



HEALTHY BORDER 2010

**AN AGENDA FOR IMPROVING HEALTH ON
THE UNITED STATES-MEXICO BORDER**

Executive Summary



The United States-Mexico Border Health Commission (USMBHC or Commission) is a binational organization dedicated to addressing the pervasive health needs of the U.S.-Mexico border.

The mission of the United States-Mexico Border Health Commission is:

To provide international leadership to optimize health and quality of life along the United States-Mexico Border.

The Commission is comprised of the federal secretaries of health of both nations and the chief health officials and community health professionals from the ten border states. The USMBHC operates in a binational manner, respecting each nation's culture, traditions and sovereignty. The Commission strives to create consensus between the two countries, and to build partnerships among the border states in a binational framework to improve the health of border residents and enhance the health and quality of life on the border.

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Executive Summary

The Healthy Border Program was established as the United States-Mexico Border Health Commission's binational agenda of health promotion and disease prevention in March of 2001. The program is based on the framework of Healthy People 2010 and incorporates the United States Healthy *Gente* Program and Mexico's *Indicadores de Resultado* (National Health Indicators). The framework of Healthy Border 2010 is composed of 20 health objectives held in 11 focus areas.

With the border populations and the environmental conditions of each country being similar to each other, similarities in priority health issues also exist. Eight of the top ten causes of death are the same in both countries: cardiovascular disease, cancer, unintentional injuries, diabetes mellitus, cerebrovascular disease, chronic obstructive pulmonary disease (COPD), pneumonia and influenza combined, and chronic liver disease and cirrhosis. The border regions of both countries also have high rates of certain infectious diseases. Tuberculosis and water and food-borne illnesses are the primary infectious diseases of public health significance on the border.

The shared health conditions and the similarities in health issues are two strong reasons for the need for a bi-lateral health agenda for this region. In addition, significant cross-border traffic of upwards of 1.1 million crossings per day underlines the importance of combined border health strategies for this region.

The 20 common indicators included in the Healthy Border 2010 Program are grouped into 11 areas, each with a specific set of objectives. The objectives are deliberately limited to a small number of variables for which data are currently available or are expected to be available in the near future. Proposed future focus themes include cardiovascular disease, tobacco use, substance abuse, gastrointestinal disease, nutrition and obesity, physical activity, and bioterrorism preparedness. The areas and their respective objectives comprise:

- **Access to Care** – ensure access to primary care or basic health care services;
- **Cancer** – reduce breast cancer and cervical cancer mortality;
- **Diabetes Mellitus** – reduce both the mortality rate of diabetes and the need for hospitalization;
- **Environmental Health** – improve household access to sewage disposal and reduce hospital admissions for acute pesticide poisoning;
- **HIV/AIDS** – reduce the number of cases of HIV/AIDS;
- **Immunization and Infectious Diseases** – expand immunization coverage for young children, as well as reduce the incidence of hepatitis and tuberculosis;
- **Injury Prevention** – reduce mortality from motor vehicle crashes as well as childhood mortality from injuries;
- **Maternal, Infant and Child Health** – reduce overall infant mortality as well as infant deaths due to congenital defects, improve prenatal care and reduce teenage pregnancy rates;
- **Mental Health** – reduce suicide mortality;
- **Oral Health** – improve access to oral health care; and
- **Respiratory Diseases** – reduce the rate of hospitalization for asthma.

Healthy Border 2010: An Agenda for Improving Health in the United States-Mexico Border is the first report of the Healthy Border Program. It is considered a “living document” that will be enhanced by companion documents that will focus on health statistics for the border, continued development of the initiative, and specific efforts to address the issues and the evaluation of those efforts.

Process Description and Next Steps

The publication of *Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border* is an initial step toward the development of a bilateral strategic plan focused on health promotion and disease prevention. In April 2003 the USMBHC established a new standing committee, the Healthy Border (HB) Committee, to monitor, evaluate, and track the progress and targets of the Healthy Border Program. The HB Committee has held two binational meetings since its inception. In its first meeting, the HB Committee selected the completion of this document as its priority. The Committee determined that a binational process including health data specialists from the federal levels and the states would be key to achieving the goal. A binational meeting of these health data specialists took place on July 7 and 8, 2003. The outcome of the meeting was agreement on the indicators that each side (Mexico and U.S.) needed to address. The binational group also developed a timeline determined to be feasible for both parties.

The publication of this document marks an important milestone for the Healthy Border Program. The document illustrates a binational effort to determine baseline data for 20 priority health indicators and to establish year 2010 targets for each of the countries. The set of health indicators will assist in the prioritization of health issues and the design of health programs to address the issues. The availability of baseline data and targets will also assist in tracking outcomes and in program evaluation. The Healthy Border objectives will help focus health improvement activities on both sides of the border, guide the allocation of health resources and promote binational health projects.

Despite the delay in producing this document, contributions to Healthy Border 2010 have not been postponed. A broad network of Healthy Border partners has undertaken planning and implementation of activities since the program's inception. On both sides of the border, many contributions to Healthy Border 2010 have been made by border communities, local-level health departments, and state-led and federal level efforts in partnership with the United States-Mexico Border Health Commission. Activities of the Commission Outreach Offices from the United States and Mexico's Regional Offices have been conducted through work plans developed in coordination with the Commission Members as well as the Offices of Border Health located in each of the state health departments, Mexico's Secretaries of Health, and the Mexican states' border epidemiologists. The Commission's federal-level network of partners has also been instrumental in the development and sustainability of the program.

Armed with baseline data to accompany the targets that had already been established, the Healthy Border Program is presently focused on:

Capacity-building for Healthy Border teams – Simultaneous development of the capacity of the Healthy Border teams is equally important. A series of training and continuing education opportunities are being planned. Workshops that are currently being planned include: development of health promotion strategies, introduction to health data, and development of work plans.

Expansion of partnerships – Partnerships at all levels – binational, federal, state, community level – are fundamental to the success of the program.

Continued identification of best practices – The Commission's Border Models of Excellence (BMOE) is one avenue for identifying programs that have demonstrated effective strategies focused on border health. In its first phase, the binational initiative identified 16 model programs that utilize a community health worker/promotora model. The ultimate goal of replication of these models is in its beginning stages.

Under consideration are conducting progress reviews and focusing on the elimination of health disparities:

Interim Progress Reviews – As a component of ongoing evaluation, regularly scheduled reviews of each of the topic areas are being considered. These review sessions could encompass an assessment of the latest monitoring information followed by a discussion of the issues by topic area experts. Firm establishment of an ongoing process of reviews would help ensure that a final review takes place in 2012. Furthermore, participants could play a pivotal role in the identification of data for the development objectives as well as identification of new focus themes.

Eliminating health disparities – One of the program's overarching goals is the elimination of health disparities. The scope of this initial Healthy Border document is limited to data representing the general population that resides within the geographic region of the United States-Mexico border. Future efforts will begin to focus on the unequal burden of disease as related to different and specific groups of people. Data that represent specific groups of people – defined by race, ethnicity, or gender, for example – will assist policymakers and planners to more effectively address the health issues of these and other populations.

As the Commission's binational agenda of health promotion and disease prevention, the Healthy Border Program is the foundation for developing bilateral, border-wide and community-level health improvement plans for the U.S.-Mexico border. Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border is the instrument for monitoring and documenting progress toward attaining the program's health objectives and indicators. The challenges and successes will be shared.

Healthy Border 2010 Topic Areas and Objectives

TOPIC AREA	YEAR 2010 OBJECTIVES *	
	MEXICO	UNITED STATES
Access to Care	Maintain at fewer than 5% of the population lacking access to basic health services.	Reduce by 25% the population lacking access to a primary health provider.
Cancer	Reduce female breast cancer death rate by 20%.	Reduce female breast cancer death rate by 20%.
	Reduce cervical cancer death rate by 20%.	Reduce cervical cancer death rate by 30%.
Diabetes Mellitus	Reduce deaths due to diabetes by 10%.	Reduce deaths by due to diabetes by 10%.
	Keep hospitalization rate stable.	Reduce hospitalizations by 25%.
Environmental Health	Reduce the proportion of households not connected to compliant public sewage systems or septic tanks.	Reduce to zero the proportion of households without complete bathroom facilities.
	Maintain hospital admission rate for acute pesticide poisoning.	Reduce number of hospital admissions for acute pesticide poisoning by 25%.
HIV / AIDS	Keep HIV ⁺ incidence rate stable at current 3.1 per 100,000.	Reduce HIV ⁺ incidence rate by 50% from 8.4 to 4.2 per 100,000.
Immunization and Infectious Diseases	Maintain current immunization coverage of 95% for children age under 1 year and 1-4.	Raise immunization coverage rate for children 19-35 months to 90%.
	Reduce incidence of all forms of hepatitis by 50%.	Reduce the incidence rate for hepatitis A by 50%.
	Reduce incidence rate for tuberculosis by 10%.	Reduce the incidence rate for hepatitis B by 50%.
Injury Prevention	Reduce incidence rate for tuberculosis by 10%.	Reduce incidence rate for tuberculosis by 50%.
	Reduce motor vehicle crash death rate by 20%.	Reduce motor vehicle crash death rate by 25%.
Maternal, Infant and Child Health	Reduce childhood death rate due to unintentional injuries by 50%.	Reduce childhood death rate due to unintentional injuries by 30%.
	Reduce infant mortality rate by 50%.	Reduce infant mortality by 15%.
	Reduce infant deaths from congenital abnormalities by 50%.	Reduce infant mortality from congenital abnormalities by 30%.
	Increase percent of mothers getting prenatal care in first and second trimesters to 70%.	Increase proportion of mothers getting prenatal care in first trimester to 85%.
Mental Health	Reduce pregnancy rate in adolescence 10-19 years old by 20%.	Reduce pregnancy rate in adolescence 15-17 years old by 33%.
	Reduce suicide mortality rate by 25%.	Reduce suicide mortality rate by 15%.
Oral Health	Ensure that 25% of the population uses oral health services annually.	Increase proportion of the population using oral health services to 75% per year.
Respiratory Diseases	Maintain asthma hospitalization rate.	Reduce asthma hospitalization rate by 40%.



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along the United States-Mexico Border"

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OCTOBER 2003



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Contents

Message from the Commission Members	i
Acknowledgments.....	ii
Commission Members	iv
Foreword	v
Executive Summary	vii
 CHAPTER 1 – Introduction	 1
• Development of the Healthy Border 2010 Program.....	1
• Healthy Border 2010 Goals and Objectives	2
 CHAPTER 2 - Background	 5
 CHAPTER 3 - A Demographic and Health Profile of the United States-Mexico Border	 8
• Population	9
• Health Status.....	12
Mortality	13
Morbidity	16
 CHAPTER 4 - Healthy Border 2010 Objectives.....	 19
• Access to Care	20
• Cancer	22
• Diabetes.....	24
• Environmental Health.....	27
• HIV/AIDS	29
• Immunization and Infectious Disease	31
• Injury Prevention	34
• Maternal, Infant and Child Health	36
• Mental Health	38
• Oral Health.....	40
• Respiratory Diseases	42

CHAPTER 5 – Process Description and Next Steps	46
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APPENDICES

<i>Appendix 1: Glossary and Bibliography.....</i>	<i>48</i>
<i>Appendix 2: Healthy Border 2010 Topic Areas and Objectives.....</i>	<i>64</i>
<i>Appendix 3: Remaining Indicators</i>	<i>66</i>
<i>United States Healthy "Gente" Program</i>	<i>67</i>
<i>Mexican "Indicadores de Resultado" Program.....</i>	<i>68</i>
<i>Appendix 4: Map of the United States-Mexico Border.....</i>	<i>70</i>
<i>Appendix 5: Counties and Municipios of the United States-Mexico Border Region</i>	<i>72</i>

Message from Commission Members

On behalf of the United States-Mexico Border Health Commission (the Commission), we are pleased to present the Healthy Border Program-*Programa Frontera Saludable*.

Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border is the first report of the U.S.-Mexico Border Health Commission's Healthy Border Program. The report outlines a 10-year bilateral agenda for the Healthy Border Program, providing year 2000 baseline data and year 2010 targets. The agenda is referred to as Healthy Border 2010.

The Healthy Border Program establishes 10-year objectives for binational health promotion and disease prevention in the border region. It is the first binational program that embraces common health elements from the United States and Mexico. From the United States it draws on the 1998 Healthy *Gente* Program, which provides health objectives for the United States region that borders Mexico and uses the framework of Healthy People. From Mexico it draws on the National Health Indicators (*Indicadores de Resultado*) Program, which tracks health measures at Mexico's national, state, and local levels.

As an agenda for improving health on the border, the program has two overarching goals:

- Increase and improve the quality of life and years of healthy life
- Eliminate health disparities

Reaching these goals will require a collaborative effort that is inclusive of diverse participants on the U.S.-Mexico border as well as the many allies residing outside of the border region.

Through this program, the Commission and its partners will identify and prioritize health issues, support and design public health programs that are unique for the border, and track progress toward the goals and objectives. The Healthy Border Program will also serve to promote cross-border collaboration.

We salute your collective commitment and leadership and call on you to work jointly to forge a healthier and more equitable U.S.-Mexico border.

Commission Members

Acknowledgements

Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border is the first report of the U.S.-Mexico Border Health Commission's Healthy Border Program. Many individuals have contributed to the preparation of this publication. For the United States, the report writing and coordination of statistical input were the responsibility of Francis (Sam) Notzon, Ph.D., National Center for Health Statistics, Centers for Disease Control and Prevention, and Juan Albertorio Diaz, who provided statistical assistance, and the Border Governors Health Table Technical Workgroup (U.S. Section) representing the four border states and composed of Dr. Hugo Vilchis-Licón, New Mexico Border Health Office-Border Epidemiology & Environmental Health Center, Arlette Ponder, Texas Department of Health Office of Border Health, Dr. Cecilia Rosales, Arizona Department of Health Services, Office of Border Health, and Dr. Alfonso Rodriguez, California Office of Binational Border Health. Mr. Jacob Nevarez of the New Mexico Outreach Office worked in the final stages of this document. Richard Walling, Rear Admiral, Director of Office of the Americas and Middle East, Office of Global Health Affairs, United States Department of Health and Human Services, reviewed drafts of the report and provided feedback and suggestions. The coordination of this publication was the responsibility of Eva M. Moya, Executive Director for the United States Section, Dina Ortiz, Healthy Border Manager, and Norma Sáenz.

For Mexico, the initial report writing and statistical input was the responsibility of Sonia Fernandez from the *Secretaría de Salud*, the report writing and coordination of statistical input were the responsibility of Dr. Luis Anaya, *Dirección General de Epidemiología, Secretaría de Salud* and the Technical Advisory Workgroup representing the six border states and composed of Dr. Laura Morales, Dr. Javier Arias Ortiz, Dr. Enrique Navarro, Dr. Alberto Montoya Flores, Dr. Ángeles Mata Briceño, Dr. Francisco López Leal. The coordination of this publication was the responsibility of Fernando Sepúlveda, Executive Secretary of the Mexican Section, with the assistance of Dr. Eva Margarita Solórzano, Healthy Border Manager, and Dr. Salvador Gómez, who participated in its preparation. Dr. Oscar Velasquez and Dr. Pablo Kuri from Mexico's *Secretaría de Salud* revised the drafts of the report and made substantial improvements.

This report is a synthesis of much of the previous work which was done to define the initial list of objectives by Dr. Cecilia Rosales and Dr. Luis Ortega of Arizona, Dr. Alvaro Garza and Dr. Steve Waterman of California, Mr. Dan Reyna and Dr. Hugo Vilchis-Licón of New Mexico, and Dr. Ronald J. (RJ) Dutton of Texas, for the United States. For Mexico, this initial work was conducted by Dr. Rembrandt Reyes and Dr. Jorge Sebastian Hernández of Tamaulipas, Dr. Nancy Fernández of Nuevo León, Dr. Marco Antonio Ruiz and Dr. Gustavo Contreras of Coahuila, Dr. Javier Arias of Chihuahua, Dr. René Navarro of Sonora, and Dr. Rolando Ortiz of Baja California. Mexico's *Indicadores de Resultado* were elaborated by the *Secretaría de Salud*, under the coordination of Dr. Jaime Sepúlveda, *Director General del Instituto Nacional de Salud Pública* and Dr. Roberto Tapia, *Subsecretario de Prevención y Protección de la Salud*.

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The United States-Mexico Border Health Commission wholeheartedly commends the many individuals who contributed to this report. The Commission challenges us to work together toward the achievement of the Healthy Border 2010 objectives and to carry out this important vision.

Foreword

Much progress has been witnessed in public health and medicine on the United States-Mexico border. The targets set by *Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border* reflect the scientific advances that can take place in the next seven years in preventive medicine, disease surveillance, and information technology. The agenda will also mirror the changing demographics of the United States-Mexico Border region as affected by socio-economics and the political spectrum.

The two over-arching goals of Healthy Border run parallel with those of Healthy People 2010:

- To improve the quality of life and increase the number of years of healthy life;
- To eliminate health disparities

The purpose of this report is to provide an overview of a specific set of health indicators on the U.S.-Mexico border. Although one of the program's overarching goals is the elimination of health disparities, the scope of this initial Healthy Border document is limited to data representing the general population that resides within the geographic region of the United States-Mexico border [an area defined as 100 kilometers (62 miles) north and south of the United States-Mexico border and close to 2000 miles in length]. Subsequent reports may focus on the unequal burden of disease as related to different and specific groups of people. Data that represent specific groups of people -- defined by race, ethnicity, or gender, for example -- will assist policymakers and planners to more effectively address the health issues of these and other populations.

Healthy Border 2010 incorporates input from a broad cross-section of people from the United States-Mexico border as well as allies of border health. Scientific experts from the United States' National Center for Health Statistics, Centers for Disease Control and Prevention, as well as from the border health offices housed within each of the border states' departments of health, and Mexico's *Dirección General de Epidemiología* and epidemiologists from the border states' *Secretaría de Salud*, worked in partnership to finalize this document.

For the first time in the United States-Mexico border region, a set of leading health indicators will help individuals, organizations and communities prioritize the issues and design community health programs that are unique for the border region. The health indicators will also assist communities in tracking the success and progress of their actions.

Contributions to Healthy Border 2010 have already been made by border communities, local-level health departments, and state-led and federal level efforts in partnership with the United States-Mexico Border Health Commission. The Commission is positioned to continue providing leadership in the development of binational strategies.

The delays in producing this document point to other challenges that lie on the U.S.-Mexico border and in the binational health arena. Practitioners of public health and policy-makers are urged to consider the deficiencies in public health infrastructure and in the channels

that currently exist for working toward binational solutions. Although objectives pertaining to health data systems are not contained within the Healthy Border 2010 agenda, the importance of this element of public health infrastructure is not overlooked. Statisticians and epidemiologists as well as program planners need access to current information in order to develop recommendations for community health improvement in a timely manner.

Executive Summary

The Healthy Border Program was established as the United States-Mexico Border Health Commission's binational agenda of health promotion and disease prevention in March of 2001. The program is based on the framework of Healthy People 2010 and incorporates the United States Healthy *Gente* Program and Mexico's *Indicadores de Resultado* (National Health Indicators). The framework of Healthy Border 2010 is composed of 20 health objectives held in 11 focus areas.

With the border populations and the environmental conditions of each country being similar to each other, similarities in priority health issues also exist. Eight of the top ten causes of death are the same in both countries: cardiovascular disease, cancer, unintentional injuries, diabetes mellitus, cerebrovascular disease, chronic obstructive pulmonary disease (COPD), pneumonia and influenza combined, and chronic liver disease and cirrhosis. The border regions of both countries also have high rates of certain infectious diseases. Tuberculosis and water and food-borne illnesses are the primary infectious diseases of public health significance on the border.

The shared health conditions and the similarities in health issues are two strong reasons for the need for a bi-lateral health agenda for this region. In addition, significant cross-border traffic of upwards of 1.1 million crossings per day underlines the importance of combined border health strategies for this region.

