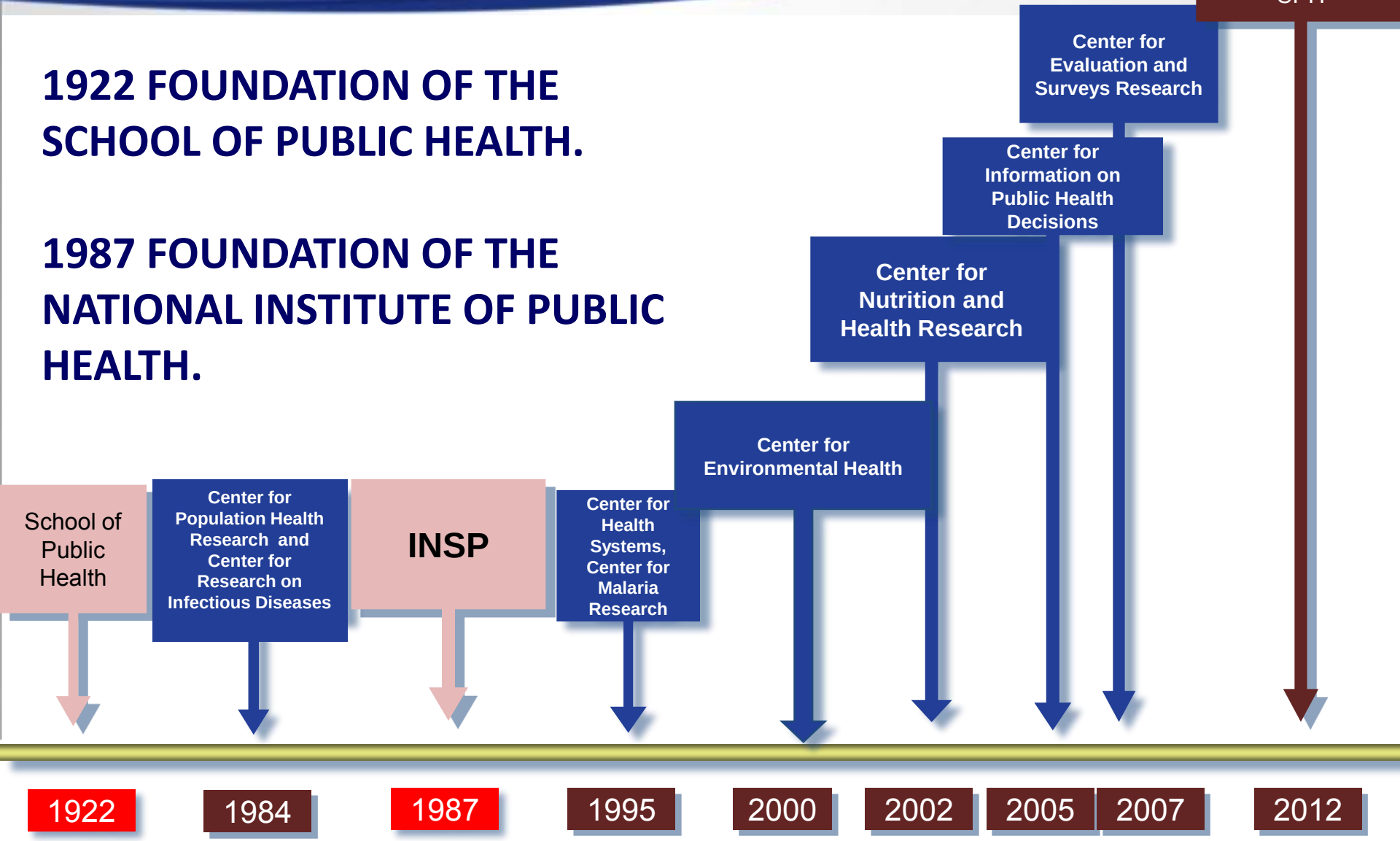
To be a leader in public health research and teaching in Latin America, the INSP strives to generate precise and current reference knowledge for the formulation, implementation and evaluation of health policy at national and regional levels.

Conformation 1922 -

25º Anniversary INSP
90º Anniversary SPH

1922 FOUNDATION OF THE SCHOOL OF PUBLIC HEALTH.

1987 FOUNDATION OF THE NATIONAL INSTITUTE OF PUBLIC HEALTH.



Organizational Chart

Mauricio Hernandez

Director General
Dean

Academic
Dean

Laura Magaña

CISEI

Center for Infectious Diseases Research

Lourdes García

CIEE

Center for Evaluation and Surveys Research

Juan Pablo Guitierrez

CISS

Center for Health Systems Research

Miguel Angel Gonzalez

CINYS

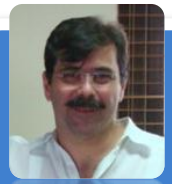
Center for Nutrition and Health Research