The 20 common indicators included in the Healthy Border 2010 Program are grouped into 11 areas, each with a specific set of objectives. The objectives are deliberately limited to a small number of variables for which data are currently available or are expected to be available in the near future. Proposed future focus themes include cardiovascular disease, tobacco use, substance abuse, gastrointestinal disease, nutrition and obesity, physical activity, and bioterrorism preparedness. The areas and their respective objectives comprise:

- **Access to Health Care** – ensure access to primary care or basic health care services;
- **Cancer** – reduce breast cancer and cervical cancer mortality;
- **Diabetes** – reduce both the mortality rate of diabetes and the need for hospitalization;
- **Environmental Health** – improve household access to sewage disposal and reduce hospital admissions for acute pesticide poisoning;
- **HIV/AIDS** - reduce the number of cases of HIV/AIDS;
- **Immunization and Infectious Diseases** – expand immunization coverage for young children, as well as reduce the incidence of hepatitis and tuberculosis;
- **Injury Prevention** – reduce mortality from motor vehicle crashes as well as childhood mortality from injuries;
- **Maternal, Infant and Child Health** – reduce overall infant mortality as well as infant deaths due to congenital defects, improve prenatal care and reduce teenage pregnancy rates;
- **Mental Health** – reduce suicide mortality;
- **Oral Health** – improve access to oral health care; and
- **Respiratory Diseases** – reduce the rate of hospitalization for asthma.

Healthy Border 2010: An Agenda for Improving Health in the United States-Mexico Border is the first report of the Healthy Border Program. It is considered a “living document” that will be enhanced by companion documents that will focus on health statistics for the border, continued development of the initiative, and specific efforts to address the issues and the evaluation of those efforts. We invite you to use this document and provide us your feedback.

Chapter 1

Introduction

The Healthy Border Program aims to improve health in the United States-Mexico border region, an area defined as 100 kilometers (62 miles) north and south of the United States-Mexico border and close to 2000 miles in length. This area includes 80 *municipios* in 6 Mexican states and 48 counties in 4 U.S. states that form the border between Mexico and the United States. For the purposes of this program however, the U.S. data are limited to 44 border counties, excluding Maricopa, Pinal, and La Paz counties in Arizona and Riverside county in California.

The Healthy Border Program establishes 10-year objectives for binational health promotion and disease prevention in the border region. Healthy Border is a binational program that embraces common elements of health programs in both the United States and Mexico. From the United States it draws on the 1998 Healthy *Gente* Program (*Gente* is the Spanish word for *people*), which provides health objectives for the United States region that borders Mexico and is designed to be compatible with the United States Healthy People 2010 program. From Mexico it draws on the National Health Indicators (*Indicadores de Resultado*) Program, which tracks health measures at the national, state and local levels in Mexico.

Development of the Healthy Border Program

The Healthy Border Program was established as the U.S.-Mexico Border Health Commission's binational agenda of health promotion and disease prevention during the Commission's second meeting in March of 2001. Healthy Border establishes a set of health objectives for the U.S.-Mexico border region. The program also serves as a basis for the development of bilateral, border-wide and community-level health improvement plans.

The Healthy Border Program is composed of the common elements from Mexico's National Health Indicators and the United States Healthy *Gente* objectives. Out of the 46 Mexican health indicators and the 25 United States Healthy *Gente* objectives there are 20 common measures. These represent priority areas for action on health issues in the border region. Reflecting the selection criteria used for the Healthy *Gente* Program and Mexico's National Health Indicators Program, the objectives are deliberately limited to a relatively small number of variables for which data are currently available or are expected to be available in the near future. These objectives will help focus health improvement activities on both sides of the border, guide the allocation of health resources and promote binational health projects.

Because of national differences in areas such as the organization of health care systems and data availability, Healthy Border does not attempt to impose identical objectives on both sides of the border. Instead, the program objectives are topic areas for health improvement in the border regions of both countries. The specific objectives, as well as the targets for the year, are defined by each country or state and local entities and differ, to at least some extent, for most objectives. In addition, given the many differences in data definitions, information collection systems and other factors that may affect data in the United States and Mexico, any comparison between measures for both countries should be made with great care.

Implementation of the Healthy Border Program will almost certainly differ between the United States and Mexico, because state and local health authorities in each nation will be responsible for designing and implementing their own programs. However, the Commission will also encourage binational activities, especially those established in sister communities along the border. Ideally, these cross-border activities will attract partners such as non-governmental organizations, the private sector, and international organizations. The existing infrastructure for binational cooperation, which includes the Binational Health Councils, is ideal for use in community-level planning and implementation.

Healthy Border 2010 Goals and Objectives

The overarching goals of the Healthy Border Program are:

- 1. Improve the quality and increase the years of healthy life, and**
- 2. Eliminate health disparities**

The twenty Healthy Border 2010 objectives fall into eleven principal areas with their specific objectives as follows:

1. Improve access to primary health care

Mexico:

- Maintain at fewer than 5 percent of the population lacking access to basic health services

United States:

- Reduce by 25 percent the population lacking access to a primary care provider

2. Reduce cancer mortality in women through improved screening for breast and cervical cancers

Mexico:

- Reduce female breast cancer death rate by 20 percent
- Reduce cervical cancer death rate by 20 percent

United States:

- Reduce female breast cancer death rate by 20 percent
- Reduce cervical cancer death rate by 30 percent

3. Reduce morbidity and mortality from diabetes mellitus

Mexico:

- Reduce deaths due to diabetes by 10 percent
- Keep hospitalization rate stable at no more than 25.6/100,000 (Year 2000 level)

United States:

- Reduce deaths due to diabetes by 10 percent
- Reduce hospitalizations by 25 percent

4. Improve water quality through improved sanitation and reduce amount of acute pesticide poisoning

Mexico:

- Reduce the proportion of households not connected to compliant public sewage systems or septic tanks to less than 21.3 percent.
- Maintain hospital admission rate for acute pesticide poisoning at 0.1/100,000 (Year 2000 level)

United States:

- Reduce to zero the proportion of households without complete bathroom facilities
- Reduce number of hospital admissions for acute pesticide poisoning by 25 percent

5. Reduce transmission of HIV

Mexico:

- Maintain HIV incidence at 3.1/100,000 (2000 level)

United States:

- Reduce incidence of diagnosed HIV by 50 percent

6. Improve rates of immunization and reduce rates of infectious diseases

Mexico:

- Maintain current immunization coverage of 95 percent for children age under 1 year and 1-4 years
- Reduce incidence of all forms of hepatitis by 50 percent
- Reduce incidence of tuberculosis by 10 percent

United States:

- Achieve/maintain 90 percent immunization coverage in children aged 19-35 months
- Reduce incidence of hepatitis A by 50 percent and of hepatitis B by 50 percent
- Reduce incidence of tuberculosis by 50 percent

7. Reduce mortality from unintentional injuries

Mexico:

- Reduce motor vehicle crash death rate by 20 percent
- Reduce childhood death rate due to unintentional injuries by 50 percent

United States:

- Reduce motor vehicle crash death rate by 25 percent
- Reduce childhood death rate due to unintentional injuries by 30 percent

8. Reduce infant mortality and increase the number of women receiving prenatal care

Mexico:

- Reduce infant mortality rate by 50 percent
- Reduce infant mortality rate from congenital abnormalities by 50 percent
- Increase proportion of mothers getting prenatal care in first and second trimesters to 70 percent
- Reduce pregnancy rate in adolescents 10-19 years old by 20 percent

United States:

- Reduce infant mortality by 15 percent
- Reduce infant mortality from congenital abnormalities by 30 percent
- Increase proportion of mothers getting prenatal care in first trimester to 85 percent
- Reduce pregnancy rate in adolescents 15-17 years old by 33 percent

9. Reduce the suicide mortality rate by improving mental health

Mexico:

- Reduce suicide mortality rate by 25 percent

United States:

- Reduce suicide mortality rate by 15 percent

10. Increase the usage of dental and oral health services

Mexico:

- Ensure that 25 percent of the population uses oral health services annually

United States:

- Increase proportion of population using oral health services to 75 percent per year

11. Reduce morbidity from asthma

Mexico:

- Maintain asthma hospitalization rate at 4.0 per 100,000 population (year 2000 level)

United States:

- Reduce asthma hospitalization rate by 40 percent

These focus areas identify specific issues that greatly affect the health and quality of life of individuals and communities in the border region. Monitoring progress to fulfill the Healthy Border targets will help in the identification of achievements as well as areas where efforts may need to be re-directed.

The list of objectives presented in this report is not intended to be a static list. Some of the future focus themes being considered include: tobacco use, substance abuse (alcohol and other drugs), cardiovascular disease, gastrointestinal disease, nutrition and obesity, physical activity, and bioterrorism preparedness. Progress made toward the availability of reliable data for the developmental objectives will also be monitored by the Commission and its partners in health data.

Chapter 2

Background

The design of Healthy Border 2010 is based on national-level programs of Mexico and the United States as well as binational collaborative projects within the border region. Each of these lends itself to the development of a health promotion and disease prevention agenda that is specific for the unique needs of the U.S.-Mexico border region.

Previous Related Activities in the United States:

Healthy Border 2010 is a direct descendant of the United States National Health Promotion and Disease Prevention Program known as Healthy People. Earlier versions of this program were carried out in the 1980's and 1990's. A new national program - Healthy People 2010 - was established in 2000 to continue health promotion and disease prevention activities through the next decade. All three of these programs combined health promotion and disease prevention activities at the national, state and local levels, along with a rigorous monitoring program.

The United States Healthy *Gente* Program draws from the national health objectives defined in the Healthy People program, identifying 25 of the most important objectives to address the distinct needs and concerns of the United States communities that border Mexico. Four principles were used to guide the selection of objectives for Healthy *Gente*:

- The objectives should address key health issues on the border;
- They should be limited in number;
- To the extent possible, they should be measurable; and
- They should be compatible with federal and state objectives.

Objectives also were designed to resonate with the border population, be easily understood by the public, and help coordinate public and private health programs. Most, but not all of the United States Healthy *Gente* objectives already are measurable; eighteen can be tracked with routinely collected data. Data for the remaining seven objectives, known as developmental objectives, will be sought during the decade. Data for four will be available early in the decade, while data for the final three objectives will most likely be collected via special surveys.

Previous Related Activities in Mexico:

In Mexico, the *Secretaría de Salud* developed the *Indicadores de Resultado* (National Health Indicators) as part of the Health Sector Reform Program undertaken in the early 1990s. The indicators were part of a new planning and evaluation process, designed to assist in the decentralization of the Mexican national health care system. The *Secretaría de Salud* proposed 46 indicators to evaluate and monitor the effectiveness of health policies within Mexico.

Mexico's *Indicadores de Resultado* were selected to meet the following criteria:

- They should represent priority health issues in Mexico;
- They should be measurable; and
- The information should come from reliable sources.

The *Indicadores de Resultado* Program sets targets for 2000 for each indicator. Because the program was part of the health care decentralization program, both national and state-level targets were established. Although targets were not set at the *municipio* or local level, information for many indicators is available at the *municipio* level, making it possible to monitor many local conditions. A *municipio* is roughly equivalent to a U.S. county, that is, an administrative division of a state.

On both sides of the border:

United States and Mexican border communities have collaborated on joint health improvement activities for many decades. Some of these health projects have been limited to a single pair of sister communities, while others have been statewide or border-wide programs. In some cases, the projects have focused on a single disease, such as the "Ten Against TB" (Ten Against Tuberculosis) project involving the ten United States-Mexico border states. Others have been broader in scope, such as "Project Consenso," coordinated by the United States-Mexico Border Health Association, which sought to identify the major health issues in the border region. The Healthy Border Program has drawn on all of these activities to varying degrees, in order to establish a regional health improvement program for the United States-Mexico Border region.

United States-Mexico Border Health Commission

Public and private organizations from both sides of the border have worked for several decades to address the most pressing health issues of the border region. The interest shown by these groups led the United States Congress to pass legislation (Public Law 103-400) in 1994, authorizing and encouraging the President to conclude an agreement with Mexico establishing the Commission. The Commission was created by an international agreement and signed by the United States Secretary of Health and Human Services on July 14, 2000, in Washington, D. C. and by the Secretary of Health of Mexico on July 24, 2000 in Mexico City. Both countries appointed their commission members in December 1999 and in 2000.

Years of binational collaboration have shown that for the Commission to be effective, it must include participation from the federal, state, and local levels in both nations. Thus, the Commission was designed to combine public and private capabilities and resources from all of these levels. To this end, the Commission includes representatives of federal governments, the six Mexican and four United States border states, border communities and constituencies.

Despite the numerous special groups and commissions that have studied border health problems for years, the United States-Mexico border has never enjoyed an effective and sustainable mechanism for advocacy and consensus building on health issues. Strong national support for the Commission from both countries, as well as the multi-level dimension of the Commission, is helping to ensure that it becomes an effective and long-lasting advocate for border health issues. Under the implementing legislation approved by both governments, the

United States-Mexico Border Health Commission was assigned several specific goals. Through the Healthy Border Program, the United States-Mexico Border Health Commission will accomplish the two most important goals, which are to identify key health issues in the United States-Mexico border region, and to advocate for the development of programs to address those problems.

Chapter 3

A Demographic and Health Profile of the United States-Mexico Border

Population

The 2000 censuses of Mexico and the United States revealed the following about the border population:

- There are about 13 million inhabitants in the border region, nearly equally divided between Mexico (6.4 million) and the United States (6.6 million).
- Although the border region is composed of 44 United States counties and 80 Mexican *municipios*, the bulk of the population is found in a small number of urban areas. The 14 pairs of sister communities along the border represent 79 percent of border residents, 5 million people in Mexico and 5.3 million in the United States.
- Mexico's three largest *municipios* – Ciudad Juárez, Chihuahua, Tijuana and Mexicali, Baja California - account for slightly more than half of the total Mexican border population.
- Nearly two-thirds of the United States border population is concentrated in three counties: San Diego, California; Pima, Arizona; and El Paso, Texas.

Additional information on the population (as of 2000) of the border region of the United States and Mexico is provided in Table 1 below.

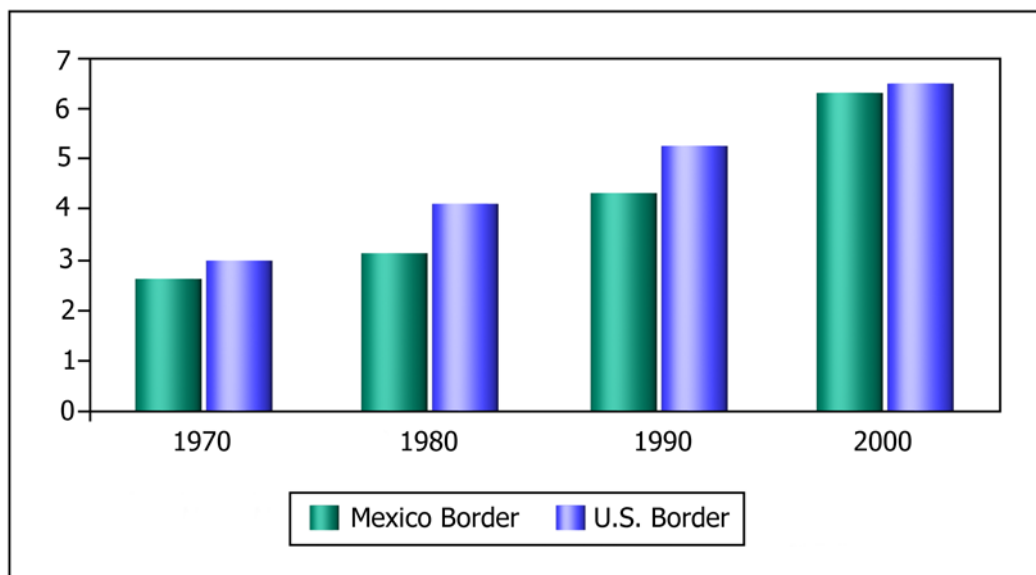
Table 1:
Population of Border States and Border Counties or *Municipios*, United States and Mexico, 2000

	States	<i>Municipios</i> / Counties
México		(80 <i>municipios</i>)
Baja California	2,487,367	2,487,367
Chihuahua	3,052,907	1,363,959
Coahuila	2,298,070	387,922
Nuevo León	3,834,141	116,556
Sonora	2,216,969	607,508
Tamaulipas	2,753,222	1,387,549
<i>Border Area</i>	<i>16,642,676</i>	<i>6,350,861</i>
United States		(44 counties)
Arizona	5,130,632	1,159,908
California	33,871,648	2,956,194
New México	1,819,046	312,200
Texas	20,851,820	2,125,464
<i>Border Area</i>	<i>61,673,146</i>	<i>6,553,766</i>
United States-Mexico Border Area	78,315,822	12,904,627

* See Appendix 5 for list of 80 Mexican border *municipios* and 44 United States border counties.

Source: México: Instituto Nacional de Estadística, Geografía e Informática (INEGI). XII Censo General de Población y Vivienda 2000. United States: United States Census Bureau: State and County QuickFacts. Data derived from Population Estimates, 2000 Census of Population and Housing.

Figure A:
Population Trends, U.S.-Mexico, 1970-2000
Population in millions

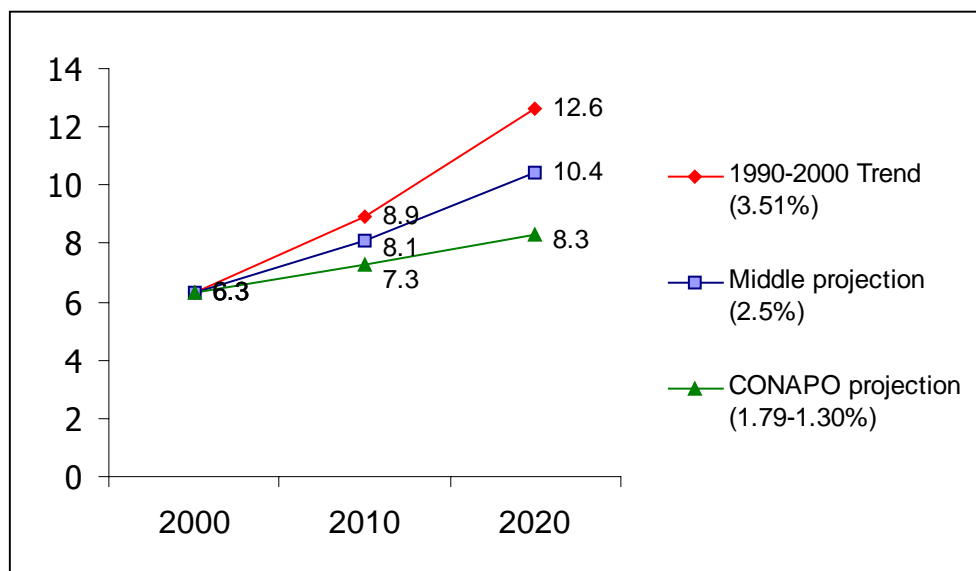


Source: Mexico: Instituto Nacional de Estadística, Geografía e Informática; United States: U.S. Census Bureau.

Population Growth

Between 1970 and 2000, both sides of the border experienced rapid population growth (see Figure A). The population of the Mexican border states grew by 26 percent during the decade of the 1990s with an annual growth rate of 2.4 percent. However, population growth in the border states was substantially lower than in the border *municipios*, which grew by 42 percent or an annual growth rate of 3.5 percent. It is also important to point out that while some *municipios* experienced negative growth, others reported some of the highest growth rates in the country, as was the case for Mexicali, Tijuana, Nogales, Ciudad Juárez, Piedras Negras, Matamoros, Nuevo Laredo and Reynosa. If the border population continues to grow at the rate recorded between 1990 and 2000 (3.5 percent per year), the population will increase to 8,976,176 inhabitants in 2010, and to 12,661,314 in 2020. However, the projections prepared by *Consejo Nacional de Población* (CONAPO) indicate that the annual growth rate of the border population will decline (1.8 percent from 2000 to 2010, and 1.3 percent from 2010 to 2020; see Figure B). Following this trend, the population will increase to 7,336,032 in 2010 and to 8,351,974 in 2020. CONAPO also estimates that in 2010 the population of the Mexican border states will rise to 19,146,373 inhabitants and the population of the contiguous cities will grow to 5,845,770.

Figure B:
Estimated Average Annual Population Growth Rate,
Mexico Border 2000-2020



Source: Consejo Nacional de Población (CONAPO), 2002.

Between 1970 and 2000 the U.S. border population more than doubled, rising from 3.1 million to 6.6 million. Population growth was highest in the Arizona border region, an increase of more than 40 percent from 1990 to 2000, and was about 25 percent in the border areas of New Mexico and Texas. The California border population grew somewhat less during the decade, about 18 percent. Overall, the border population grew by 20 percent from 1990 to 2000, or about 1.8 percent per year, which was 50 percent higher than the U.S. national growth rate. If current population growth continues, the United States border population could reach 9.8 million by the year 2020.

In Mexico, the highest annual growth rates from 1990 to 2000 occurred in the larger cities, such as Tijuana (5 percent per year) and Juárez (4.4 percent). On the United States side, annual growth was relatively low in the largest counties, including San Diego (1.1 percent) and El Paso (1.3 percent). Growth was much higher in some of the mid-sized counties, such as Yuma County, Arizona (4 percent) and Hidalgo County, Texas (3.9 percent). Many of the smaller counties and *municipios* on both sides of the United States-Mexico border lost population during the decade.

Rapid population growth in the region is the result of a number of factors:

- A young population and relatively high birth rate on both sides of the border;
- Migration fueled by economic development on both sides of the border, along with quality of life issues that have boosted migration to the United States sunbelt states;

- The advent of the North American Free Trade Agreement (NAFTA). This agreement has led to a rapid increase in trade between the two nations as well as growing numbers of *maquiladoras* - foreign manufacturing plants located in Mexico that import raw materials or components and export their finished products. This increase in *maquiladoras* has particularly affected population growth on the Mexican side of the border due to the industry's demand for labor.

Daily border crossings have risen in tandem with rapid population growth and economic development on both sides of the border. Information on border crossings is incomplete, but current estimates range from 300 million to 400 million legal crossings in each direction per year, or between 800,000 and 1.1 million legal border crossings per day.

Age and Ethnic Composition

The population is relatively young on both sides of the border, primarily because of high fertility and a continuous migratory flow. In 2000, almost 25 percent of the United States border population was under 15 years of age, versus 21 percent for the nation. Thirty-five percent of the Mexican border population was under 15 years of age, slightly more than the 33 percent share for all of Mexico. The total fertility rate, or the average number of children per woman of reproductive age in the Mexico border region, was 2.0 in the year 2000, less than the national rate of 2.4. In contrast, the total fertility rate on the U.S. side of the border was 2.5 in 2000, significantly higher than the U.S. national rate of 2.1. The total fertility rate in the Texas border counties was 3.1, or 50 percent higher than the national rate.

The ethnic composition of the United States border region differs substantially from the national average. In the year 2000, about 49 percent of the United States border population was of Hispanic origin, primarily of Mexican ancestry. For the United States as a whole, 12.5 percent of the population was of Hispanic origin. The proportion of Hispanics generally declines as one moves from east to west along the United States border. In the Texas border area, 84 percent of the population is Hispanic, but the proportion of Hispanics is only 52.1 percent in New Mexico, 34 percent in Arizona, and 29 percent in California.

Income, Education and Poverty Status

Although the border region historically has been characterized as an area suffering from poverty and a lack of economic development, this characterization is not entirely accurate. First, while many parts of the United States border region are significantly poorer than the United States as a whole, the northern border of Mexico is one of the wealthier regions of Mexico. Second, the border regions of both countries include a mix of very poor and relatively affluent areas.

In Mexico, the 14 contiguous cities on the border, which represent nearly 80 percent of the entire population of the Mexico border region, are among the most developed *municipios* of the country, according to their scores on the Human Development Index, which combines information on gross domestic product (GDP) per capita, health and education. Mexicali, Tijuana and Juarez, which represent slightly more than 50 percent of the border population, rank among the 100 most developed *municipios* of the country (out of a total of 2,442 *municipios*). At the same time, according to the National Population Council (*Consejo Nacional de Población – CONAPO*), of the 80 border *municipios* only 4 fall into the middle category of the

Human Development Index (3 of these *municipios* are in Coahuila and one in Chihuahua), while the 76 remaining *municipios* fall into the most favorable categories. The development of the *maquiladora* industry in the larger border cities has greatly increased employment, but also has swelled the ranks of the very poor by attracting large numbers of migrants from the poorer regions of Mexico. This has led to the growth of outlying housing developments with poor quality housing and lacking many municipal services such as access to water and sewage systems.

The United States border region includes some of the poorest counties in the United States. Starr County, Texas, for example, had a 1999 estimated per capita income less than 40 percent of the national average with 51 percent of its residents living below the federal poverty level. Three of the border counties are among the 10 poorest counties in the United States. Overall, about 19 percent of the border population lives below the federal poverty level, as compared to 13 percent for the entire country. Economic conditions are worse in the eastern half of the border with 24 percent of border residents living below the federal poverty level in New Mexico and 33 percent in Texas. A combination of poverty and fewer land use restrictions has led to the development of *colonias*, or unincorporated housing developments, particularly in the Texas and New Mexico border counties. Many *colonias* lack running water and access to public sewer systems or to compliant septic tanks. Yet, on the other end of the economic scale, the United States border includes San Diego County with a per capita income above the national average and less than 15 percent of residents below the federal poverty level.

The education level of United States border residents is lower than the national average, while the opposite is true for Mexican border residents. The illiteracy rate of the 11 million inhabitants above 15 years of age in the Mexican border states is 4.3 percent, while in the border *municipios* with a population of slightly more than 4 million persons aged 15 years or more, the rate is 5.3 percent. At the same time, the border *municipio* rate is lower than the national rate of 9.5 percent. In the U.S. border region, 15 percent of residents aged 25 or more had less than 9 years of education as compared to the national average of 10 percent. Among border residents of Texas, 28 percent of adults had fewer than 9 years of education. In the Mexico border region, 23 percent of residents age 25 or more have more than 9 years of education, as compared to 19 percent for the entire country. It is difficult to compare education levels across the United States-Mexico border, because education systems and reporting categories differ, but the educational measures for each country underline the educational deficit of the border region as compared to the country, in the case of the United States, or as compared to the Mexican border states, in the case of Mexico.

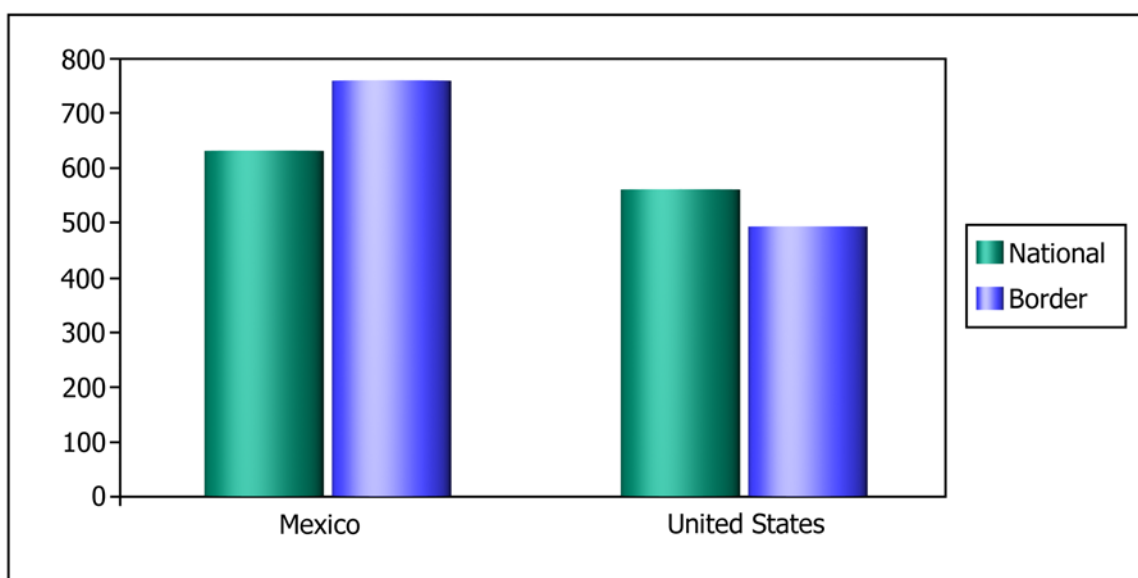
Health Status

Health status in the United States-Mexico border region displays many of the complexities and contradictions found in other aspects of life on the border. As compared to United States national figures, United States border residents fare well in terms of mortality, despite significant levels of poverty, but suffer from poor access to health care. Mexican border residents have higher overall mortality than does Mexico as a whole, despite relatively favorable living conditions. The Mexico border region has higher mortality than the United States border region for communicable diseases, as well as many chronic diseases. The information that follows is limited to the 80 *municipios* for the Mexico border, and to the 44 border counties for the United States border.

Mortality

It is not possible to directly compare death rates in the United States and Mexico, because the risk of dying is largely a function of age, and the population of Mexico is much younger than the population of the United States. For example, the overall death rate for the United States, 854 deaths per 100,000 population in 2000, was much higher than the Mexico rate of 450, even though United States mortality was lower at every age. It is possible to eliminate this age difference with a technique called standardization or age-adjustment, which removes the effect of differences in age between two populations.* Using this technique, the age-adjusted death rate for Mexico was 630 and the United States rate was 560 (see Figure C).

Figure C:
Age-adjusted Mortality Rates,
Mexico and United States, 2000
Rate per 100,000 inhabitants



Source: Mexico: INEGI/SSA, 2000; United States: NCHS/CDC; 2001.

The age-adjusted death rate in 2000 for the United States border region was 494 per 100,000 population, which was substantially lower than the United States national rate of 560. This difference was largely due to lower mortality in the border region for chronic diseases such as cancer and heart disease. Infant mortality was also lower for the United States border than for the nation, despite lower socio-economic conditions on the border. However, higher mortality rates for United States border residents were reported for diabetes, chronic liver disease and cirrhosis, and other diseases.

* The technique used here, the direct method of standardization, determines what the mortality rate in both countries would be if they had the age distribution of a third population. For the purposes of comparison, the United States and Mexico have agreed to use the age distribution of a standard population developed by the World Health Organization (WHO), referred to as the WHO World Standard Population. *WHO. World Health Statistics Annual 1997-99 Edition. Geneva, 2000.*

In Mexico, the age-adjusted death rate for the border population in 2000 was 760 per 100,000, which was higher than the national mortality rate of 630. In part, this higher rate is an example of the double burden of disease; the border population had both relatively high mortality for communicable diseases, and high mortality for many chronic conditions such as cancer, diseases of the heart, and diabetes, as well as external causes of death. The infant mortality rate on the border, 16.9 per 1,000 live births, was higher than the national rate of 14.5, again despite more favorable socio-economic conditions on the border.

Comparing the border regions of the United States and Mexico, mortality was lower on the United States side of the border; the age-adjusted mortality rate was 494 per 100,000 for United States border residents and 760 for the Mexico border area. Mortality due to cancer was lower for Mexico border residents, but United States residents had lower rates for communicable diseases and injuries, as well as chronic diseases such as diseases of the heart, chronic obstructive pulmonary disease and diabetes. Infant mortality was also substantially lower on the United States side of the border.

Leading Causes of Death. Information on the leading causes of death in the 44 United States border counties and the 80 Mexican border *municipios* is provided in Table 2. The leading cause of death on both sides of the border is heart disease, and the same is true at the national level for both Mexico and the United States. Most of the remaining causes are similar in the border regions of Mexico and the United States, but the order of these causes differs, sometimes substantially.

In the United States border region, most of the remaining causes of death are diseases of the elderly, with the exception of accidents. Accidents are the fifth leading cause of death for United States border residents and account for nearly 5 percent of all deaths. The principal component of accident mortality is deaths due to motor vehicle crashes. Two of the leading causes of death on the United States border, Alzheimer's disease and suicide, are not among the 10 leading causes in the Mexico border area. Alzheimer's disease accounts for 2.7 percent of United States border deaths and suicide is the cause of 1.5 percent of deaths.

Table 2:
Death Rates for Leading Causes of Death, U.S.-Mexico Border, 2000
 Age-adjusted death rates per 100,000 inhabitants

Mexico				United States			
Cause of Death	National	State	Municipios	Cause of Death	National	State	County
1. Diseases of the heart	109.0	148.0	165.3	1. Diseases of the heart	151.4	141.5	125.7
2. Malignant neoplasms	87.0	106.2	111.2	2. Malignant neoplasms	138.3	128.2	119.6
3. Diabetes mellitus	77.6	81.2	101.7	3. Cerebrovascular diseases	33.7	35.0	31.1
4. Accidents	42.2	45.0	54.0	4. Chronic obstructive pulmonary diseases	27.2	27.4	24.1
5. Cerebrovascular diseases	40.6	46.0	48.6	5. Accidents	30.2	28.6	28.1
6. Chronic liver disease and cirrhosis	42.4	30.5	36.4	6. Diabetes mellitus	16.5	16.3	17.9
7. Chronic obstructive pulmonary diseases	17.6	20.9	18.9	7. Pneumonia and influenza	12.6	14.0	12.8
8. Pneumonia and influenza	16.2	15.9	17.2	8. Alzheimer's disease	8.5	8.4	10.3
9. Diseases originating in perinatal period	16.2	13.8	16.2	9. Chronic liver disease and cirrhosis	7.6	9.8	10.6
10. Homicide	12.3	10.3	15.6	10. Suicide	9.5	9.3	9.9

Source: Mexico: General Directorate of Epidemiology, SSA; deaths per 100,000 inhabitants, Census INEGI, 2000. United States: National Center for Health Statistics, CDC. Note: For both countries, death rates are age-adjusted to the WHO World Standard Population 2000.

In the Mexico border area, accidents are a leading cause of death, ranking third among the leading causes of death. Here again, motor vehicle crashes are the leading cause of accident deaths. However, diabetes mellitus is the third leading cause of death, while in the United States border it is the sixth leading cause. Two of the ten leading causes of death for Mexico, diseases originating in the perinatal period and homicide, are not among the 10 leading causes for the United States border.

Maternal Mortality. The maternal mortality rate is defined as the number of deaths per 100,000 live births that occur due to complications of pregnancy, childbirth and the puerperium (the period 42 days after birth). The maternal mortality rate in Mexico in 2000 was 47 per 100,000 live births at the national level and 30-48 in the border region. In the United States, the national maternal mortality rate in 2000 was 10 per 10,000 live births. It is not possible to calculate a maternal mortality rate for the U.S. border region that is statistically reliable, as only 11 maternal deaths were reported in 2000. The maternal mortality rate does not capture all maternal deaths, because it excludes deaths to pregnant women due to other causes, as well as deaths occurring more than 42 days after birth.

Infant Mortality. The 2000 infant mortality rate is estimated at 21.6 deaths per 1,000 live births in the border region of Mexico, compared to an estimated national infant mortality rate for Mexico of 13.8. The higher infant mortality rate in the border area, despite better economic conditions, may be due to higher mortality among recent immigrants to the border area. Deficiencies in the registration of live births and infant deaths, however, make it very difficult to measure infant mortality with precision in Mexico. The infant mortality rate for the United States border counties in 2000 is 5.4 per 1,000 live births, substantially below the national infant mortality rate of 6.9. Again, problems with vital event registration mean that the United States border infant mortality rate is probably understated.

Morbidity

Table 3 provides information on some important communicable diseases in the 80 border *municipios* of Mexico and the 44 border counties of the United States. Combining these data with national figures and time trends for both countries, we can summarize the status of each of these diseases in the border region.

Table 3:
Communicable disease cases and rates,
Mexico and United States Border, 2000

	Mexico Border <i>Municipios</i>		U.S. Border Counties	
Disease	Cases	Rate*	Cases	Rate*
Dengue	173	2.7	6	0.1
Gonorrhea	507	8.0	3069	46.8
Hepatitis A	1526	24.0	722	11.0
Hepatitis B	71	1.1	410	6.3
HIV+	215	3.4	301**	8.4**
AIDS	370	5.8	607	9.3
Malaria	784***	4.7***	15	0.2
Salmonellosis/Shigellosis	582	9.2	1880	28.7
Tuberculosis	2124	33.4	653	10.0

Source: Mexico: Unified Epidemiological Surveillance Information System, General Directorate of Epidemiology, SSA; United States: State Health Departments of Arizona, California, New Mexico, Texas.

* Cases per 100,000 inhabitants. ** Border counties of Arizona, New Mexico and Texas only. *** Includes data only by border states.

Hepatitis A incidence rates have been declining among border residents of both nations in recent years. The Mexico border rate declined by nearly 25 percent from 1995-2000, while the United States border rate fell by more than 60 percent. Within the border region of Mexico, the largest number of cases in 2000 came from Baja California (716). In Mexico, the incidence of hepatitis A was approximately the same at the national level and for the border *municipios*, 21.3 versus 24.0 in 2000; in the United States, the border rate in 2000 was more than 2 times the national rate, 11.0 versus 4.8. Due to a high incidence of hepatitis A disease in the Texas

counties that border with Mexico, the Texas Department of Health began providing hepatitis A vaccine to children residing in the 32 Texas counties that border with Mexico. Implemented in 1997, the successful outcomes of the strategy led to subsequent legislation requiring that all children attending public or private schools in the border counties receive the vaccine.

The number of HIV positive cases is increasing in Mexico, both at the national level and in the border states. The incidence of HIV positive cases more than doubled between 1995 and 2000 for Mexico as a whole, and increased by 30 percent in the border states. The incidence rate for HIV+ cases was 3.3 per 100,000 inhabitants at the national level and 3.4 in the border *municipios*; the states with the highest incidence of this disease were Baja California and Nuevo Leon. In the border regions of Arizona, New Mexico and Texas, the incidence of HIV positive cases rose from 5.9 per 100,000 inhabitants in 1999 to 8.4 in 2000. However, the incidence rate for AIDS cases, as opposed to the HIV rate, has dropped sharply in the United States, declining by 47 percent nationally from 1995-2000, and by 62 percent on the border. In California, HIV incidence data for 2000 are not available, as HIV infection became a reportable condition in July 2002.

The incidence of pulmonary tuberculosis was generally higher in Mexico than in the United States, but the rate has declined in both nations in recent years. In Mexico, the national tuberculosis rate fell by 15 percent from 1995 to 2000, while in the border states the rate declined by 5 percent. The United States national rate fell by 33 percent from 1995 to 2000, and the border rate dropped by 40 percent from 1995 to 2000. In both countries, the border tuberculosis rate was significantly higher than the national rate: in Mexico, 15.7 cases per 100,000 inhabitants at the national level and 33.4 for the border (*municipios*) in the year 2000; for the United States, a national rate of 5.8 versus 10.0 for the border.

The high level of border crossings between the United States and Mexico complicates epidemiological surveillance and the development of strategies to address the spread of infectious diseases. The thousands of border crossings each day underline the potential for the spread of diseases in both directions. Under these circumstances, the United States and Mexico must coordinate their strategies by developing a binational response to the spread of infectious diseases.

For vaccine preventable diseases, the strategy is to increase vaccination coverage in the population exposed to risk. In this sense, from 1994 to 2000 coverage rates in Mexico rose to the highest levels in the history of public health, attaining a national coverage rate of 96.9 percent for the population below 5 years of age. The coverage rate in the Mexican border states was 97.5 percent of the under-5 population. These coverage levels have been maintained, despite having expanded the basic series of immunizations. As a result, Mexico has eradicated polio, eliminated pertussis and controlled measles, rubella, mumps and neonatal tetanus.

In the United States, national coverage for routinely recommended childhood vaccines has increased substantially since 1993, when the Childhood Immunization Initiative was implemented. For children 19-35 months of age, the coverage rate for the basic immunization scheme reached its highest level in 1998 at 80.6 percent, but in recent years has stabilized at 78.5 percent. In 2000, the coverage rate in U.S. border states ranged from 72.3 percent in California to 63.5 percent in Texas. Information on vaccination levels in the U.S. border region

is very incomplete, as estimates from the National Immunization Survey are only available for two border counties, San Diego and El Paso. Immunization rates for the border regions of both countries are provided in Table 4.

Table 4:

Vaccination Coverage Levels, United States-Mexico Border, 2000		
	Age 1 year*	Age 1-4 years**
Mexico Border States	%	%
Baja California	93.4 – 98.0	97.3
Chihuahua	96.0 - 97.7	98.7
Coahuila	96.5 - 98.1	98.8
Nuevo León	97.8 - 99.3	99.4
Sonora	91.8 - 94.2	97.7
Tamaulipas	98.7 - 99.6	99.7
U.S. Border States	Age 19-35 months***	
Arizona	67.2	
California	72.3	
New Mexico	64.5	
Texas	63.5	
U.S. Border Counties		
El Paso	67.1	
San Diego	72.2	

Source: Mexico, Centro Nacional para la Salud de la Infancia y la Adolescencia, Secretaría de Salud; United States, National Immunization Survey, CDC.