Juan Rivera

CISP

Center for Population Health Research

Eduardo Lazcano



CENIDSP

Center for Information on Public Health Decisions

Juan Eugenio Hernandez

CRISP

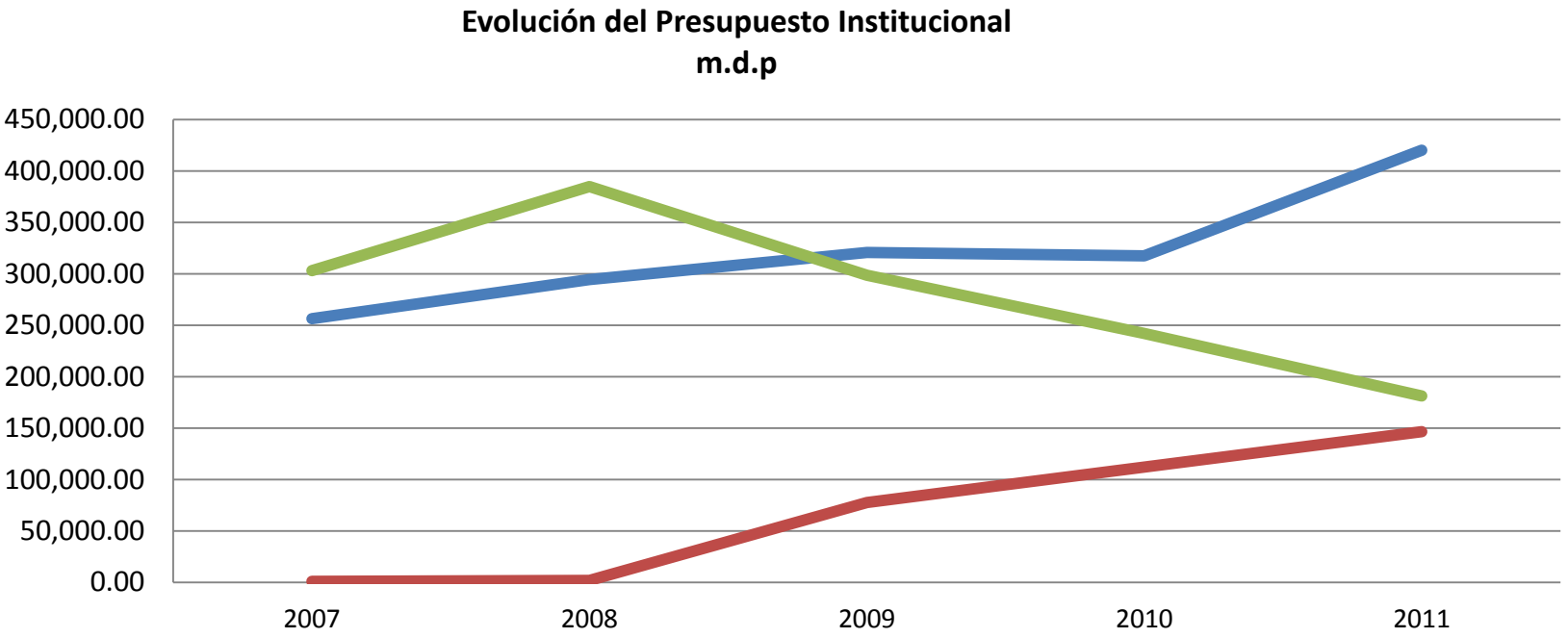
Regional Center for Public Health Research

Americo Rodriguez

Our community

- 169 FACULTY (TEACHING AND RESEARCH)
- 233 FACULTY STAFF
- 882 STUDENTS
- 11 EXECUTIVE STAFF

Institutional Budget



	2007	2008	2009	2010	2011
Presupuesto Federal	256,562.19	294,592.51	320,891.97	317,743.00	420,300.46
Recursos Propios	1,009.21	2,112.80	77,695.51	112,045.29	146,739.70
Recursos de terceros	303,238.59	385,041.05	298,741.76	242,202.58	181,392.10
TOTAL	560,809.99	681,746.36	697,329.24	671,990.87	748,432.26

Strategic areas

I. RESEARCH

II. EDUCATION

III. SERVICES

INSP has the largest critical mass of public health investigators in Latin America

Instituto Nacional de Salud Pública

I. RESEARCH

I. RESEARCH

- ✓ Mission-oriented
- ✓ Multidisciplinary approach
- ✓ Directly correlates with the Academic Program
- ✓ Targets priority public health problems in Mexico
- ✓ Translates into actions and policies in diverse public sectors

Mission resarch
16 Research Lines and Proto-lines

DETERMINANTS

- ✓ Health and vulnerable groups
- ✓ Environmental health

HEALTH PROBLEMS

- ✓ Cancer prevention and control
- ✓ Vector-Borne Diseases prevention and control
- ✓ Tuberculosis prevention and control
- ✓ Injury and violence prevention
- ✓ Sexual health and AIDS/ITS prevention
- ✓ Obesity, diabetes and cardiovascular diseases
- ✓ Malnutrition
- ✓ Reproductive health
- ✓ Vaccines

SYSTEM FEATURES

- ✓ Promoting healthy lifestyles
- ✓ Medicines in public health: access, use and antimicrobial resistance.
- ✓ Human resources for health
- ✓ Social health protection
- ✓ Evaluation of health programs and policies

PROTOLINES

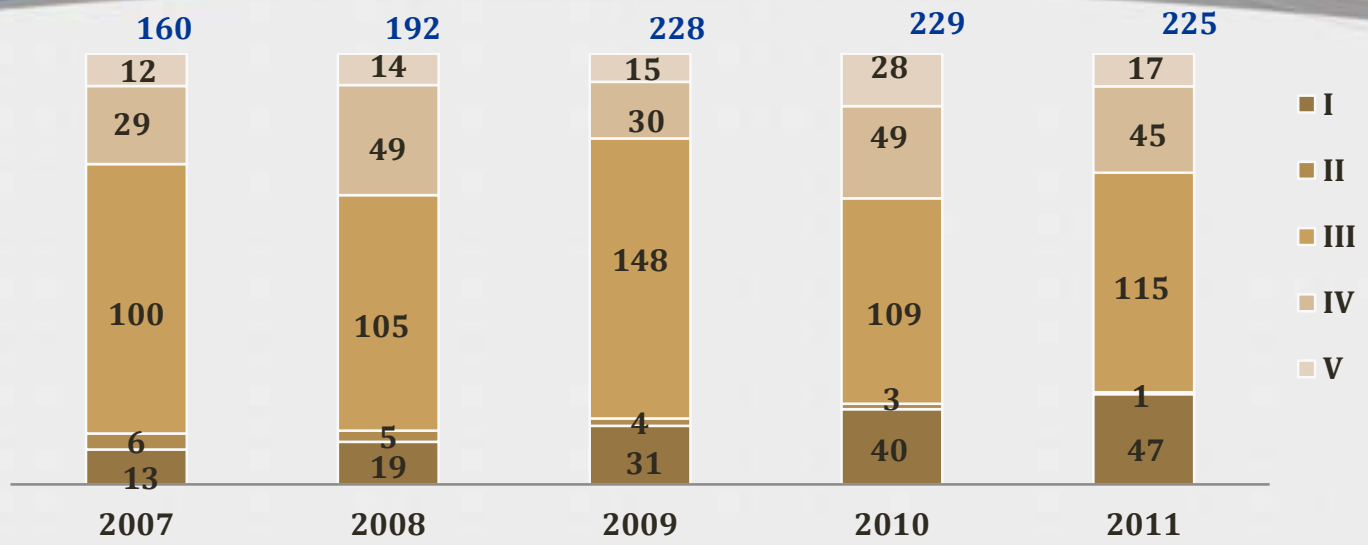
- ✓ Emerging viral diseases
- ✓ Regenerative medicine

The research lines and protolines contribute to problem-solving of public health priorities in Mexico and the region

Research Areas

306 research projects as of June 2012	Primary Center	Secondary Center
Cancer (cervical, breast and gastric)	CISP	CISEI
Diabetes mellitus and cardiovascular risk	CISP	CINYS
Tobacco	CISP	
Lesions & Accidents	CISS	CISP
Malnutrition/Obesity	CINYS	CISP
Environmental Health	CISP	
Tuberculosis	CISEI	
Prevention and control of vector-borne diseases	CISEI	CRISP
Prevention and attention of HIV/AIDS	CISS	CISP
Vaccines	CISEI	CISP
Vulnerable groups: adults, migrants	CISS	CISP
Health equity, governance and financial protection	CISS	CISP
Antibiotics, use and bacterial resistance	CISS	CISEI