* Includes 1+ doses of BCG; 3+ doses of polio vaccine; 3+ doses of diphtheria, tetanus, pertussia, haemophilus influenzae and hepatitis B vaccine; and 1+ doses of measles, German measles and mumps vaccine.

** Includes 1+ doses of measles, German measles and mumps vaccine, and 2+ doses of diphtheria, tetanus and pertussis vaccine.

*** Includes 4+ doses of diphtheria, tetanus and pertussis vaccine or diphtheria and tetanus vaccine; 3+ doses of polio vaccine; 1+ doses of measles vaccine; 3+ doses of Haemophilus influenzae vaccine; and 3+ doses of hepatitis B vaccine.

Chapter 4

Healthy Border 2010 Objectives

On both sides of the United States-Mexico border, progress in improving health will be monitored through the 20 objectives of the Healthy Border 2010 Program, divided into 11 topic areas. Most of these objectives are designed to reduce or eliminate illness, disability, and premature death among individuals and communities of the United States-Mexico border region. Other objectives address broader themes, such as improving access to health care, strengthening public health services, and removing or mitigating specific environmental pollutants or factors known to be health risks.

The Healthy Border 2010 objectives will serve to identify major health issues in the border region between Mexico and the United States, and will help to focus public and private activities in both countries to address these issues. Several of the objectives focus on health issues that can be best addressed through coordinated action by the authorities of both countries. By identifying these issues, it is hoped that the objectives can assist in coordinating health interventions by health institutions in Mexico and the United States. The objectives will also serve as the basic building blocks for community health projects, providing a list of potential focus themes for local health improvement projects. Taken together, these objectives are designed to help both nations achieve the ultimate goal of improving health in the border region.

Over the next seven years, each of the objectives will be tracked to determine progress towards the year 2010 targets. The program will prepare report cards at regular intervals to monitor and communicate progress toward the targets, to highlight achievements and challenges in the next decade. Some of the objectives included in the Healthy Border Program are lacking the necessary baseline data to establish a target for the year 2010. Nevertheless, these objectives were included in the program because of their importance for border health and because there is reasonable expectation that tracking data will become available during the decade. These objectives are known as **developmental objectives** because they identify areas of emerging importance and drive the development of data systems to measure them. Developmental objectives with no baseline data by mid-decade will be dropped.

This chapter provides detailed information on the objectives of the Healthy Border 2010 Program. To avoid confusion, information on baseline values and year 2010 targets is presented exactly as supplied by each country. Specifically concerning objectives based on mortality rates, the baseline values and targets presented in this chapter have not been age-adjusted to a common standard population, as was done in Chapter 3. The death rates for the United States in Chapter 4 have been age-adjusted to the United States 2000 standard population, while the Mexican death rates have not been age-adjusted. As discussed in Chapter 3, if two populations differ substantially in age, this means that death rates for the two populations are not directly comparable without age adjustment to a common standard population. Because the death rates in Chapter 4 have not been age-adjusted to a common standard, the death rates presented in this chapter for the border populations of Mexico and the United States should not be directly compared.

Access to Care

Access to Care objective	
Mexico	United States
<p>Maintain current level of access to care:</p> <ul style="list-style-type: none"> Less than 5 percent of the population lacks access to basic health services. 	<p>Reduce by 25 percent the proportion lacking access to primary health care:</p> <ul style="list-style-type: none"> <i>Developmental objective:</i> baseline data not yet available for this objective.

Access to quality health care is essential to improving and maintaining the health of the United States-Mexico border residents. Access to care is required for individuals to obtain preventive health services such as immunizations, regular Pap tests, or early prenatal care. Effective primary care can also educate people about modifiable risk factors such as smoking. Residents with chronic diseases require health care access for effective management of conditions such as diabetes or hypertension.

In the United States, access to care can include having health insurance, as well as having a regular primary care provider or other source of ongoing health care. Use of preventive care services, such as early prenatal care, also can serve as a measure of access to care. An important related issue is access to regular dental health care services.

In Mexico, the existing health care system provides nearly complete access to care, whether through the Social Security system (financed by the government, employers and workers) or through services provided for the uninsured population (the "open population"), financed entirely by the government. Provision of health services has been extended in recent years through the use of mobile health units. At the national level, 57 percent of the population does not have health insurance, but 40.1 percent has Social Security coverage, and 2.9 percent are in the "unspecified" category. In the northern border states, 37.3 percent do not have health insurance, 58.7 percent are covered by the Social Security system, and 4 percent are in the unspecified category. Five percent of the Mexican population lacks access to basic health services, primarily because they reside in areas far from any government services.

The Mexican National Health Program states that health has an element of uncertainty, and when unforeseen events occur without health insurance, or without sufficient savings, the resulting family expenses can be catastrophic. Out-of-pocket payments for required care is the worst approach to financing health services for this population; nevertheless, available information indicates that out-of-pocket spending accounts for more than half of total health expenditures in Mexico. It is estimated that between two and three million families per year suffer catastrophic expenditures for health reasons.

Access to Care on the United States-Mexico Border

Access to care is an important issue on the United States-Mexico border. Low rates of health insurance coverage, combined with low incomes, have put regular access to quality health care beyond the reach of many United States border residents. Many United States residents cross the border into Mexico in search of health care, in order to take advantage of lower costs, to seek out Spanish-speaking care providers, or for other reasons. Some Mexican residents enter the United States to seek care, particularly for high-technology care or obstetric care. Using existing data sources, it is not possible to measure the number of persons crossing the border to seek health care.

On the United States side of the border, primary care providers are lacking in many border communities. Counties or areas within counties are designated as Health Professions Shortage Areas (HPSA) for primary care when the ratio of population to primary care physicians rises above a threshold level of 3000 inhabitants per physician. In 2000, about one third of the U.S. border population resided in such shortage areas. The shortage of primary care providers was particularly acute in the Texas border region, where more than 70 percent of border residents resided in shortage areas. Increasing the number of primary care providers within these underserved areas is fundamental to improving access to care.

Another factor affecting access to health care in the United States is lack of health insurance. Even in areas with sufficient numbers of physicians, persons lacking health insurance are less likely to obtain preventive care or to have routine physical examinations. In the border region of Texas, an estimated 30 percent of the population does not have health insurance; in the California border communities of San Diego and Imperial Counties, about 14 percent lack health insurance; also, 10 and 17 percent of the San Diego and Imperial County population, respectively, do not have a usual source of care.

The border region of Mexico represents the most industrialized part of the country. Because of the high level of industrial employment, particularly in the *maquiladora* industry, 58.8 percent of the border population has access to employer-based health services through the Social Security system. An additional 3 percent are covered by the system of Social Security for Government Employees, bringing total coverage to approximately 61 percent of the population. Nevertheless, the impoverished population of the border region continues to grow, largely due to the constant stream of migrants from other regions of Mexico. These marginalized people, largely unemployed and residing in areas with limited or no municipal services, represent the "open" population whose only access to health care is through the services funded completely by Mexico's *Secretaría de Salud*. Government programs have extended health care services to many in the "open" population, but gaps in accessibility continue to exist. Currently about 5 percent of the total border population lack access to regular health care services, although they may receive services from special programs such as childhood immunization.

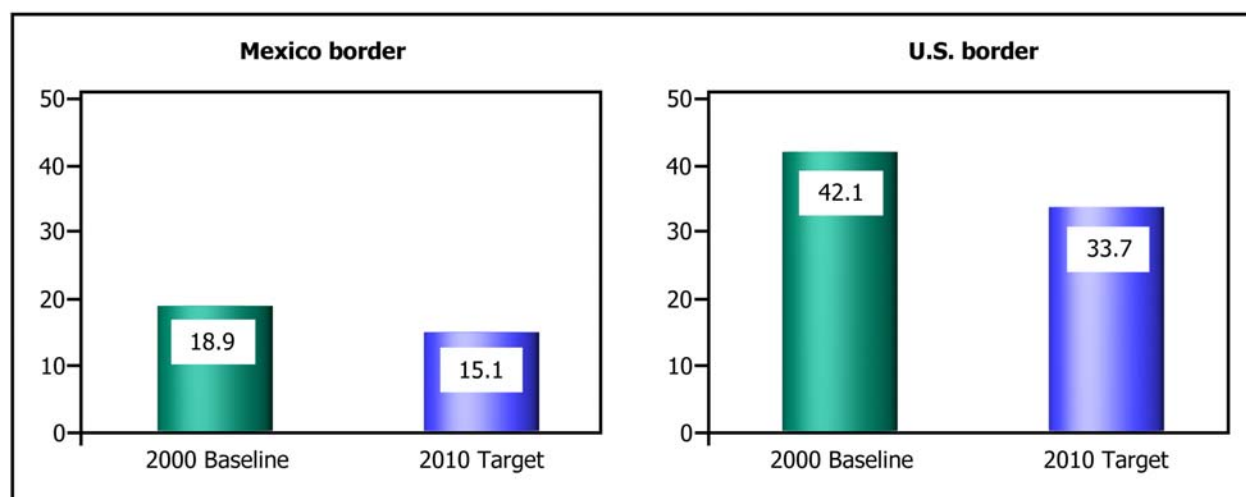
Cancer

Cancer objectives		
	Mexico	United States
Breast cancer	Reduce female breast cancer death rate by 20 percent: <ul style="list-style-type: none"> • From 8.5 to 6.8 per 100,000 women. • From 18.9 to 15.1 per 100,000 women age 25 or more 	Reduce female breast cancer death rate by 20 percent: <ul style="list-style-type: none"> • From 27.2 to 21.8 per 100,000 women. • From 42.1 to 33.7 per 100,000 women age 25 or more.
Cervical cancer	Reduce cervical cancer death rate by 20 percent: <ul style="list-style-type: none"> • From 9.4 to 7.5 per 100,000 women. • From 20.8 to 16.6 per 100,000 women age 25 or more. 	Reduce cervical cancer death rate by 30 percent: <ul style="list-style-type: none"> • From 3.7 to 2.6 per 100,000 women. • From 5.7 to 4.0 per 100,000 women age 25 or more.

Cancer is the second leading cause of death in the border regions of both countries. Each year, more than 13,000 border residents die from cancer, with about 3,000 deaths in Mexico and more than 10,000 in the United States border area. The 2000 mortality rate for malignant neoplasms in the Mexico border region was 59.0 per 100,000 inhabitants, and 174.4 in the U.S. border region.

The most important cancer sites or types, in terms of cancer mortality, are lung cancer, stomach and colorectal cancer, breast cancer, and cervical and prostate cancers. Survival rates for most cancers are significantly improved through early detection and treatment. Improved screening for cancer is essential to reduce the cancer death rate.

Figure D:
Female Breast Cancer Mortality
 Deaths per 100,000 women age 25 or more



Source: Mexico: INEGI/SSA, 2000; United States: National Center for Health Statistics, CDC.
 Mexico: Rates are not age-adjusted; United States: Rates are age-adjusted to U.S. 2000 population.

Cancer Levels and Trends

The cancer death rate in the border region of Mexico is higher than the national rate for Mexico, because the border region is at a later stage of the epidemiological transition, that is, the shift in the leading causes of death from communicable diseases to chronic diseases. United States border residents have a lower cancer death rate than the nation as a whole, although the border death rates for certain cancer types are close to or above the national figures. For some cancer types, the diagnosis rate for new cases is higher in the United States border region than elsewhere in the United States.

Over the past decade, the cancer death rate for all types has fallen by about 10 percent on the border with similar declines reported for both the Mexican and United States sides. For most cancer types, mortality rates peaked in the early 1990's and then declined.

Healthy Border 2010 objectives include reducing the rates of female breast cancer and cervical cancer. Female breast cancer is one of the most important cancers for border women. In Mexico, the border states have a higher mortality rate due to breast cancer than the border *municipios*. In the United States, the diagnosis of new cases of breast cancer is increasing among Hispanics. Cervical cancer is an issue on both sides of the border, although the mortality rate is substantially higher in Mexico than in the United States. In the United States border region, the 2000 death rate for cervical cancer was 5.7 per 100,000 women aged 25 years or older. In the Mexico border area, the 2000 death rate for cervical cancer was 20.8 per 100,000 women aged 25 years or older. On both sides of the border, survival rates suffer because screening deficiencies lead to the diagnosis of cervical cancer at later stages of development.

Cancer Screening and Prevention

Several types of cancer can be prevented by changes in behaviors or dietary habits. As many as 50 percent of all cancers could be prevented through:

- Smoking cessation
- Eating more fruits and vegetables
- More physical activity
- Weight control

Equally vital in the fight against cancer is screening for early detection and treatment. In the United States-Mexico border region, both breast cancer and cervical cancer are often diagnosed at later stages of development. Detection can be improved through mammograms and breast self-examinations for breast cancer, and through Pap smears for cervical cancer. Enhancing the access of border residents to routine health care services is a key element in reducing cancer mortality.

Prevention and early detection of cancer require various types of resources. First is the need to provide culturally and linguistically appropriate information to the public and to health care professionals on prevention, early detection, and treatment. Second, the public must have access to preventive and diagnostic services as well as treatment.

Diabetes

Diabetes objectives		
	Mexico	United States
Diabetes mortality	Reduce diabetes death rate by 10 percent: <ul style="list-style-type: none">• From 50.9 to 45.8 per 100,000 inhabitants.	Reduce diabetes death rate by 10 percent: <ul style="list-style-type: none">• From 26.9 to 24.2 per 100,000 inhabitants.
Diabetes hospitalization	Keep hospital discharge rate stable at: <ul style="list-style-type: none">• 25.6 discharges per 100,000 population	Reduce hospital discharge rate by 25 percent: <ul style="list-style-type: none">• From 14.9 to 11.2 per 100,000 inhabitants*

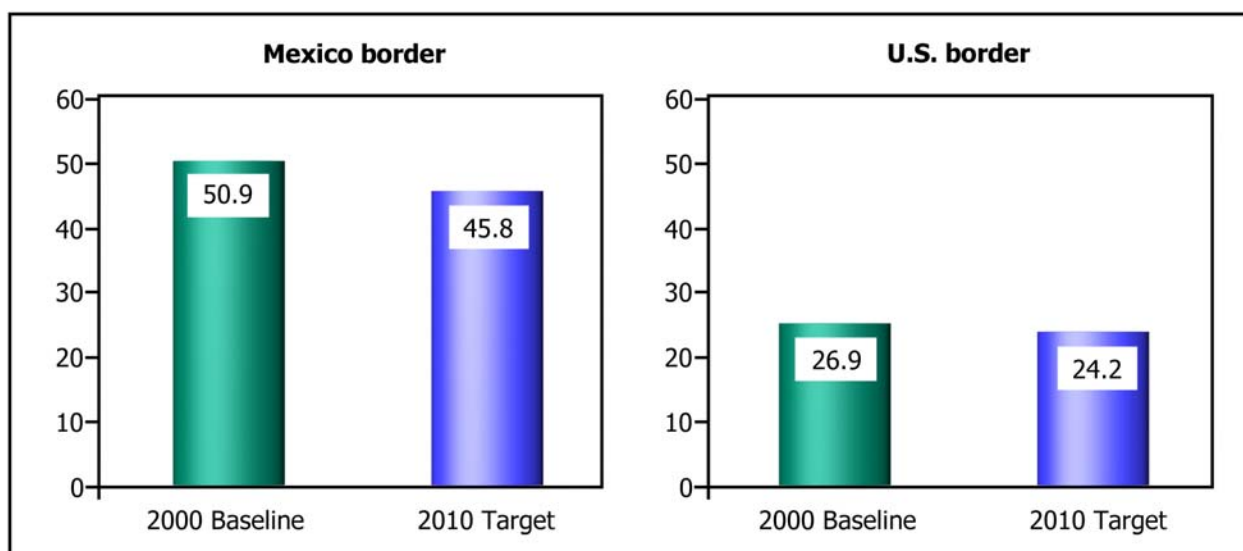
*Diabetes hospital discharge rate for U.S. border for Arizona, California and Texas only.

Diabetes is a major health problem in both Mexico and the United States, as it is in the border regions of both countries. Nearly 4,000 border residents die each year due to diabetes with about 1,500 fatalities in the United States and about 2,500 in Mexico. Diabetes is the third leading cause of death in the border region of Mexico. In addition, this disease causes

significant complications among survivors. The number of new cases of diabetes increases yearly, but a significant number of United States-Mexico border residents with diabetes remain undiagnosed.

In addition to mortality, diabetes morbidity is a significant problem for both countries. In the Mexican border region, the incidence rate for diabetes was 310.9 per 100,000 inhabitants in 1995, and by the year 2000 this rate had grown by 35.5 percent. The hospitalization rate (discharges per 100,000 population) in 2000 for diabetes was 25.6 for the Mexico border region, and 14.9 for the U.S. border regions of California, Arizona and Texas.

Figure E:
Diabetes Mortality
Deaths per 100,000 inhabitants



Source: Mexico: INEGI/SSA, 2000; United States: National Center for Health Statistics, CDC.
Mexico: Rates are not age-adjusted; United States: Rates are age-adjusted to U.S. 2000 population.

Impact of Diabetes

Diabetes is a leading cause of death in both countries, and is even more common as a contributing rather than underlying cause of death. Among survivors, diabetes is a costly disease to manage, particularly if hospital care is required. Complications of diabetes, including amputations, blindness and end-stage renal disease, result in impaired quality of life and substantial disability.

Prevalence of Diabetes

The growing prevalence of diabetes is the result of a number of trends, including improper nutrition and obesity, aging of the population, and growth of population groups with a disproportionate prevalence of diabetes; the first two factors are present on both sides of the border. In addition, rapid growth of the population of Hispanic and Native American origin, both

of whom have very high rates of diabetes, is an important factor in the U.S. border region. In Mexico the incidence of diabetes continues to grow, and represents the third leading cause of death at the national level and in the northern border region. From 1995 to 2000, the incidence of diabetes grew by almost 35.5 percent. In both countries the numbers of newly diagnosed cases of Type 2 diabetes in children is growing, largely because of a rapid increase in the level of childhood obesity resulting from poor nutrition and lack of physical activity.

Despite the growing number of diabetes cases identified annually, a large proportion of persons with diabetes remains undiagnosed. In the United States, an estimated one-third of persons with diabetes have not been detected. The proportion of undiagnosed diabetics is likely to be larger in the border region, because this population has greater risk factors for developing diabetes, as well as limited access to quality preventive health services.

Diabetes Prevention and Diabetes Management

Type 2 diabetes, previously defined as non-insulin dependent diabetes mellitus (NIDDM) or adult-onset diabetes, is associated with older age, obesity, family history of diabetes, physical inactivity, race/ethnicity, and other risk factors. Access to health care, health education and health promotion activities can reduce the growth of Type 2 diabetes by improving nutrition and increasing physical activity, thereby reducing the prevalence of the metabolic syndrome. At the present time, however, most interventions designed to modify individual behaviors have had limited success.

Access to health care can have a major impact on the management of diagnosed diabetes. Secondary prevention techniques, including the control of glucose, lipids, and blood pressure levels have demonstrated health and economic benefits. Screening for early diabetes complications including eye, foot and kidney abnormalities (tertiary prevention) also has positive health and economic benefits. These secondary and tertiary prevention activities are often not incorporated in daily clinical management of diabetes. An additional obstacle to effective management is modification of the behavior of persons with diabetes.

Environmental Health

Environmental Health objectives		
	Mexico	United States
Household Sanitation	Reduce proportion of households not connected to compliant public sewage systems or septic tanks: <ul style="list-style-type: none"> • Reduce from 21.3 percent. 	Reduce to zero the proportion of households without complete bathroom facilities: <ul style="list-style-type: none"> • From 1.1 percent to 0.0 percent.
Pesticide poisoning hospitalization	Keep hospital discharge rate stable at: <ul style="list-style-type: none"> • Maintain at 0.1 discharges per 100,000 population 	Reduce hospitalizations by 25 percent: <ul style="list-style-type: none"> • <i>Developmental objective:</i> Baseline data not yet available for this measure.

Human exposures to hazardous agents in the air, water, soil and food, and physical hazards in the environment are major contributors to illness, disability and death worldwide. The United States-Mexico border faces imposing environmental challenges arising from the complex interplay of rapid industrialization, strong population growth and poverty.

Major environmental health issues in the United States-Mexico border region include water quality, toxic substances and air quality. A significant proportion of households on the United States-Mexico border are not connected to public water systems, compliant public sewage systems or septic tanks, thus potentially exposing the residents to contaminated water. Pesticide exposure is another concern, due to intensive agricultural activity in the region, as well as household use of pesticides. Excessive ozone levels on the border are an important air pollution problem that has been linked to asthma and other respiratory conditions.

A Binational Issue

Increasingly environmental problems are being characterized as international in scope and this international relationship is certainly true for the United States-Mexico border region. Pollutants and contaminants that arise on one side of the border can easily affect the air, water, and soil of the other side, as well as affect the health of persons living along the opposite side of the United States-Mexico border. In some cases, benefits or savings in one nation can inadvertently create major problems or costs in the other. Major industrial development in the region by United States, Mexican and multinational corporations is only increasing the environmental challenge. The complexity of these environmental concerns calls for a coordinated and binational approach at all levels of government.

Environmental Trends

Water pollution is a growing concern in the United States-Mexico border region. Rapid population growth has surpassed the existing capacity of water systems, sewage systems and wastewater treatment facilities in many United States-Mexico border communities. Water quality problems have been compounded by the growth of industrial waste production and agricultural runoff. Some of this infrastructure gap has been addressed in recent years by the construction of new municipal water treatment plants and government programs to fund household septic tank systems. Nevertheless, major infrastructure investments by both countries will be required in the future, particularly if industrial growth and population growth trends continue.

United States-Mexico border residents are increasingly concerned about exposure to toxic substances, including acute pesticide exposure. Information on toxic substances is far from complete for many areas of the border. Mexico tracks the number of hospital admissions for acute pesticide exposure, but information is not available for all United States border states at the present time. In addition, information on pesticide exposures that do not result in hospital admissions is even more incomplete. U.S. border states will seek information on all reported acute pesticide exposures from state poison control centers.

Improving Environmental Quality

The need for a coordinated binational effort to address environmental issues led to the La Paz Agreement of 1983, under which Mexico and the United States established 6 working groups to address environmental issues in the border region. This agreement was followed by the United States-Mexico Border XXI Environmental Health Workgroup in 1996, which has promoted federal and state collaboration as an important part of binational cooperation in improving the environment. Other efforts to improve the environment and health along the United States-Mexico border have come from state and local environmental health councils, and non-governmental organizations. All of these groups can play important roles in detecting environmental health issues, promoting public awareness of the problems and devising solutions.

HIV/AIDS

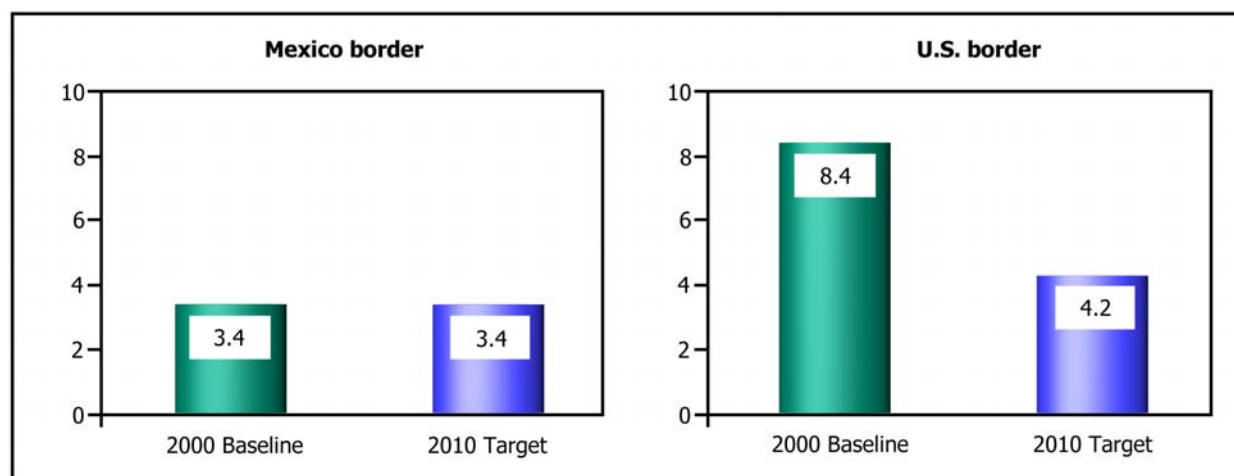
HIV Infection objective		
	Mexico	United States *
HIV+	Keep HIV+ incidence rate stable: <ul style="list-style-type: none"> Maintain at 3.4 per 100,000 inhabitants. 	Reduce HIV+ incidence rate by 50 percent: <ul style="list-style-type: none"> From 8.4 to 4.2 per 100,000 inhabitants.

* For border regions of Arizona, New Mexico and Texas only.

HIV/AIDS is a major cause of illness and death in the United States, and is growing rapidly in importance in Mexico. At the present time, HIV/AIDS is no longer restricted to specific population groups. HIV infection and AIDS have been reported in almost every age and socio-economic group, and in all large cities on the United States-Mexico border. As with all other communicable diseases, HIV/AIDS transmission is not restrained by political boundaries.

In 2000, 301 new cases of HIV infection were reported in the United States border regions of Arizona, New Mexico and Texas, or an incidence of 8.4 per 100,000 inhabitants. Information on HIV infection is not currently available for the border region of California. In the 80 border *municipios* of Mexico, the HIV incidence was 3.4 per 100,000 in 2000, approximately one-third the U.S. rate.

Figure F:
HIV + Incidence Rate
Rate per 100,000 inhabitants



Source: Mexico: Unified Epidemiological Surveillance Information System, General Directorate of Epidemiology, SSA; United States: State Health Departments of Arizona, New Mexico, Texas.

Levels and Trends of HIV/AIDS

There are significant differences between the United States and Mexico in the pattern of the HIV/AIDS epidemic. The explosive growth of HIV infection in the United States during the 1980s gave way to a stable infection rate beginning in the early 1990's. The development of antiretroviral treatment therapies in the mid-1990's led to a dramatic decline in both the development of AIDS and in deaths due to AIDS in the United States. In Mexico, the number of HIV + cases grew rapidly in the 1980's and early 1990's, reaching an annual incidence rate of 4.6 per 100,000 population in 1992. Since that peak, the national HIV + incidence rate has slowly declined to a rate of 3.3 in 2000.

The spread of HIV infection and AIDS also has differed in the border region. In 1990, one of the major health differences between the United States border area and the United States as a whole was the level of AIDS cases and deaths. Excluding San Diego, the AIDS death rate on the United States border was one-third the United States national rate. The AIDS death rate has declined in the United States border region since the mid-1990s, but not as rapidly as the national trend. As a result, the AIDS death rate in the United States border region is now closer to the national level than before. In Mexico, mortality due to AIDS was considerably higher for the border region than for the country as a whole, and the border mortality rate has been increasing more rapidly. While the national mortality rate due to AIDS rose from 1.9 to 4.2 from 1990 to 2000, the border rate rose from 1.6 to 7.0 deaths per 100,000 inhabitants in the same period.

Impact and Prevention of HIV/AIDS

Despite recent advances in treatment, HIV/AIDS continues to impose a major burden in the form of illness, disability and death. New therapies have reduced the AIDS death rate in the United States-Mexico border region, but the cost of these medications has put them out of reach for certain segments of the population. Recent United States estimates of the lifetime cost of health care associated with HIV have grown from US\$55,000 to US\$155,000 or more. In this context, HIV prevention becomes even more cost-effective. In the United States, the AIDS Drug Assistance Program (ADAP) provides funding for drug treatment for HIV. Funding for this program has increased by more than 1,000 percent from 1996 to 2001. Eligibility for the program is based on income level, with the eligibility standard varying from 200 percent of the federal poverty level in Texas to 400 percent in California.

In Mexico, the origin of the epidemic is primarily sexual; this form of transmission is the cause of almost 90 percent of HIV/AIDS cases. Perinatal transmission is the principal cause of HIV/AIDS infection among those under 15 years of age. Since 1986, laws have existed in Mexico to prevent the commercialization of blood, and require careful analysis of blood before it is transfused. As a result, AIDS cases as a result of blood transfusion have declined significantly, and in the past two years not a single case of this type has been diagnosed. In Mexico almost 85 percent of persons receive antiretroviral treatment from health sector institutions. The highest impact of HIV/AIDS is on the young of both sexes from 25 to 44 years of age.

HIV prevention requires a broad range of medical and counseling services, accompanied by information, education and other activities. Many strategies have been developed to reduce

the spread of HIV infection, including the promotion of safer sex practices and the reduction of needle sharing. In addition, HIV counseling, education and information should be appropriate for local cultures and languages. An important issue, however, is access to care, as knowledge of HIV status is a key part of halting the transmission of HIV. One of the major barriers to care is the lack of providers trained to provide health care to HIV positive patients on both sides of the border.

Immunization and Infectious Disease

Immunization and Infectious Disease objectives		
	Mexico	United States
Immunization	Keep immunization * coverage rate stable for children age 1 year and 1-4 years: <ul style="list-style-type: none"> Maintain rate at 95 percent or better. 	Raise immunization ** coverage rate for children 19-35 months to 90 percent: <ul style="list-style-type: none"> <i>Developmental objective:</i> Baseline data not yet available for this measure.
Hepatitis A	Reduce incidence rate by 50 percent: <ul style="list-style-type: none"> From 24.0 to 12.0 per 100,000 inhabitants. 	Reduce incidence rate by 50 percent: <ul style="list-style-type: none"> From 11.0 to 5.5 per 100,000 inhabitants.
Hepatitis B	Reduce incidence rate by 50 percent: <ul style="list-style-type: none"> From 1.1 to 0.6 per 100,000 inhabitants. 	Reduce incidence rate by 50 percent: <ul style="list-style-type: none"> From 6.3 to 3.2 per 100,000 inhabitants.
Tuberculosis	Reduce incidence rate by 10 percent: <ul style="list-style-type: none"> From 33.4 to 30.1 per 100,000 inhabitants. 	Reduce incidence rate by 50 percent: <ul style="list-style-type: none"> From 10.0 to 5.0 per 100,000 inhabitants.

*Includes 1+doses of BCG; 3+ doses of polio vaccine; 3+ doses of diphtheria, tetanus, pertussis, haemophilus influenzae and hepatitis B vaccine, and 1+ doses of measles, German measles and mumps vaccine.

** Includes 4+ doses of diphtheria, tetanus and pertussis or diphtheria and tetanus; 3+ doses of haemophilus influenzae, 3+ doses of hepatitis B vaccine, 3+ doses of polio vaccine, 1 dose of varicella vaccine, 1 dose of measles, mumps, German measles vaccine.

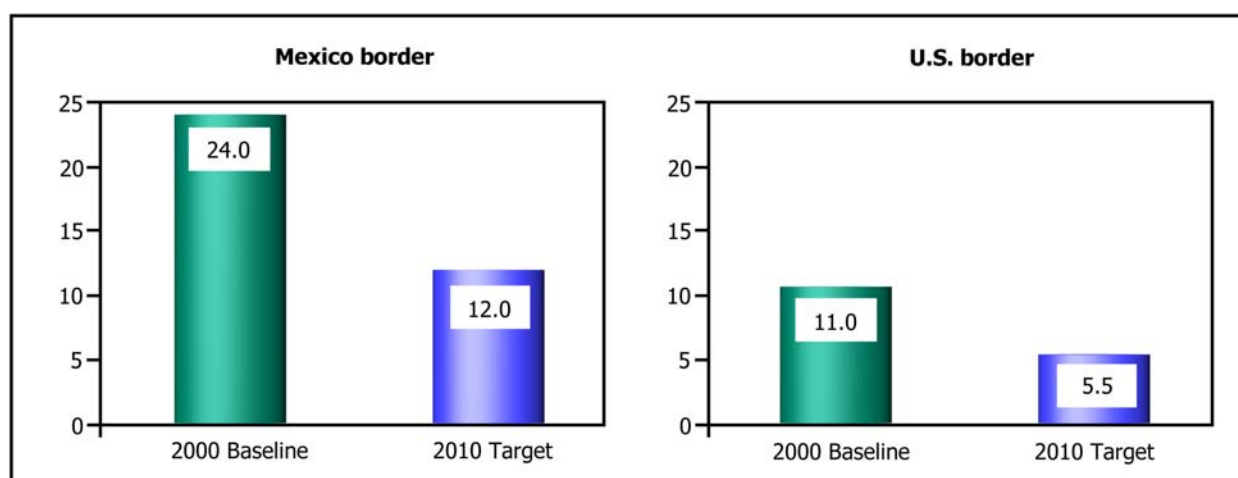
Infectious diseases are a major cause of illness, disability, and death in both Mexico and the United States. In addition, new infectious agents and diseases have appeared, and some diseases considered under control have reemerged in recent years. The United States-Mexico border presents special challenges for the prevention and treatment of infectious diseases because of the mobility of the population and the need to coordinate two national strategies for prevention, diagnosis, testing, reporting, and treatment.

Vaccines can prevent the debilitating and in some cases fatal effects of some infectious diseases. However, the organisms that cause these diseases have not disappeared. Rather,

they have receded and will reemerge if the vaccination coverage drops. Aggressive and continuous vaccination campaigns are required to prevent the resurgence of vaccine-preventable diseases.

The vaccine coverage rate in early childhood was above 95 percent in Mexico in 2000, and attained 97.5 percent in the Mexican border states. Vaccination coverage for children 19-35 months of age was significantly lower in the United States, including the U.S. border region. In 2000, the coverage rate was 68.6 percent in the U.S. border states. Within the border region, the coverage rate was 72.2 percent in San Diego and 67.1 in El Paso.

Figure G:
Hepatitis A Incidence Rate
Cases per 100,000 inhabitants



Source: Mexico: Unified Epidemiological Surveillance Information System, General Directorate of Epidemiology, SSA; United States: State Health Departments of Arizona, California, New Mexico, Texas.

Impact of Infectious Diseases

The direct and indirect costs of infectious diseases are significant in both countries. In addition to the cost of lost productivity due to illness or death, the cost of direct medical treatment can be substantial. If diagnosis and treatment of infectious disease cases are delayed, treatment costs can rise by a factor of 40 or more. This incremental cost of treatment delay is particularly true for the treatment of drug-resistant tuberculosis.

Vaccines can result in significant cost savings. For vaccine-preventable diseases, vaccination can produce medical expenditure savings nearly equal to the cost of vaccination, and indirect savings related to lost productivity can be much larger than the treatment savings. In the United States, savings are estimated to be as high as \$24 for every dollar spent on diphtheria-tetanus-pertussis vaccination.

Prevalence of Infectious Diseases

For many infectious diseases, incidence rates for the United States border region are significantly higher than United States national rates. These higher rates are true for vaccine-preventable diseases (measles, mumps, pertussis), waterborne diseases (salmonellosis, shigellosis), and others, such as hepatitis and tuberculosis. The hepatitis A rate in the United States border region of 11.0 per 100,000 was more than 2 times the national rate of 4.8 in 2000. In Mexico, the incidence of hepatitis A in 2000 was higher in the border region than for the entire country, at 24.0 versus 21.3 per 100,000.

Tuberculosis represents one of the most important re-emerging infectious diseases in both the United States and Mexico. The difficulties in completing treatment of tuberculosis cases on the border, related to the ease of movement across the border, have contributed to the growth of drug-resistant tuberculosis in both countries. On the United States side of the border, the incidence of tuberculosis has declined over the past decade to 10.0 per 100,000 in 2000, but remains about 70 percent above the national rate. The tuberculosis rate for the *municipios* of Mexico border is also about 100 percent above the national rate (33.4 per 100,000 versus 15.7). Within the Mexico border region, certain states reported high incidence rates for tuberculosis, including Baja California (41.7) and Tamaulipas (38), while Chihuahua (14.9) and Coahuila (16.6) had much lower rates.

Communicable disease data from Mexico and the United States are not entirely comparable due to national differences in diagnosis, testing and reporting for many infectious diseases. In Mexico, many of the cases reported are based on clinical diagnosis, while in the United States most are laboratory confirmed cases. The Border Infectious Disease Surveillance (BIDS) project, developed by CDC in coordination with the *Secretaría de Salud* of Mexico and state and local health authorities, is a borderwide initiative to standardize surveillance protocols in both countries.

Prevention and Treatment

A coordinated strategy is required to detect, control and prevent infectious diseases. For vaccine-preventable diseases, the strategy is clearly to maximize the vaccination coverage rate in the at-risk population. This strategy will require improvements in delivery services, reduction of financial burden, increased community participation, and improved monitoring of disease and vaccination coverage. Mexico has done a commendable job of raising the vaccination coverage rate through a multi-faceted program.

Increased vaccination coverage has produced dramatic declines in the incidence of some infectious diseases. For example, measles and mumps cases have decreased significantly in the past decade, in both countries and in the border region. Lower levels of diphtheria, tetanus and pertussis are also the result of improved vaccination coverage. A vaccine against hepatitis A is now available and will play an important role in reducing the incidence of this disease in the future.

For diseases that are not preventable or only partially preventable by vaccine, a different approach is required. Reducing tuberculosis rates requires active surveillance, including testing of at-risk populations, providing curative therapy to tuberculosis patients, ensuring that therapy

is completed and investigating close contacts of tuberculosis patients. Lack of access to care, an issue on the border, can delay the detection of tuberculosis cases, and limit direct observation of therapy (DOT) by health care providers. In addition, mobility of the United States-Mexico border population, including the ease of border crossings, makes it extremely difficult to ensure that tuberculosis patients complete their therapy. Failure to complete therapy can lead to drug-resistant tuberculosis that is much more difficult and costly to resolve. Reducing tuberculosis rates in this setting requires the cooperation and coordination of local, state, and national tuberculosis programs in both countries. Cooperative efforts include the Ten Against TB program, which coordinates the tuberculosis activities of the ten United States and Mexico border states. A cooperative effort of the Commission is the U.S.-Mexico Binational TB Referral and Case Management Project. This new initiative will establish a comprehensive binational tuberculosis (TB) referral and case management system for the United States and Mexico. The goals of this initiative are to ensure continuity of care and completion of treatment for patients who migrate between the United States and Mexico, and to coordinate the referral of patients between the health systems of both countries.

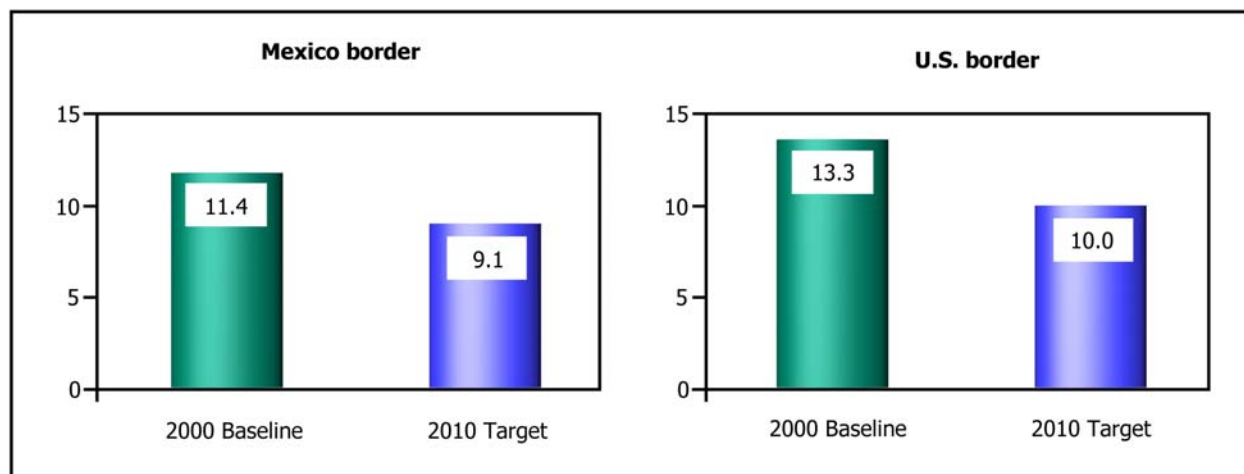
Injury Prevention

Injury Prevention objectives		
	Mexico	United States
Motor Vehicle Crash Deaths	Reduce motor vehicle crash death rate by 20 percent: <ul style="list-style-type: none">• From 11.4 to 9.1 deaths per 100,000 inhabitants.	Reduce motor vehicle crash death rate by 25 percent: <ul style="list-style-type: none">• From 13.3 to 10.0 deaths per 100,000 inhabitants.
Childhood Unintentional Injury Deaths	Reduce childhood death rate due to unintentional injuries by 50 percent: <ul style="list-style-type: none">• From 55.7 to 27.9 deaths per 100,000 children age 0-4.	Reduce childhood death rate due to unintentional injuries by 30 percent: <ul style="list-style-type: none">• From 14.7 to 10.3 deaths per 100,000 children age 0-4.