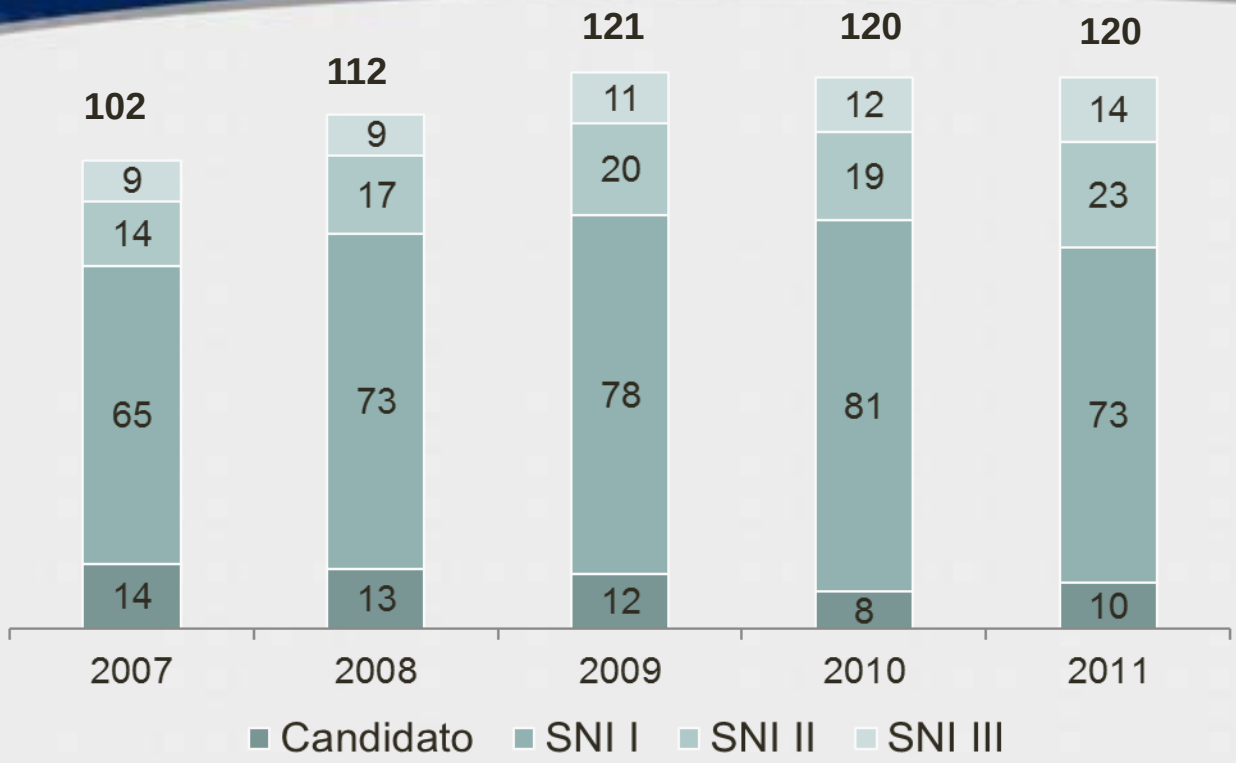
Scientific Production



Año	Publicaciones grupos III- V	Porcentaje respecto del total
2012*	113	**82.4%**
2011	177	**78.6 %**
2010	186	**81.2 %**
2009	193	**84.6%**

80% of research papers of INSP researchers are published in peer-review indexed journal

INSP reseacher thatbelong to the National Research System



- ✓**233** Profesores investigadores
- ✓ **168** Investigadores en Ciencias Médicas
- ✓ **120** investigadores en el SNI, el **30.8%** pertenecen a los niveles II y III.

Nivel	2010	2011
Candidatos	8	10
Nivel I	81	73
Nivel II	19	23
Nivel III	**12**	**14**
Investigadores en el SNI	120	120

Program evaluation

Impact of the Mexican Program for Education, Health, and Nutrition (Progresa) on Rates of Growth and Anemia in Infants and Young Children

A Randomized Effectiveness Study

Juan A. Rivera, PhD
Daniela Sotres-Alvarez, MS
Jean-Pierre Habicht, PhD
Teresa Shamah, MS
Salvador Villalpando, MD

Context Malnutrition causes death and impaired health in millions of children. Existing interventions are effective under controlled conditions; however, little information is available on their effectiveness in large-scale programs.

Objective To document the short-term nutritional impact of a large-scale, incentive-based development program in Mexico (Progresa), which included a nutritional component.

Design, Setting, and Participants A randomized effectiveness study of 347 communities randomly assigned to immediate incorporation to the program in 1998 (intervention group; n = 205) or to incorporation in 1999 (crossover intervention group; n = 142). A random sample of children in those communities was surveyed at baseline and at 1 and 2 years afterward. Participants were from low-income households in poor rural communities in 6 central Mexican states. Children (N = 650) 12 months of age or younger (n = 373 intervention group; n = 277 crossover intervention group) were included in the analyses.

Intervention Children and pregnant and lactating women in participating households received fortified nutrition supplements, and the families received nutrition education, health care, and cash transfers.

Main Outcome Measures Two-year height increments and anemia rates as measured by blood hemoglobin levels in participating children.

Results Progresa was associated with better growth in height among the poorest and younger infants. Age- and length-adjusted height was greater by 1.1 cm (26.4 cm in the intervention group vs 25.3 cm in the crossover intervention group) among infants younger than 6 months at baseline and who lived in the poorest households. After 1 year, mean hemoglobin values were higher in the intervention group (11.12 g/dL; 95% confidence interval [CI], 10.9-11.3 g/dL) than in the crossover intervention group (10.75 g/dL; 95% CI, 10.5-11.0 g/dL) who had not yet received the benefits of the intervention ($P = .01$). There were no differences in hemoglobin levels between the 2 groups at year 2 after both groups were receiving the intervention. The age-adjusted rate of anemia (hemoglobin level <11 g/dL) in 1999 was higher in the crossover intervention group than in the intervention group (54.9% vs 44.3%; $P = .03$), whereas in 2000 the difference was not significant (23.0% vs 25.8%, respectively; $P = .40$).