Unintentional injury is one of the leading causes of death on the United States-Mexico border. More than 5,000 border residents die each year from injuries due to motor vehicle crashes, falls, drowning, firearms, poisoning, fires and suffocation. On the United States side of the border, the injury death rate in 2000 was 32.4 per 100,000 population, and the U.S. national rate was 34.9. On the Mexican side of the border, accidents are the fourth leading cause of death with a rate of 46.1 per 100,000 inhabitants and a national rate of 36.2 in 2000.

The most common cause of unintentional injury death is motor vehicle crashes. On both sides of the border, nearly half of all injury deaths are the result of motor vehicle crashes. Among children under the age of 5, injuries are a leading cause of death. The childhood injury death rate is especially high in certain areas along the United States-Mexico border.

Figure H:
Motor Vehicle Crash Mortality
Deaths per 100,000 inhabitants



Source: Mexico: INEGI/SSA, 2000; United States: National Center for Health Statistics, CDC.

Motor Vehicle Crashes

The risk of death due to a motor vehicle crash is greatest among adolescents and young adults (15 to 24 years of age) and the elderly population (75 or more years of age). Motor vehicle deaths can be prevented by increasing the use of automobile seat belts, reducing the consumption of alcohol by automobile drivers, enhancing enforcement of traffic laws (particularly maximum speed limits), and improving the quality of roads, lighting and other safety enhancements. The motor vehicle death rate was 13.3 per 100,000 population on the United States side of the border in 2000, compared to 11.4 in the Mexico border area.

Within the border region, death rates due to motor vehicle crashes were especially high in a cluster of United States counties in eastern California and western Arizona (Imperial and Yuma counties), along with Hidalgo County in the lower Rio Grande valley of Texas. San Diego County, California had one of the lowest death rates due to motor vehicle crashes. In Mexico, the *municipios* with the highest death rates were Agua Prieta, Sonora and Nuevo Laredo, Tamaulipas.

Childhood Injury Deaths

Unintentional injuries are an important cause of death among young children, but particularly so for those 1-4 years of age. Leading causes of childhood injury deaths include motor vehicle crashes, drownings, poisonings, and fires. Because these deaths take place at such young ages, childhood deaths have a disproportionate effect on the total number of years of potential life lost (YPLL), an important analytic tool for assessing the impact of various causes of death.

Prevention of childhood injury deaths should first focus on improving compliance with child car seat laws, because of the importance of motor vehicle crashes as a cause of childhood injury deaths. Although the childhood death rate due to motor vehicle crashes is the second

lowest of any age group, motor vehicle accidents account for a large proportion of all childhood injury deaths. Other important preventive measures would be restricting unsupervised access to swimming pools or other bodies of water, and improved safeguards against access to household toxic substances by young children.

Maternal, Infant and Child Health

Maternal, Infant and Child Health objectives		
	Mexico	United States
Infant Deaths	Reduce infant mortality rate by 50 percent: <ul style="list-style-type: none"> From 21.6 to 10.8 deaths per 1,000 live births. 	Reduce infant mortality by 15 percent: <ul style="list-style-type: none"> From 5.4 to 4.6 deaths per 1,000 live births.
Infant Deaths from Birth Defects	Reduce infant deaths from congenital abnormalities by 50 percent: <ul style="list-style-type: none"> From 4.6 to 2.3 per 1,000 live births. 	Reduce infant deaths from congenital abnormalities by 30 percent: <ul style="list-style-type: none"> From 1.5 to 1.1 per 1,000 live births.
Prenatal care	Increase percent of women beginning prenatal care in first and second trimester: <ul style="list-style-type: none"> From 59 percent to 70 percent.* 	Increase percent of women beginning prenatal care in first trimester: <ul style="list-style-type: none"> From 73.2 percent to 85 percent.
Teenage Pregnancies	Reduce teenage pregnancies by 20 percent: <ul style="list-style-type: none"> From 25.3 to 20.2 per 1,000 women 10-19 years of age. 	Reduce teenage pregnancies by 33 percent: <ul style="list-style-type: none"> From 34.0 to 22.8 per 1,000 women 10-19 years of age. From 41.8 to 28.0 per 1,000 women 15-17 years of age.

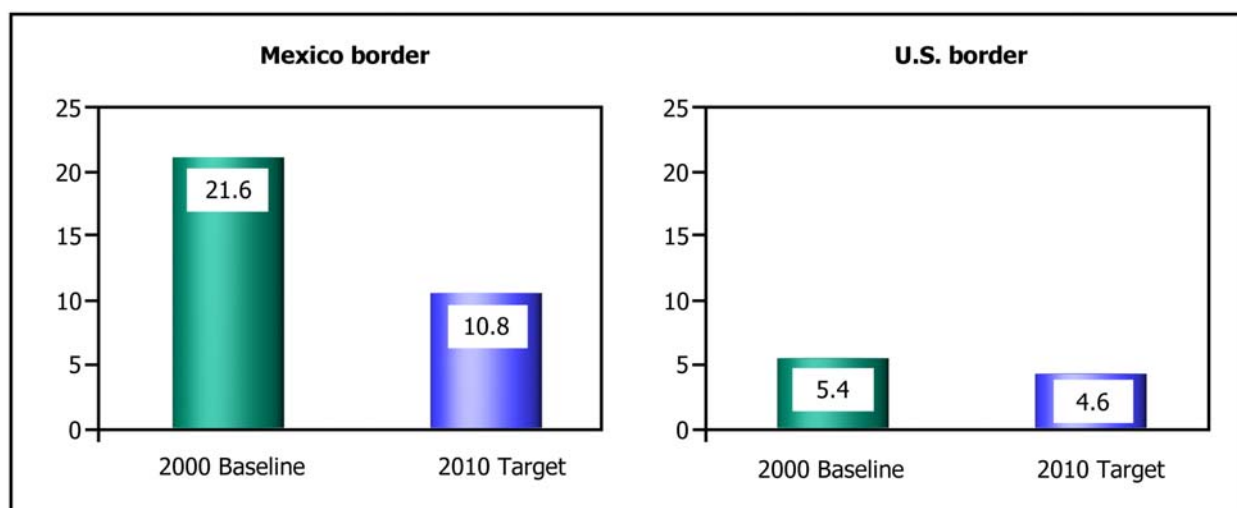
* Based on border state data.

Improving the health of mothers, infants and children is essential to improve overall health in the border region. The health of a population is reflected in the health of its most vulnerable members: mothers, infants, and children. In addition, improving the health of this group lays the foundation for better health in the next generation.

In 2000, about 27 percent of all United States border women who gave birth, or more than 34,000 women, did not initiate prenatal care in the first trimester of pregnancy, and some mothers did not receive prenatal care at all. At the national level, 17 percent of women began prenatal care after the first trimester in the United States. In Mexico, 59 percent of women from the border states initiated care within the first 6 months of pregnancy. Although infant

mortality is relatively low, the proportion of infant deaths due to congenital defects, particularly neural tube defects, is high in the Mexican border population. Teenage pregnancy is a concern in both countries, but especially in the United States: in the U.S. border region, there were about 6,000 births to women 15-17 years of age in 2000.

**Figure I:
Infant Mortality**
Infant deaths per 1,000 live births



Source: United States: National Center for Health Statistics, CDC. Mexico: INEGI/SSA, 2000.

Impact of Maternal, Infant and Child Health Problems

The health problems of infants and children are important because they occur so early in the lives of these persons. The burden of childhood disability is compounded because these individuals will live many more years with their disabling conditions than will persons who become disabled later in life. When infants and children die, life expectancy rates (or years of potential life lost) are disproportionately affected. Maternal deaths are significant not only because of the deaths themselves, but because of the impact on their families, particularly on surviving children.

Screening and Prevention

Screening of pregnant women and young children is essential to prevent or mitigate many serious health problems. Screening as a part of prenatal care can identify many important maternal health conditions or risk factors that contribute to poor infant outcomes, including pregnancy-related hypertension and diabetes, cigarette smoking and others. The use of alcohol, tobacco and illegal substances during pregnancy is associated with many developmental problems of infancy and childhood, partly as the result of very low birth weight and premature delivery. Alcohol use during pregnancy in particular can cause fetal alcohol syndrome, a leading cause of mental retardation. Many of these risk factors can be prevented or mitigated by medical interventions or changes in maternal behavior. Most neural tube

defects are preventable, but the intervention requires nutritional supplements prior to conception.

Levels and Trends of Health Problems

The infant mortality rate on the United States border is surprisingly low given the level of poverty in the region. In part, the low rate is due to good birth outcomes among the population of Mexican origin, but reporting problems may also be a factor. The good outcomes include low levels of low birth weight and prematurity, which are partly the result of low rates of smoking, alcohol and illegal drug use. In addition, this population enjoys a strong social support network. Maternal factors such as good pre-pregnancy weight also contribute to good outcomes.

Neural tube defects are an important health issue on both sides of the border. The reporting of high levels of neural tube defects in the lower Rio Grande Valley of Texas in the early 1990's led to an intensive investigation by the Texas Department of Health and the Centers for Disease Control and Prevention. However, the study found no association between environmental factors and the high level of neural tube defects. There is an important genetic component to neural tube defects, but nutritional supplements in the form of folic acid supplements can be effective in lowering the incidence of this congenital anomaly. This preventive strategy has produced positive results in the Mexican border state of Nuevo Leon.

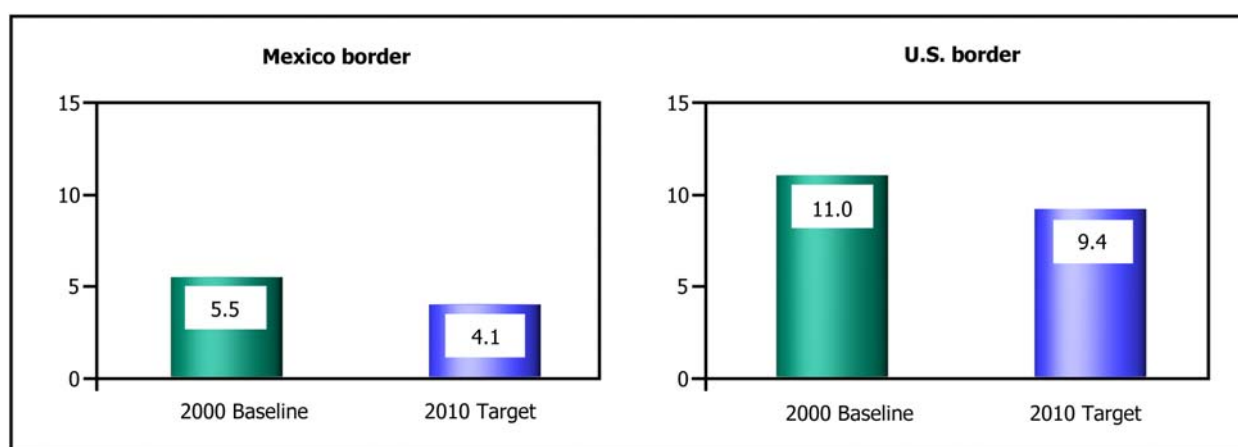
Access to prenatal care remains an issue on both sides of the border. Early initiation of prenatal care is important for the identification of health problems and risk factors. A sufficient number of prenatal care visits permits tracking of potential problems and initiating interventions to address health problems or behavioral risk factors. In 2000, only 73 percent of women who gave birth on the United States border initiated prenatal care in the first trimester; only 64 percent received adequate care in terms of both timing and number of prenatal visits. In Mexico, the focus is on the number of prenatal care visits received by each woman. Although the recommended number of prenatal care visits is five, the national average is 4.1 visits. In the Mexico border region, the average number of prenatal visits for women without access to the Social Security system is three visits. In two of the largest *municipios*, Tijuana and Juárez, pregnant women average only about two prenatal visits. In contrast, Agua Prieta and Anahuac report an average of more than five visits per pregnant woman.

Mental Health

Mental Health objective		
	Mexico	United States
Suicide Deaths	Reduce suicide death rate by 25 percent: <ul style="list-style-type: none">• From 5.5 to 4.1 per 100,000 inhabitants.	Reduce suicide death rate by 15 percent: <ul style="list-style-type: none">• From 11.0 to 9.4 per 100,000 inhabitants.

Mental disorders are health conditions characterized by altered thinking, mood, or behavior that are associated with distress or impaired functioning. These conditions can lead to a variety of problems including disability, pain, or death. The prevalence of mental illness in the border population is unknown, but in the United States about 22 percent of the national population is affected by a mental disorder annually. Suicide, a major public health problem in both countries, occurs most frequently as a consequence of a mental disorder. There were nearly 1,000 suicide deaths in the border region with about 280 in Mexico and about 700 in the United States.

Figure J:
Suicide Mortality
Deaths per 100,000 inhabitants



Source: Mexico: INEGI/SSA, 2000; United States: National Center for Health Statistics, CDC.
Mexico: Rates are not age-adjusted; United States: Rates are age-adjusted to U.S. 2000 population.

Burden of Mental Illness

Mental illness significantly contributes to disability worldwide, and creates a substantial public health burden in the form of impaired health and productivity. The World Health Organization's Global Burden of Disease study concludes that mental illness causes as much disability as heart disease and cancer in the United States. Costs associated with mental disorders include direct costs for diagnosis and treatment, as well as costs associated with lost or decreased productivity and disability insurance.

Of the principal mental disorders, major depression is thought to be one of the most important. The World Health Organization considers major depression to be the leading cause of disability among adults in developed nations. Suicides are often related to major depression and bipolar disorder (manic-depressive illness). The co-occurrence of addictive disorders with depression and other mental illnesses is a significant problem, as these addictions complicate clinical treatment for each disorder.

Trends in Suicides

The rate of suicide deaths per 100,000 population has declined in the United States-Mexico border region over the past decade, but remains relatively high in certain border states and border communities. In the United States border region, the suicide death rate is highest in Arizona and New Mexico and lowest in Texas. The suicide death rate for the United States border has remained equal to or slightly above the United States national rate for the past decade. In 2000, the U.S. border death rate due to suicides was 11.0 while the national rate was 10.4. The border suicide rate in 2000 was similar to the United States national rate for all age groups below age 45, but consistently exceeded the national rate for older age groups. The border excess was especially high in the oldest age group (85 years and older).

In Mexico, the suicide death rate on the border has gradually increased over the decade from 2.7 in 1990 to 5.5 in 2000; the national rate was 3.6 in 2000. More than half of all suicides on the United States-Mexico border are among people aged 25-44 years on the border, while this age group accounts for only one-third of all suicides at the national level. Among the *municipios* the highest death rates are found in Nogales, Juárez and Piedras Negras. In both countries, the suicide rate is substantially higher among men than women.

Treatment of Mental Illness

Access to mental health care services is an issue in the United States-Mexico border region, just as it is for access to general medical services. Barriers include a shortage of specialty mental health providers, and of providers who meet the linguistic or cultural needs of patients. Public sector mental health services are insufficient or not available in some parts of the border region. In addition, many health insurance programs in the United States border region provide lesser coverage of mental health services than to other health services.

Oral Health

Oral Health objective		
	Mexico	United States
Oral health care	<p>Ensure that 25 percent of the population uses oral health services annually:</p> <p><i>Developmental objective:</i> Baseline data not yet available for this measure.</p>	<p>Increase to 75 percent the proportion of the population using oral health care system annually:</p> <p><i>Developmental objective:</i> Baseline data not yet available for this measure.</p>

Oral health is an essential component of good health, and one that is particularly lacking for certain population groups in the United States-Mexico border region. In both countries, low-income groups have the poorest access to dental health services. In the United States, this unmet need for dental treatment is high for Hispanic children, particularly for the children of Hispanic migrant farm workers.

Essential dental services include:

- Treatment of dental cavities
- Preventive services such as dental sealants
- Dental restorative treatments such as replacement of permanent teeth
- Screening and diagnosis of oral and pharyngeal cancers
- Identification and referral for treatment of oral birth defects, such as cleft lip and cleft palate.

Availability of Oral Health Services

Access to dental care in the United States-Mexico border region is even more problematic than access to primary medical care services. A rapidly growing population on both sides of the border makes it difficult to increase the ratio of dentists to population. Other barriers to care include the cost of dental care, lack of dental health insurance on the United States side of the border, and unavailability of linguistically and culturally appropriate dental personnel. Regular information on use of dental health services is not available for all of the U.S. side of the border, but information for the California border counties of Imperial and San Diego indicate that 64.7 and 71.1 percent, respectively, of the population more than 2 years of age had a dental visit in the past 12 months.

In the United States, counties or areas within counties are identified as Health Professions Shortage Areas (HPSA) for dental care when the ratio of population to dentists is above the threshold level of 3,000 inhabitants per dentist. In 2002, about one-third of the U.S. border population resided in dental shortage areas. The lack of dentists was greatest in New Mexico and Texas, where respectively 66 percent and 78 percent of the border population resided in dental shortage areas. To eliminate dental shortage areas, it would be necessary to more than double the existing number of dentists in the border region.

Levels and Trends in Dental Health

In both countries the level of dental caries in children has declined in recent decades, due to increased use of toothpastes containing fluoride as well as community water fluoridation (United States) or fluoride supplementation of salt (Mexico). Dental caries remain a significant problem for certain subgroups of the population, in particular for low-income groups. In the United States, Mexican-American children in the Southwest region have 2-3 times as many decayed permanent teeth as the mean number for the total population in the region. The disparity is greatest for those 15-17 years of age and treatment needs for children were also the most expensive for this age group, requiring large numbers of extensive restorations, such as crowns and prosthetic replacements. The greater need among older children is probably due to the failure to provide earlier treatment for dental caries.

Improving Oral Health

A continued focus on oral health by government and professional organizations will help to improve oral health in the United States-Mexico border region. Increasing the number of dental personnel, along with community-based treatment programs, will provide affordable access to dental care for the underserved population. To reduce oral and pharyngeal cancers, dental personnel must provide comprehensive oral cancer examinations on a routine basis for high-risk persons, including all those aged 40 years or older. An important part of improving oral health is developing oral health literacy – the ability to find or understand oral health information and services – in the population at large. Oral health literacy is essential to ensure that border residents practice appropriate oral hygiene and schedule regular dental visits and other aspects of oral health care.

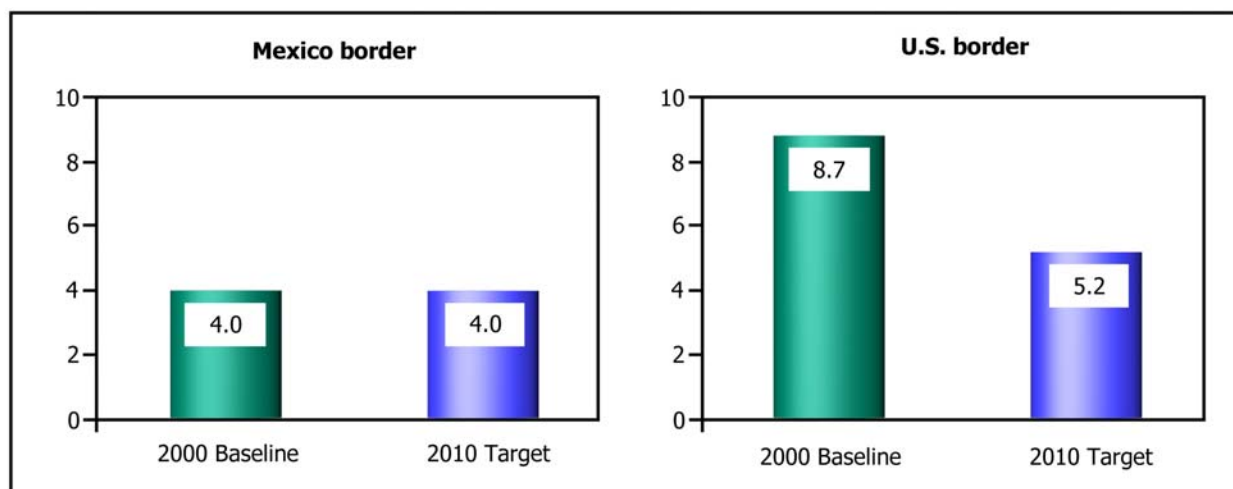
Respiratory Diseases

Respiratory Disease objective		
	Mexico	United States
Asthma Hospitalization	Keep the hospital discharge rate stable: <ul style="list-style-type: none">Maintain asthma hospitalization rate at 4.0 per 100,000 population	Reduce the hospital discharge rate by 40 percent: <ul style="list-style-type: none">From 8.7 to 5.2 per 100,000 population.

Asthma is a serious and growing health problem for the border regions of both the United States and Mexico. In the United States, asthma is one of the 10 leading chronic conditions resulting in restricted activity, and is the second most common cause of chronic illness in children. Complications of asthma are significant levels of restricted activity, hospitalization and death. Environmental factors can contribute to illness or disability from asthma, and can trigger asthma episodes.

Reducing the impact of asthma requires active interaction between the patient and physician. By working together on managing the disease according to established guidelines, the physician and patient can mitigate or eliminate many of the problems associated with asthma.

Figure K:
Asthma Hospitalization Rate
 Discharges per 100,000 inhabitants



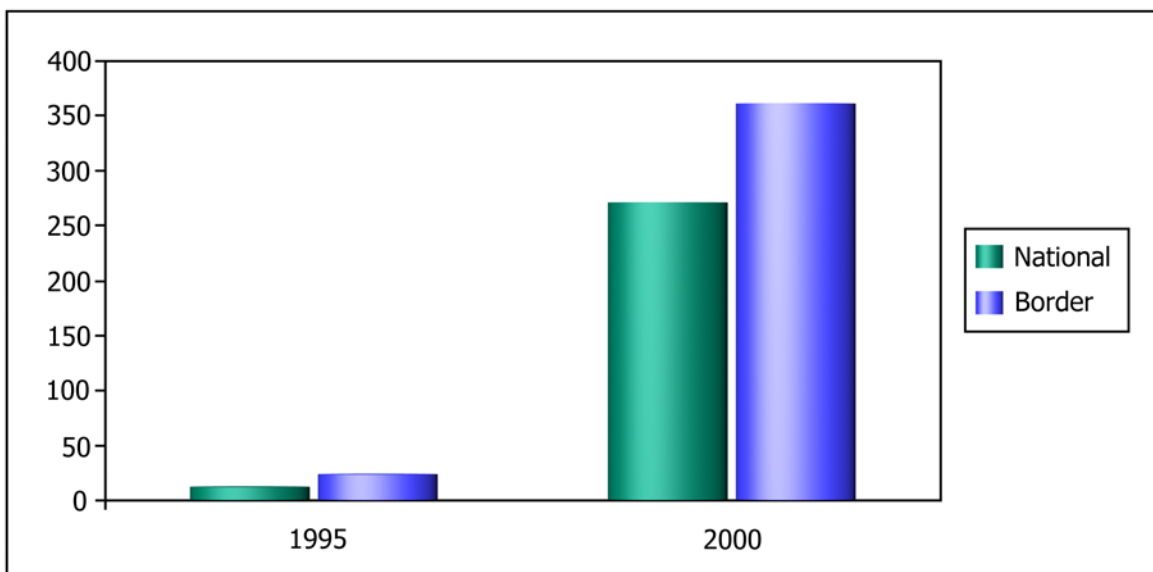
Source: Mexico: Unified Epidemiological Surveillance Information System, General Directorate of Epidemiology, SSA;
 United States: State Health Departments of Arizona, California, New Mexico, Texas.

Levels and Trends of Asthma

In both Mexico and the United States, asthma prevalence and hospitalization have risen significantly in the last two decades, particularly among children and adolescents. Complete information is not available for the entire United States border region, but asthma prevalence and hospitalization are high in the border regions of California and Arizona. Imperial County, California saw a sharp rise in the childhood hospitalization rate from the mid-1980's to the mid-1990's. In general, acute episodes of asthma requiring emergency room treatment or severe cases requiring hospital admission tend to be higher in populations lacking access to health care.

The number of asthma cases in Mexico grew significantly from 1995 to 2000, both in the border region and nationally, as shown in the figure below. At the national level, the incidence of asthma cases rose from 23.3 to 261 per 100,000 inhabitants. The increase in asthma cases has been even higher on the border, rising from 39.5 to 387.3 per 100,000 inhabitants.

Figure L:
Asthma Incidence, Mexico
Rate per 100,000 inhabitants



Source: Unified Epidemiological Surveillance Information System, General Directorate of Epidemiology, SSA.

Environmental Factors and Asthma

Increases in asthmatic symptoms have been associated with a variety of pollutants. Illness and disability from asthma are related to air pollutants, such as ozone and particulate matter, allergens, and exposure to some pesticides. Excessive levels of some air pollutants exist in parts of the United States-Mexico border region. The California border region has exceeded federal and/or state standards for ozone and particulate matter, while the El Paso/Las Cruces area of Texas and New Mexico exceeds federal ozone standards. The absence or inadequate amount of air monitoring equipment in the United States-Mexico border area makes it impossible to determine the relationship between pollutant levels and illness and disability for asthma.

Effective Management of Asthma

Hospitalization is required for severe episodes of asthma and is not a measure of disease incidence or prevalence. In many cases, hospitalization is the result of a lack of effective management of the disease. Improved asthma control can result from physician-patient interaction in four areas of asthma management:

- Avoiding or controlling the factors that can lead to asthma episodes, such as environmental pollutants;
- Managing asthma through medications appropriate for the severity of the disease;
- Monitoring the disease via objective measures of lung function; and
- Educating the patient to become actively involved in managing the disease.

In the United States, much of the recent growth in asthma hospitalization has occurred in populations characterized by poverty and a lack of access to health care. These groups suffer disproportionately from complications of asthma brought about by higher levels of environmental exposures, lack of quality medical advice, and inadequate financial resources for long-term management of the disease.

Chapter 5

Process Description and Next Steps

The publication of *Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border* is an initial step toward the development of a bilateral strategic plan focused on health promotion and disease prevention. In April 2003 the USMBHC established a new standing committee, the Healthy Border (HB) Committee, to monitor, evaluate, and track the progress and targets of the Healthy Border Program. The HB Committee has held two binational meetings since its inception. In its first meeting, the HB Committee selected the completion of this document as its priority. The Committee determined that a binational process including health data specialists from the federal levels and the states would be key to achieving the goal. A binational meeting of these health data specialists took place on July 7 and 8, 2003. The outcome of the meeting was agreement on the indicators that each side (Mexico and U.S.) needed to address. The binational group also developed a timeline determined to be feasible for both parties.

The publication of this document marks an important milestone for the Healthy Border Program. The document illustrates a binational effort to determine baseline data for 20 priority health indicators and to establish year 2010 targets for each of the countries. The set of health indicators will assist in the prioritization of health issues and the design of health programs to address the issues. The availability of baseline data and targets will also assist in tracking outcomes and in program evaluation. The Healthy Border objectives will help focus health improvement activities on both sides of the border, guide the allocation of health resources and promote binational health projects.

Despite the delay in producing this document, contributions to Healthy Border 2010 have not been postponed. A broad network of Healthy Border partners has undertaken planning and implementation of activities since the program's inception. On both sides of the border, many contributions to Healthy Border 2010 have been made by border communities, local-level health departments, and state-led and federal level efforts in partnership with the United States-Mexico Border Health Commission. Activities of the Commission Outreach Offices from the United States and Mexico's Regional Offices have been conducted through work plans developed in coordination with the Commission Members as well as the Offices of Border Health located in each of the state health departments, Mexico's Secretaries of Health, and the Mexican states' border epidemiologists. The Commission's federal-level network of partners has also been instrumental in the development and sustainability of the program.

Armed with baseline data to accompany the targets that had already been established, the Healthy Border Program is presently focused on:

Capacity-building for Healthy Border teams – Simultaneous development of the capacity of the Healthy Border teams is equally important. A series of training and continuing education opportunities are being planned. Workshops that are currently being planned include: development of health promotion strategies, introduction to health data, and development of work plans.

Expansion of partnerships – Partnerships at all levels -- binational, federal, state, community-level – are fundamental to the success of the program.

Continued identification of best practices – The Commission’s Border Models of Excellence (BMOE) is one avenue for identifying programs that have demonstrated effective strategies focused on border health. In its first phase, the binational initiative identified 16 model programs that utilize a community health worker/promotora model. The ultimate goal of replication of these models is in its beginning stages.

Under consideration are conducting progress reviews and focusing on the elimination of health disparities:

Interim Progress Reviews – As a component of ongoing evaluation, regularly scheduled reviews of each of the topic areas are being considered. These review sessions could encompass an assessment of the latest monitoring information followed by a discussion of the issues by topic area experts. Firm establishment of an ongoing process of reviews would help ensure that a final review takes place in 2012. Furthermore, participants could play a pivotal role in the identification of data for the developmental objectives as well as identification of new focus themes.

Eliminating health disparities – One of the program’s overarching goals is the elimination of health disparities. The scope of this initial Healthy Border document is limited to data representing the general population that resides within the geographic region of the United States-Mexico border. Future efforts will begin to focus on the unequal burden of disease as related to different and specific groups of people. Data that represent specific groups of people -- defined by race, ethnicity, or gender, for example -- will assist policymakers and planners to more effectively address the health issues of these and other populations.

As the Commission’s binational agenda of health promotion and disease prevention, the Healthy Border Program is the foundation for developing bilateral, border-wide and community-level health improvement plans for the U.S.-Mexico border. *Healthy Border 2010: An Agenda for Improving Health on the United States-Mexico Border* is the instrument for monitoring and documenting progress toward attaining the program’s health objectives and indicators. The challenges and successes will be shared.

APPENDIX 1

GLOSSARY AND BIBLIOGRAPHY

Glossary

Age Adjustment – Through the direct method, rates are computed by applying age-specific rates in a population of interest to a standardized age distribution, in order to eliminate differences in observed rates that result from age differences in population composition.

Bilateral – Affecting two sides or two parties. In this case, issues affecting the United States and Mexico.

Binational – Of or pertaining to two nations.

Chronic Disease – A disease that continues for a long time, or progresses slowly, such as diabetes or heart disease. Sometimes referred to as non-communicable disease.

Colonias – The Spanish term used to describe rural and unincorporated subdivisions of United States cities located along the United States-Mexico Border. They are characterized by substandard housing, inadequate plumbing and sewage disposal systems, and inadequate access to clean water. Typically they are concentrated areas of high poverty that are physically and legally separated from neighboring cities.

County – Administrative subdivision of a U.S. state, similar to a *municipio* in Mexico.

Death Rate – The ratio of total deaths to total population in a specified community or area over a specified period of time. The death rate is often expressed as the number of deaths per 100,000 of the population per year. Also called fatality rate.

Developmental Objectives. Developmental objectives provide a vision for a desired outcome or health status. Current surveillance systems do not provide readily accessible data on these subjects. The purpose of developmental objectives is to identify areas of emerging importance and to drive the development of data systems to measure them. Developmental objectives have a potential data source with reasonable expectation of data points by the year 2004 to facilitate setting year 2010 targets in the mid-decade review. Developmental objectives with no baseline by mid-decade will be dropped.

Gross Domestic Product – The total output of goods and services produced by labor and property located within the country, regardless of ownership. Per capita GDP refers to the value of production per person.

Healthy Gente – Program of health objectives for the United States-Mexico border. The objectives are intended to assist border health systems to focus on key health problems, improve the allocation of health resources, provide direction to organizations and communities, and support good health through health promotion policies.

Hispanic – A person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

Infectious Disease – Sometimes referred to as communicable disease. Infectious diseases can be defined as:

- Any disease caused by the entrance, growth, and multiplication of bacteria or protozoans in the body. It may not be contagious
- A disease communicated by germs carried in the air or water, and thus spread without contact with the patient, such as measles.
- A disease transmitted only by a specific kind of contact.

Maquiladora – The Spanish term referring to an assembly plant in Mexico (typically near the United States border). Parts or raw materials are shipped into the plant and the finished product is shipped back across the border, or to its country of origin.

Mexican-American – A U.S. citizen or resident of Mexican descent.

Migration – The movement of a group of people from one country or locality to another.

Municipio – The Spanish term referring to a political region that is equivalent to a county in the United States.

National Health Indicators (*Indicadores de Resultado*) Program – A set of health measures established by the Mexican *Secretaría de Salud*. Forty-six (46) indicators were selected to evaluate and monitor the effectiveness of health policies within Mexico, as part of a program to decentralize the Mexican health care system.

Sister Communities – Two communities separated by the United States – Mexico border, but interdependent economically and in other ways.

Stakeholders – Individuals or groups who directly or indirectly receive the benefits or sustain the costs derived from the action of the firm: shareholders, employees, managers, customers, suppliers, debt-holders, communities, government, and so forth.

Underserved Populations – Communities that lack basic public infrastructure, including access to health care, clear water, water treatment, etc.

United States-Mexico Border Area/Region – Legally defined under the La Paz Agreement (1983) and Public Law 103-400 as the region within 100 kilometers (approximately 62 miles) of the border between the United States and Mexico.

Bibliography – United States

Introduction

Office of International and Refugee Health. *Health on the United States -Mexico Border: Past, Present and Future. A Preparatory Report to the Future United States-Mexico Border Health Commission.* Rockville, MD: United States Department of Health and Human Services, 1999.

Notzon, FC. "Healthy *Gente*: A Healthy People Program for the United States-Mexico Border", presented at the Healthy *Gente* Workshop, South Padre Island, Texas, November 3, 2000.

Lezana, MA. "The National Health Indicators Program of Mexico," presented at the Healthy People Launch Conference, Washington, D.C., January 24-28, 2000.

United States-Mexico Border Health Association. *Project Concenso Final Report.* El Paso, TX: USMBHA, 1991.

A Demographic and Health Profile of the Border

Bruhn JG and Brandon JE. (eds.). *Border Health: Challenges for the United States and Mexico.* New York: Garland, 1997.

Chan LS, McCandless R, Portnoy B, et al. *Maternal and Child Health on the United States - Mexico Border.* Austin, TX: The University of Texas, Lyndon B. Johnson School of Public Affairs, 1987.

Doyle TJ, Bryan RT. Infectious Disease Morbidity in the United States Region Bordering Mexico, 1990-98. *Journal of Infectious Diseases*, 182:1503-1510, 2000.

Environmental Protection Agency. *United States-Mexico Border XXI Program Framework Document.* Washington, D.C., 1996.

Freeman P, Gómez-Dantés O, Frenk J (eds.). *Health Systems in an Era of Globalization: Challenges and Opportunities for North America.* Washington, D.C. and Mexico City, 1995.

Furiño A and Muñoz E. Health Status Among Hispanics: Major Themes and New Priorities. *Journal of the American Medical Association*, 265:255-257, 1991.

Good Neighbor Environmental Board. *Fourth Report of the Good Neighbor Environmental Board to the President and Congress of the United States.* Washington, D.C., 2000.

Guendleman S and Jasis M. Giving Birth Across the Border: The San Diego-Tijuana Connection. *Social Science and Medicine*, 34:419-425, 1992.

Health Resources and Services Administration. *Assuring a Healthy Future Along the United States -Mexico Border: A HRSA Priority.* Rockville, MD: United States Department of Health and Human Services, 2000.

Mexican-American Policy Research Project. *The Health of Mexican-Americans in South Texas*. Austin, TX: Lyndon B. Johnson School of Public Affairs, University of Texas at Austin, 1979.

Mexican Commission for Health Research. *The North American Free Trade Agreement and Medical Services*. Mexico City: National Academy of Medicine of Mexico, 1992.

Pan American Health Organization. *Mortality Profiles of the Sister Communities on the United States-Mexico Border, 2000 Edition*. Washington, D.C.: PAHO, 2000.

Power JG and Byrd T. *United States-Mexico Border Health: Issues for Regional and Migrant Populations*. Thousand Oaks, CA: Sage, 1998.

Sharp J. *Bordering the Future: Challenge and Opportunity in the Texas Border Region*. Austin, TX: Texas Comptroller of Public Accounts, 1998. Available online at: <http://www.window.state.tx.us/border/border.html>.

Stroup-Benham CA and Treviño FM. Reproductive characteristics of Mexican-American, Mainland Puerto Rican, and Cuban-American women. *Journal of the American Medical Association*, 265:222-226, 1991.

State of California Office of Border Health. *California/Mexico Public Health Strategic Planning Meeting: Outcomes and Recommendations*. San Diego, CA: California Department of Health Services, 1998.

Texas-Mexico Border Health Coordination Office. *Texas-Mexico Border County Demographics and Health Statistics: 1994*. Edinburg, TX: The University of Texas-Pan American, 1994.

Texas Department of Health. *Immunization Initiatives Along the Mexico Border*. Austin, TX: Texas Department of Health, Immunization Division, October 31, 2002.

United States-Mexico Border Health Association. *Sister Communities Health Profiles: United States-Mexico Border, 1989-91*. El Paso, TX: USMBHA, 1994.

Warner DC. Health Issues at the United States-Mexican Border. *Journal of the American Medical Association*, 265:242-247, 1991.

World Health Organization. *World Health Statistics Annual, 1997-99 edition*. Geneva, 2000.

Healthy Border 2010 Objectives

Access to Care

Anderson R, Lewis SZ, Giachello AL, Aday LA, Chiu G. Access to medical care among the Hispanic population of the Southwestern United States. *Journal of Health and Social Behavior*, 22:79-89, 1981.

Institute of Medicine (IOM). Donaldson, MS, Yordy KD, Lohr KN, eds. Primary care. In: *America's Health in a New Era*. Washington, DC: National Academy Press, 1996.

Solis J, Marks G, Garcia M, Shelton D. Acculturation, access to care, and use of preventive services by Hispanics: Findings from HHANES, 1982-84. *American Journal of Public Health*, 80:11-19, 1990.

Treviño FM, Moyer ME, Valdez RB, Stroup-Benham DA. Health insurance coverage and utilization of health services by Mexican Americans, mainland Puerto Ricans, and Cuban Americans. *Journal of the American Medical Association* 265:233-237, 1991.

United States Preventive Services Task Force. *Guide to Clinical Preventive Services*. 2nd ed. Washington, DC: United States Department of Health and Human Services (HHS), 1995.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 1. Washington, DC: United States Government Printing Office, November 2000.

Valdez RB, Giachello A, Rodriguez-Trias H, et al. Improving access to health care in Latino communities. *Public Health Reports*, 108:534-539, 1993.

Wagner TH, Guendelman S. Healthcare utilization among Hispanics: Findings from the 1994 Minority Health Survey. *American Journal of Managed Care*, 6:355:364, 2000.

Weinick RM, Zuvekas SH, Drilea SK. *Access to Health Care – Sources and Barriers, 1996*. MEPS Research Findings No. 3. AHCPH Pub. No. 98-0001. Rockville, MD: Agency for Health Care Policy and Research (AHCPR), 1997.

Cancer

Brown ML, Hodgson TA, Rice DP. Economic impact of cancer in the United States. In: Schottenfeld D, and Fraumeni, Jr., JF; eds. *Cancer Epidemiology and Prevention*. 2nd ed. New York, NY: Oxford University Press, 1996.

Canto MT, Chu KC. Annual cancer incidence rates for Hispanics in the United States: Surveillance, Epidemiology, and End Results, 1992-96. *Cancer*, 88:2642-2652, 2000.

Fletcher SW, Black W, Harris R, et al. Report of the International Workshop on Screening for Breast Cancer. *Journal of the National Cancer Institute*, 85(20):1644-1656, 1993.