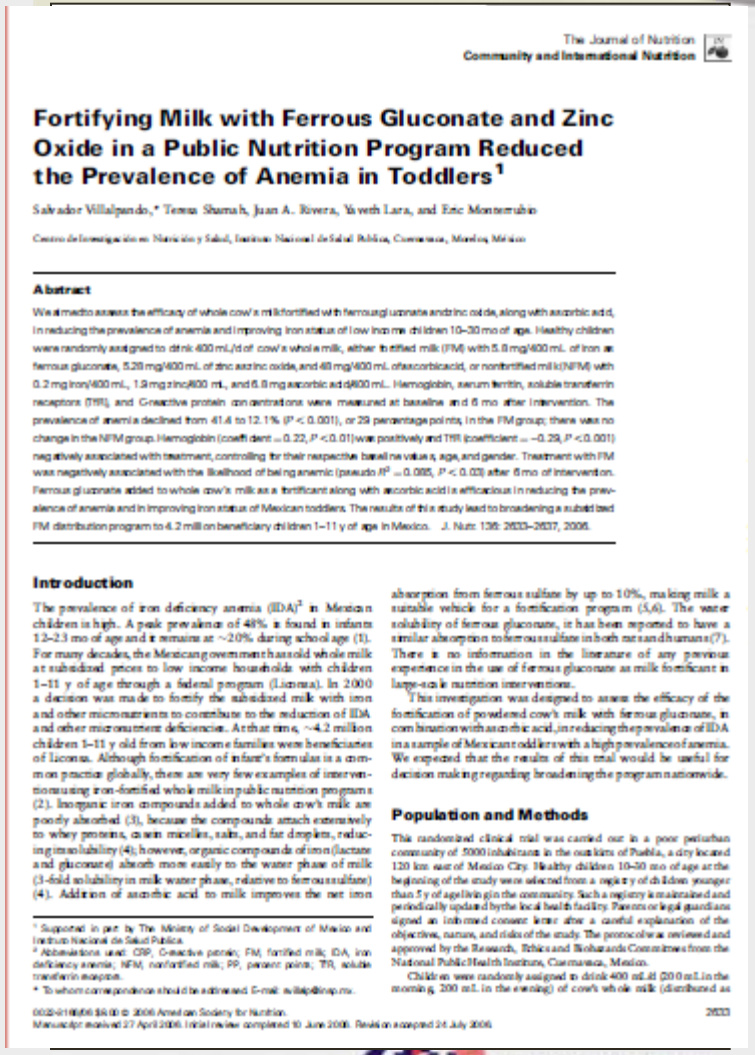
Conclusion Progresa, a large-scale, incentive-based development program with a nutritional intervention, is associated with better growth and lower rates of anemia in low-income, rural infants and children in Mexico.

JAMA. 2004;291:2563-2570 www.jama.com

MORE THAN HALF OF THE yearly 10.8 million deaths of children younger than 5 years are attributed to malnutrition,[1] as assessed by underweight (≤2 SDs below the weight expected for that age, according to the international reference recommended by the World Health Organization [WHO][2]). These deaths are not caused by higher frequency of common childhood diseases but by higher case fatality rates[3,4] and would not occur if the children were not malnourished. Malnourished children who survive have a high risk of impaired health and function throughout life, which contributes to the intergenerational continuation of poverty.[5] In developing countries more than one quarter of all children younger than 5 years, about 150 million total, are estimated to be malnourished.[6] Available nutritional interventions and technologies have proven, under controlled conditions, to be efficacious in preventing and controlling malnutri-

Fortification of Milk used in government programs

Fortificación: Leche LICONSA



The Journal of Nutrition
Community and International Nutrition

Fortifying Milk with Ferrous Gluconate and Zinc Oxide in a Public Nutrition Program Reduced the Prevalence of Anemia in Toddlers[1]

Salvador Villalpando,* Teresa Shamah, Juan A. Rivera, Yaweh Lara, and Eric Monterrubio

Centro de Investigación en Nutrición y Salud, Instituto Nacional de Salud Pública, Cuernavaca, Morelos, México

Abstract

We aimed to assess the efficacy of whole cow's milk fortified with ferrous gluconate and zinc oxide, along with ascorbic acid, in reducing the prevalence of anemia and improving iron status of low iron risk children 10–30 mo of age. Healthy children were randomly assigned to drink 400 mL/d of: cow's whole milk; either fortified milk (FM) with 5.8 mg/400 mL of iron as ferrous gluconate, 5.28 mg/400 mL of zinc as zinc oxide, and 48 mg/400 mL of ascorbic acid, or nonfortified milk (NFM) with 0.2 mg iron/400 mL, 1.9 mg zinc/400 mL, and 6.8 mg ascorbic acid/400 mL. Hemoglobin, serum ferritin, soluble transferrin receptors (TfR), and C-reactive protein concentrations were measured at baseline and 6 mo after intervention. The prevalence of anemia declined from 41.4 to 12.1% ($P < 0.001$), or 29 percentage points, in the FM group; there was no change in the NFM group. Hemoglobin (coefficient = 0.22, $P < 0.01$) was positively and TfR (coefficient = −0.29, $P < 0.001$) negatively associated with treatment, controlling for their respective baseline values, age, and gender. Treatment with FM was negatively associated with the likelihood of being anemic (pseudo $R^2 = 0.085$, $P < 0.03$) after 6 mo of intervention. Ferrous gluconate added to whole cow's milk as a fortificant along with ascorbic acid is efficacious in reducing the prevalence of anemia and in improving iron status of Mexican toddlers. The results of this study led to broadening a subsidized FM distribution program to 4.2 million beneficiary children 1–11 y of age in Mexico. J. Nutr. 136: 2633–2637, 2006.

Introduction

The prevalence of iron deficiency anemia (IDA)[2] in Mexican children is high. A peak prevalence of 48% is found in infants 12–23 mo of age and it remains at ~20% during school age (1). For many decades, the Mexican government has sold whole milk at subsidized prices to low income households with children 1–11 y of age through a federal program (Liconsa). In 2000 a decision was made to fortify the subsidized milk with iron and other micronutrients to contribute to the reduction of IDA and other micronutrient deficiencies. At that time, ~4.2 million children 1–11 y old from low income families were beneficiaries of Liconsa. Although fortification of infant's formulas is a common practice globally, there are very few examples of intervention using iron-fortified whole milk in public nutrition programs (2). Inorganic iron compounds added to whole cow's milk are poorly absorbed (3), because the compounds attach extensively to whey proteins, casein micelles, salts, and fat droplets, reducing iron solubility (4); however, organic compounds of iron (lactate and gluconate) absorb more easily to the water phase of milk (3-fold solubility in milk water phase, relative to ferrous sulfate) (4). Addition of ascorbic acid to milk improves the net iron absorption from ferrous sulfate by up to 10%, making milk a suitable vehicle for a fortification program (5,6). The water solubility of ferrous gluconate, it has been reported to have a similar absorption to ferrous sulfate in both rat and humans (7). There is no information in the literature of any previous experience in the use of ferrous gluconate as milk fortificant in large-scale nutrition interventions.

This investigation was designed to assess the efficacy of the fortification of powdered cow's milk with ferrous gluconate, in combination with ascorbic acid, in reducing the prevalence of IDA in a sample of Mexican toddlers with a high prevalence of anemia. We expected that the results of this trial would be useful for decision making regarding broadening the program nationwide.

Population and Methods

This randomized clinical trial was carried out in a poor periurban community of 5000 inhabitants in the outskirts of Puebla, a city located 120 km east of Mexico City. Healthy children 10–30 mo of age at the beginning of the study were selected from a registry of children younger than 5 y of age living in the community. Such a registry is maintained and periodically updated by the local health facility. Parents or legal guardians signed an informed consent letter after a careful explanation of the objectives, nature, and risks of the study. The protocol was reviewed and approved by the Research, Ethics and Biohazards Committees from the National Public Health Institute, Cuernavaca, Mexico.

Children were randomly assigned to drink 400 mL/d (200 mL in the morning, 200 mL in the evening) of cow's whole milk (distributed as

[1] Supported in part by The Ministry of Social Development of Mexico and Instituto Nacional de Salud Pública.
[2] Abbreviations used: CRP, C-reactive protein; FM, fortified milk; IDA, iron deficiency anemia; NFM, nonfortified milk; PP, percent points; TfR, soluble transferrin receptors.
* To whom correspondence should be addressed. E-mail: svillalp@insp.mx.

0022-3166/06 $8.00 © 2006 American Society for Nutrition.
Manuscript received 27 April 2006. Initial review completed 10 June 2006. Revision accepted 24 July 2006.

2633

Dengue control

SCIENTIFIC AMERICAN™

The Wipeout Gene [Preview]

A new breed of genetically modified mosquitoes carries a gene that cripples its own offspring. They could crush native mosquito populations and block the spread of disease. And they are already in the air—though that's been a secret

By Bijal P. Trivedi

Outside Tapachula, Chiapas, Mexico—10 miles from Guatemala. To reach the cages, we follow the main highway out of town, driving past soy, cocoa, banana and lustrous dark-green mango plantations thriving in the rich volcanic soil. Past the tiny village of Rio Florido the road degenerates into an undulating dirt tract. We bump along on waves of baked mud until we reach a security checkpoint, guard at the ready. A sign posted on the barbed wire–enclosed compound pictures a mosquito flanked by a man and woman: *Estos mosquitos genéticamente modificados requieren un manejo especial*, it reads. *We play by the*

Image: Photograph by David Liittschwager

Cervical cancer early detection program

Self-collection of vaginal specimens for human papillomavirus testing in cervical cancer prevention (MARCH): a community-based randomised controlled trial

Eduardo Lazcano-Ponce*, Attila Tibor Lorincz*, Aurelio Cruz-Valdez, Jorge Salmerón, Patricia Uribe, Eduardo Velasco-Mondragón, Pilar Hernandez Nevarez, Rodrigo Diaz Acosta, Mauricio Hernández-Avila

Lancet 2011; 378: 1868–73
Published Online November 2, 2011
DOI:10.1016/S0140-6736(11)61522-5

See Comment page 1829

*These authors contributed equally

Centro de Investigación en Salud Poblacional, Instituto Nacional de Salud Pública, Cuernavaca, Morelos, Mexico (Prof E Lazcano-Ponce PhD, Prof A Cruz-Valdez PhD, P Hernandez Nevarez MPH, Prof R Diaz Acosta PhD); Centre for Cancer Prevention, Wolfson Institute of Preventive Medicine, Barts and The London School of Medicine, Queen Mary University of London, London, UK (Prof A T Lorincz PhD); Unidad de Investigación Epidemiológica y en Servicios de Salud, Instituto Mexicano del Seguro Social, Cuernavaca, Morelos, Mexico (J Salmerón PhD); Centro Nacional de Equidad y Género (P Uribe M D) and Subsecretaría de Prevención y Promoción de la Salud (M Hernández-Avila PhD) Secretaría de Salud, Mexico city DF; and Morgan State University School of

Summary

Background Vaginal self-sampling for human papillomavirus (HPV) DNA testing could increase rates of screening participation. In clinic-based settings, vaginal HPV testing is at least as sensitive as cytology for detecting cervical intraepithelial neoplasia (CIN) grade 2 or worse; however, effectiveness in home settings is unknown. We aimed to establish the relative sensitivity and positive predictive value for HPV screening of vaginal samples self-collected at home as compared with clinic-based cervical cytology.

Methods We did a community-based, randomised equivalence trial in Mexican women of low socioeconomic status aged 25–65 years. Participants came from 540 medically underserved, predominantly rural communities in Morelos, Guerrero, and the state of Mexico. Our primary endpoint was CIN 2 or worse, detected by colposcopy. We used a computer-generated randomisation sequence to randomly allocate patients to HPV screening or cervical cytology. Eight community nurses who were masked to patient allocation received daily lists of the women's names and addresses, and did the assigned home visits. We referred women with positive results in either test to colposcopy. We did per-protocol and intention-to-screen analyses. This trial was registered with the Instituto Nacional de Salud Pública, Mexico, INSP number 590.

Findings 12 330 women were randomly allocated to HPV screening and 12 731 to cervical cytology; 9202 women in the HPV screening group adhered to the protocol, as did 11 054 in the cervical cytology group. HPV prevalence was 9·8% (95% CI 9·1–10·4) and abnormal cytology rate was 0·38% (0·23–0·45). HPV testing identified 117·4 women with CIN 2 or worse per 10 000 (95·2–139·5) compared with 34·4 women with CIN 2 or worse per 10 000 (23·4–45·3) identified by cytology; the relative sensitivity of HPV testing was 3·4 times greater (2·4–4·9). Similarly, HPV testing detected 4·2 times (1·9–9·2) more invasive cancers than did cytology (30·4 per 10 000 [19·1–41·7] *vs* 7·2 per 10 000 [2·2–12·3]). The positive predictive value of HPV testing for CIN 2 or worse was 12·2% (9·9–14·5) compared with 90·5% (61·7–100) for cytology.

Interpretation Despite the much lower positive predictive value for HPV testing of self-collected vaginal specimens compared with cytology, such testing might be preferred for detecting CIN 2 or worse in low-resource settings where restricted infrastructure reduces the effectiveness of cytology screening programmes. Because women at these sites will be screened only a few times in their lives, the high sensitivity of a HPV screen is of paramount importance.

Funding Instituto Nacional de Salud Pública, the Health Ministry of Mexico, QiAGEN Corp

Introduction

Diabetes cost..

"Costs, quality of care and financial consequences from diabetes in México: Implications to the Health System and to Patients."

Armando Arredondo, MD, MSC, PHD*
Esteban de Icaza, MD, MPH, PHD**
Emanuel Orozco, MSC*
Eliana Solorzano ***

* Senior Researcher, National Institute of Public Health
**Associated Researcher, National Institute of Public Health
***Assistant Researcher, National Institute of Public Health.

Correspondence to Armando Arredondo, National Institute of Public Health, Av Universidad 655, Col Sta Maria, Cuernavaca, Morelos, CP 62508, México. E-mail: armando.arredondo@insp.mx

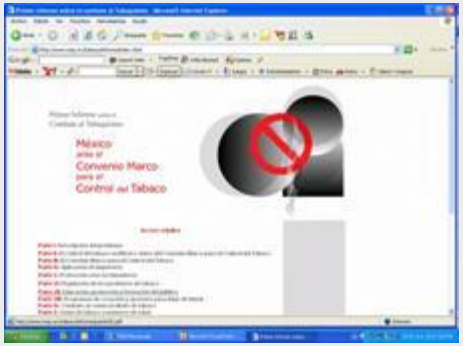
OBJECTIVE: To identify the costs controlling by quality of care and economic consequences of expected demand for health care services for diabetes in México.

RESEARCH DESIGN AND METHODS: As part of the methodology, we used the Kessner criteria and cost technology by instrumentation, through the case management cost methodology, we defined the functions of production, as well as inputs and unitary costs required to meet the demand for medical services for the management of diabetes at major health institutions in Mexico. For the estimation of epidemiological transition, we developed several probabilistic models under the Box-Jenkins technique for the period of time 2010-2012. The study population included a major public sector institutions and the private health system in Mexico. The financial requirements were obtained from case management costs expected by disease and the application of an econometric adjustment factor to control effects of inflation during periods of interest for the year of reference that was 2011. The cost evaluation method to estimate direct and indirect costs was based on instrumentation and consensus techniques. To estimate the costs and epidemiological changes for 2010-2012, three probabilistic models were constructed according to the Box-Jenkins technique.

Tobaco Research Publications

The Response: Scientific Evidence

GYTS 2003-2012 Reports



1st REPORT ON TOBACCO CONTROL IN MEXICO

Monthly Bulletins

Tobacco supplements 2004 - 20

Salud Pública de México

II. EDUCATION

Through its Academic Degree Programs,

The INSP prepares professionals in public health

Masters in Public Health

- Epidemiology
- Biostatistics
- Environmental Research
- Health Administration
- Social and Behavioral Sciences
- Nutrition
- Vector-borne Diseases
- Infectious Diseases
- Malariology
- Ageing
- Vaccinology

Residence in Public Health and Preventative Medicine

Specialization in Health Promotion

Doctorate in Public Health

Masters in Clinical Nutrition

The INSP prepares researchers

Master in Sciences

- Epidemiology
  - Clinical Research
  - Environmental Health
  - Sexual and Reproductive Health
- Biostatistics
- Environmental Health
- Reproductive Health
- Health Systems (IMSS)
- Health Economics
- Infectious Diseases
- Vector-Borne Diseases
- Nutrition

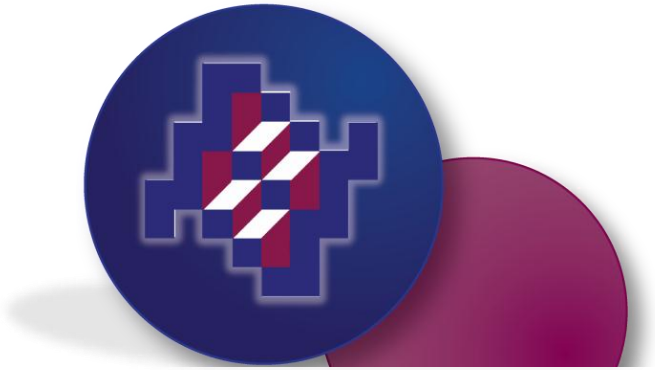
Doctorate Sciences in Public Health

- ✓Epidemiology
- ✓Health Systems
- ✓Infectious Diseases

Doctorate in Population Nutrition

Doctorate in Environmental Health

Instituto Nacional de Salud Pública



III. SERVICES

Services

- ✓ **INSP provides support to public health agencies to improve their performance**

- ✓ **Two service centers:**

  Evaluation and Surveys Research Center

  Information for Public Health Decisions Research Center

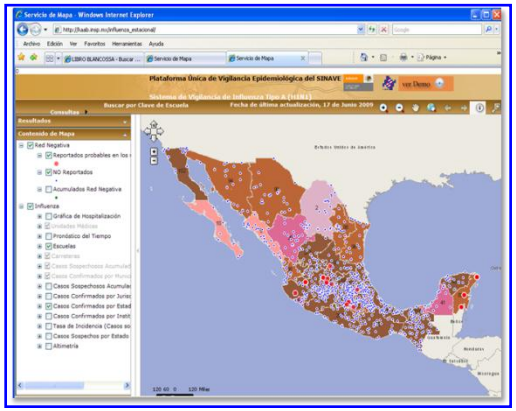
Geographic Information System (GIS) and technology platforms for national surveillance procedures

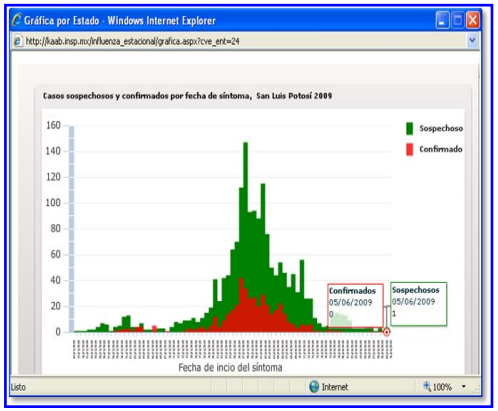
✓ **Dengue Prevention and Control**

In 13 dengue-endemic states: Guanajuato, Jalisco, Colima, Guerrero, Q. Roo, Yucatán, Nuevo León, Sinaloa, Baja California Sur, Nayarit, Sonora, Tamaulipas and Morelos.

✓ **Influenza A H1N1 case notification for medical institutions in all Mexican states**

The resulting centralized repository for geo-referenced data supports public health research and decision making nationwide.





Participation in Government Health Programs and Public Policy

Effectiveness of *Liconsa* milk

Oportunidades

***Oportunidades*, a human development program**

National Crusade for Quality in Health Services

Fair Start in Life Program

Salud Seguro Popular

Social Health Protection System (*Seguro Popular*)

Cervical Cancer Detection Programme

Vivir Mejor – government health promotion campaign

Instituto Nacional de Salud Pública

Tobacco Department

LACOT

Analytical Lab for Tobacco :

Nicotine and cotinine + other

Gas chromatography to determine:

- ✓ **Environmental nicotine**
- ✓ **Nicotine and cotinine in biological samples: urine, blood and saliva**

National Reference Center for Human Papilloma Virus (HPV)

- Human Papilloma Virus Laboratory
- Characterization of 85,000 samples from Mexican males and females in the last 3 years





Salud Pública de México
(Public Health of Mexico)

- International bilingual Scientific Journal
- 50 years of uninterrupted publication
- Included in the international indexes
  - Current Contents
  - Index Medicus
  - Scielo Salud Pública
- 25 special issues since 1992 covering relevant public health topics
  - Nutrition
  - Tobacco Use
  - Osteoporosis
  - Breast Cancer
  - Intellectual Disabilities
  - Genomics and Proteomics

Instituto Nacional de Salud Pública

Global Health

- ✓ Latin American Alliance for Global Health
- ✓ Mesoamerican Institute of Public Health
- ✓ Mesoamerican Project for Research and Development

INSTITUTO MESOAMERICANO de Salud Pública

PROYECTO Integración y Desarrollo MESOAMÉRICA

Thank you

Dr. Mauricio Hernandez-Ávila

Director General

Dean

INSP

Visit our website:

www.insp.mx