Henderson BE, Pike MC, Bernstein L, et al. Breast cancer. In: Schottenfeld D, and Fraumeni, Jr. JF, eds. *Cancer Epidemiology and Prevention*. 2nd ed. New York, NY: Oxford University Press, 1022-1039, 1996.

Muñoz E. Care for the Hispanic poor: A growing segment of American society. *Journal of the American Medical Association*, 260:2711-2712, 1988.

National Institutes of Health. Cervical cancer. *NIH Consensus Statement*, 14(1):1-38, 1996.

Schiffman MH, Brinton LA, Devesa SS, et al. Cervical cancer. In: Schottenfeld D, and Fraumeni, Jr. JF, eds. *Cancer Epidemiology and Prevention*. 2nd ed. New York, NY: Oxford University Press, 1090-1116, 1996.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 1. Washington, DC: United States Government Printing Office, November 2000.

Diabetes

Baxter J, Hamman RF, Lopez TK, et al. Excess incidence of known non-insulin-dependent diabetes mellitus (NIDDM) in Hispanics compared with non-Hispanic whites in the San Luis Valley, Colorado. *Ethnicity and Disease*, 3:11-21, 1993.

Burke J, Williams K, Gakill S, et al. Rapid rise in the incidence of type 2 diabetes from 1987 to 1996: Results from the San Antonio Heart Study. *Archives of Internal Medicine*, 159:1450-1457, 1999.

Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2000. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2002.

Centers for Disease Control and Prevention (CDC). *National Diabetes Fact Sheet: National Estimates and General Information on Diabetes in the United States*. Atlanta, GA: United States Department of Health and Human Services (HHS), CDC, 1999.

Flegal K, Ezzati T, Harris M, et al. Prevalence of diabetes in Mexican Americans, Cubans and Puerto Ricans from the Hispanic Health and Nutrition Examination Survey, 1982-84. *Diabetes Care*, 14:628-638, 1991.

Harris MJ. Racial and ethnic differences in health insurance coverage for adults with diabetes. *Diabetes Care*, 22:1679-1682, 1999.

Hodgson T, Cohen A. Medical care expenditures for diabetes, its chronic complications and its comorbidities. *Preventive Medicine*, 29:173-186, 1999.

Mitchell BD, Haffner SM, Hazuda HP, et al. Diabetes and coronary heart disease risk in Mexican Americans. *Annals of Epidemiology*, 2:101-106, 1992.

Stern MP. Genetic and environmental influences on type 2 diabetes mellitus in Mexican Americans. *Nutrition Reviews*, 57(5):S66-S70, 1999.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 1. Washington, DC: United States Government Printing Office, November 2000.

Environmental Health

Barnes MD, Morrison DH, Richards K. Our border environment: Public health, practice, and policy perspectives. In: Bruhn JG, Brandon JE, eds. *Border Health: Challenges for the United States and Mexico*. New York, NY: Garland Publishing, 117-162, 1997.

Davidhizar R, Bechtel GA. Health and quality of life within colonia settlements along the United States and Mexico Border. *Public Health Nursing*, 16:301-306, 1999.

EPA. *United States-Mexico Border XXI Program: Framework Document*. No. EPA 160. R-96-003. Washington, DC: EPA, 1996.

Good Neighbor Environmental Board. *Fourth Report of the Good Neighbor Environmental Board to the President and Congress of the United States*. Washington, D.C., 2000.

Mroz RC, Morales LL, Van Derslice J. Health and hygiene in the colonias: Water and disease. *Family and Community Health*, 19:49-58, 1996.

Rust GS. Health status of migrant farmworkers: A literature review and commentary. *American Journal of Public Health*, 9:1218-1224, 1990.

Texas Department of Health. *Survey of Health and Environmental Conditions in Texas Border Counties and Colonias*. Austin, TX: TDH, 2000.

United States-Mexico Border Health Association. *Sister Communities Health Profiles: United States-Mexico Border, 1989-91*. El Paso, TX: USMBHA, 1994.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 1. Washington, DC: United States Government Printing Office, November 2000.

HIV/AIDS

Barnes MD, Buckingham RW, Wesley AM. Hispanics, HIV, and AIDS along the United States - Mexico Border: Distinctive transmission trends and prevention strategies. In: Bruhn JG, Brandon JE, eds. *Border Health: Challenges for the United States and Mexico*. New York, NY: Garland Publishing, 117-162, 1997.

Bozzette SA, Berry SH, Duan N, et al. The care of HIV-infected adults in the United States, 1984-1992. *Journal of the American Medical Association*, 276(2):126-131, 1996.

Centers for Disease Control and Prevention (CDC). *HIV/AIDS Surveillance Report*, 10(2), 1998.

Diaz T, Buehler JW, Castro KG, Ward JW. AIDS trends among Hispanics in the United States. *American Journal of Public Health*, 83:504-509, 1993.

Holtgrave DR, Pinkerton SD. Updates of cost of illness and quality of life estimates for use in economic evaluations of HIV prevention programs. *Journal of Acquired Immune Syndrome and Human Retrovirology*, 16:54-62, 1997.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 1. Washington, DC: United States Government Printing Office, November 2000.

Immunization and Infectious Diseases

Abramson JS, O'Shea TM, Ratledge DL, et al. Development of a vaccine tracking system to improve the rate of age-appropriate primary immunization in children of lower socioeconomic status. *Journal of Pediatrics*, 126(4):583-586, 1995.

Brandon JE, Crespin F, Levy C, Reyna D. Border health issues. In: Bruhn JG, Brandon JE, eds. *Border Health: Challenges for the United States and Mexico*. New York, NY: Garland Publishing, 117-162, 1997.

Centers for Disease Control and Prevention (CDC). Epidemiologic notes and reports: Tuberculosis transmission along the United States-Mexico Border – 1990. *Morbidity and Mortality Weekly Report*, 40:373-374, 1990.

Centers for Disease Control and Prevention (CDC). Prevention of hepatitis A through active or passive immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *Morbidity and Mortality Weekly Report*, 48(RR-12):1-37, 1999.

Centers for Disease Control and Prevention (CDC). Preventing and controlling tuberculosis along the United States -Mexico Border: Work group report. *Morbidity and Mortality Weekly Report*, 50(RR-1):1-27, 2000.

Doyle TJ, Bryan RT. Infectious Disease Morbidity in the United States Region Bordering Mexico, 1990-98. *Journal of Infectious Diseases*, 182:1503-1510, 2000.

Ekwueme DU, et al. Economic evaluation of use of diphtheria, tetanus, and acellular pertussis vaccine (DTaP) or diphtheria, tetanus and whole-cell pertussis vaccine (DTwP) in the United States, 1997. *Archives of Pediatric and Adolescent Medicine*. 2000.

García-García ML, Ponce de Leon A, Jimenez-Corona ME, et al. Clinical consequences and transmissibility of drug-resistant tuberculosis in southern Mexico. *Archives of Internal Medicine*, 160:630-636, 2000.

Leach CT, Koo FC, Hilsenbeck SG. The epidemiology of viral hepatitis in children in south Texas: Increased prevalence of hepatitis A along the Texas-Mexico Border. *Journal of Infectious Diseases*, 180:509-513, 1999.

Meltzer MI, Dennis DT, Orloski KA. The cost effectiveness of vaccinating against Lyme disease. *Emerging Infectious Diseases*, 5(3):321-328, 1999.

Prislin R, Suarez L, Simpson DM, Dyer JA. When acculturation hurts: The case of immunization. *Social Science and Medicine*, 47:1947-1956, 1998.

Suarez L, Simpson DM, Smith DR. Impact of health care access and public assistance factors on immunization levels of children under two. *American Journal of Public Health*, 87:845-848, 1997.

United States-Mexico Border Health Association. *Sister Communities Health Profiles: United States-Mexico Border, 1989-91*. El Paso, TX: USMBHA, 1994.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 1. Washington, DC: United States Government Printing Office, November 2000.

Wells CD, Ocana M, Moser K, Bergmire-Sweat D, et al. Study of tuberculosis among foreign-born Hispanic persons in the United States states bordering Mexico. *American Journal of Respiratory Critical Care Medicine*, 159:834-837, 1999.

Injury Prevention

CDC, National Center for Injury Prevention and Control (NCIPC). *Ten Leading Causes of Injury Deaths*. Atlanta, GA: CDC/NCIPC, 1997.

National Safety Council. *Accident Facts*. 1995 ed. Itaska, IL: the Council, 1995.

National Highway Traffic Safety Administration (NHTSA). *Traffic Safety Facts 1999: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System*. Washington, DC: UNITED STATES Department of Transportation, 20590.

Olson LM, Becker TM, Wiggins CL, et al. Injury mortality in American Indian, Hispanic, and non-Hispanic white children in New Mexico, 1958-82. *Social Science and Medicine*, 30:479-486, 1990.

Rivera FP. Epidemiology of childhood injuries. *American Journal of Disabilities in Children*, 136:399-405, 1982.

Sewell CM, Hull HF, Fenner J, et al. Child restraint law effects on motor vehicle accident fatalities and injuries. The New Mexico experience. *Pediatrics*, 78:1079-1084, 1986.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 2. Washington, DC: United States Government Printing Office, November 2000.

United States Fire Administration. *Curious Kids Set Fires*. Washington, DC: Federal Emergency Management Agency, 1990.

Maternal, Infant, and Child Health

Becerra JE, Hogue CJ, Atrash HK, Perez N. Infant mortality among Hispanics: A portrait of heterogeneity. *Journal of the American Medical Association*, 265:217-221, 1991.

Centers for Disease Control and Prevention (CDC). Use of folic acid for prevention of spina bifida and other neural tube defects: 1983-91. *Morbidity and Mortality Weekly Report*, 40:513-516, 1991.

Czeik AE, Dudas J. Prevention of the first occurrence of neural tube defects by periconceptional vitamin supplementation. *New England Journal of Medicine*, 327:1832-1835, 1992.

Goldenberg RL. Prenatal care and pregnancy outcome. In: Kotch, JB, Blakely CH, Brown SB, et al., eds. *A Pound of Prevention: The Case for Universal Maternity Care in the United States* Washington, DC: American Public Health Association, 1992.

Guendelman S. Mexican women in the United States: Favorable birth outcomes in a minority population. *Lancet*, 344(8919):352, 1994.

Lewit EM, Baker LS, Hope C, et al. The direct cost of low birth weight. *Future Child*, 5:35-56, 1995.

Moore P, Hepworth JT. Use of perinatal and infant health services by Mexican-American Medicaid enrollees. *Journal of the American Medical Association*, 272:297-304, 1994.

Notzon FC. *Factors Associated With Low Birth Weight in Mexican Americans and Mexicans*. Baltimore, MD: Johns Hopkins, 1989. Thesis.

Russell AY, Williams MS, Farr PA, et al. Patterns of contraceptive use and pregnancy among young Hispanic women on the Texas-Mexico Border. *Journal of Adolescent Health*, 14:373-379, 1993.

Russell AY, Williams MS, Farr PA, et al. The health attitudes of young Hispanic women and the health status of their children on the Texas-Mexico Border. *Journal of Community Health*, 23:165-179, 1998.

Showstack JA, Budetti PP, Minkler D. Factors associated with birthweight: An exploration of the roles of prenatal care and length of gestation. *American Journal of Public Health*, 74:1003-1008, 1984.

Stroup-Benham CA, Treviño FM. Reproductive characteristics of Mexican-American, mainland Puerto Rican, and Cuban-American women: Data from the Hispanic Health and Nutrition Examination Survey. *Journal of the American Medical Association*, 265:222-226, 1991.

Stratton K, Howe C, Tattaglia F, eds. *Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention, and Treatment*. Washington, DC: National Academy Press, 1996.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 2. Washington, DC: United States Government Printing Office, November 2000.

Ventura SJ, Martin JA, Curtin SC, et al. Births: Final data for 1998. *National Vital Statistics Reports*; vol 48 no 3. Hyattsville, MD: National Center for Health Statistics, 2000.

Zuvekas A, Wells BL, Lefkowitz B. Mexican American infant mortality rate: Implications for public policy. *Journal of Health Care for the Poor and Underserved*, 11:243-257.

Mental Health

Greenberg PE, Stiglin LE, Finkelstein SN, et al. The economic burden of depression. *Journal of Clinical Psychiatry*, 54:425-426, 1993.

Koenig HG, Blazer DG. Mood disorders and suicide. In: Birren JE, Sloane RB, Cohen GD, eds. *Handbook of Mental Health and Aging*. 2nd ed. San Diego, CA: Academic Press, 1992, 379-407.

Mendes de Leon CF, Markides KS. Depressive symptoms among Mexican Americans: A three-generation study. *American Journal of Epidemiology*, 127:150-160, 1988.

Moscicki EK, Rae DS, Regier DA, Locke BZ. The Hispanic Health and Nutrition Examination Survey: Depression among Mexican Americans, Cuban Americans, and Puerto Ricans. In: Gariria M, Arana JD, eds. *Health and Behavior: Research Agenda for Hispanics*. Chicago, IL: University of Illinois, 1987, 145-159.

Moscicki EK. Gender differences in completed and attempted suicide. *Annals of Epidemiology*, 4:152-158, 1994.

Murray CJL, Lopez AD. *The Global Burden of Disease*. Cambridge, MA: Harvard University Press, 1996.

Regier DA, Farmer ME, Rae DS, et al. One-month prevalence of mental disorders in the United States and sociodemographic characteristics: The Epidemiologic Catchment Area study. *Acta Psychiatrica Scandinavica*, 88:35-47, 1993.

Russell AY, Williams MS, Farr PA, Schwab AJ, Plattsmier S. The mental health status of young Hispanic women residing along the border: A twin cities comparison. *Women and Health*, 28:15-32, 1999.

Vega WA, Kolody B, Aguilar-Gaxiola S, et al. Lifetime prevalence of DSM-III-R psychiatric disorders among rural and urban Mexican Americans in California. *Archives of General Psychiatry*, 55:771-782, 1998.

Weissman MM, Klerman JK. Depression: Current understanding and changing trends. *Annual Review of Public Health*, 13:319-339, 1992.

United States Department of Health and Human Services. *Mental Health: A Report of the Surgeon General – Executive Summary*. Rockville, MD: HHS, SAMHSA, CMHS, NIH, NIMH, 1999.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 2. Washington, DC: United States Government Printing Office, November 2000.

Vega WA, Kolody B, Aguilar-Gaxiola S, Catalano R. Gaps in service utilization by Mexican Americans with mental health problems. *American Journal of Psychiatry*, 156:928-934, 1999.

Oral Health

Brown JP. Dental health status and treatment needs among Mexican Americans. *Hispanic Health Status Symposium Proceedings*. San Antonio, Tex. Center for Health Policy Development, 74-84, 1988.

Brown JP. Oral health of Hispanics: epidemiology and risk factors. Presented at the National Action Forum on Health Policy and the Hispanic, October 6-7, 1989, San Antonio, Texas.

Hinman AR, Sterritt GR, Reeves TR. The United States experience with fluoridation. *Community Dental Health*, 13 (Supp. 2):5-9, 1996.

United States Department of Health and Human Services (HHS). *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: HHS, National Institutes of Health, National Institute of Dental and Craniofacial Research, 2000.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 2. Washington, DC: United States Government Printing Office, November 2000.

United States General Accounting Office (GAO). *Report of Congressional Requestors. Oral Health in Low-Income Populations*. GAO/HEHS-00-72. Washington, DC, 2000.

Vargas CM, Crall JJ, Schneider DA. Sociodemographic distribution of pediatric dental caries: NHANES III, 1988-1994. *Journal of the American Dental Association*, 129:1229-1238, 1998.

Respiratory Diseases

English PB, Von Behren J, Harnly M, Neutra RR. Childhood asthma along the United States/Mexico border: hospitalizations and air quality in two California counties. *Pan American Journal of Public Health*, 3(6):392-399, 1998.

Koren HS. Environmental risk factors in atopic asthma. *International Archives of Allergy and Immunology*, 113:65-68, 1997.

Mannino DM, Homa DM, Pertowski CA, et al. Surveillance for asthma – United States, 1960-1995. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, 47(1):1-27, 1998.

Samat JM, Schrag SD, Howard CA, Key CR, Pathak DR. Respiratory disease in a New Mexico population sample of Hispanic and non-Hiapanic whites. *American Review of Respiratory Disease*, 125:152-157, 1982.

Sullivan S, Elixhauser S, Buist AS, et al. National Asthma Education and Prevention Program working group report on the cost effectiveness of asthma care. *American Journal of Respiratory and Critical Care Medicine*, 154 (3, Part 2):584-595, 1996.

United States Department of Health and Human Services. *Healthy People 2010*. 2nd ed. Vol. 2. Washington, DC: United States Government Printing Office, November 2000.

Weiss KB, Gergen PJ, Hodgson TA. An economic evaluation of asthma in the United States. *New England Journal of Medicine*, 326:862-866, 1992.

Bibliography – México

Anuario de Morbilidad 2000. Secretaría de Salud. Subsecretaría de Prevención y Protección de la Salud. Centro Nacional de Vigilancia Epidemiológica. Dirección General de Epidemiología.

Anuario Estadístico 2000. Secretaría de Salud. Dirección General de Información y Evaluación del Desempeño.

Atlas de la Salud 2002. Secretaría de Salud. Instituto Nacional de Salud Pública.

Boletín de Información Estadística 1999. Volumen 1. Recursos y Servicios. Volumen III, Programas sustantivos. Secretaría de Salud. Dirección General de Información y Evaluación del Desempeño .

Cifras Municipales en Salud. Bases de Información, 1999. Secretaría de Salud. Dirección General de Estadística e Informática

Consejo Nacional de Población. Proyecciones de la Población en México 1996-2005. CONAPO 1998. Índices de Desarrollo Humano.

Consejo Nacional de Población. La situación demográfica de México 2000. CONAPO.

Frontera Saludable 2010, 2001. Comisión de Salud Fronteriza México- Estados Unidos.

Encuesta Nacional de Salud 2000. Secretaría de Salud.

Estadísticas Vitales. Instituto Nacional de Estadística, Geografía e Informática. INEGI

Indicadores Básicos, 1999. Situación de la Salud en México. Secretaria de Salud. Coordinación General de Planeación Estratégica. Dirección General de Información y Evaluación del Desempeño.

Indicadores Básicos 1999. Municipios de la Frontera Norte de México. Secretaría de Salud. Dirección General de Información y Evaluación del Desempeño.

México Frontera Norte Saludable. Secretaría de Salud, Subsecretaría de Prevención y Protección de la Salud, 2002.

Programa Nacional de Salud 2001-2006. La democratización de la salud en México.

Programa de Acción: Arranque Parejo en la Vida. Secretaría de Salud. Subsecretaría de Prevención y Protección de la Salud. Dirección General de Salud Reproductiva. 2001

Programa de Acción: Tuberculosis. Secretaría de Salud. Subsecretaría de Prevención y Protección de la Salud. Centro Nacional de Vigilancia Epidemiológica. 2001

Sistema Único Automatizado para la Vigilancia Epidemiológica (SUAVE). Base única de datos 2000, por entidad y municipios. Secretaría de Salud. Subsecretaría de Prevención y Protección de la Salud Centro Nacional de Vigilancia Epidemiológica. Dirección General de Epidemiología.

Sistema Epidemiológico y Estadístico de Defunciones (SEED). Base de datos 2000, por entidad y municipios. Secretaría de Salud. Subsecretaría de Prevención y Protección de la Salud Centro Nacional de Vigilancia Epidemiológica. Dirección General de Epidemiología.

XII Censo Nacional de Población y Vivienda 2000. Instituto Nacional de Estadística, Geografía e Informática. INEGI.

Perfiles de Mortalidad de las Comunidades Hermanas Fronterizas México – Estados Unidos. Organización Panamericana de la Salud.

APPENDIX 2

HEALTHY BORDER 2010 TOPIC AREAS AND OBJECTIVES

Healthy Border 2010 Topic Areas and Objectives

<i>Topic Area</i>	<i>Year 2010 Objective</i>	
	<i>Mexico</i>	<i>United States</i>
Access to Health Care	Maintain at less than 5% the population without access to basic health services.	Reduce by 25% the population lacking access to a primary care provider.
Cancer	Reduce breast cancer mortality by 20%.	Reduce breast cancer mortality by 20%.
	Reduce cervical cancer mortality by 20%.	Reduce cervical cancer mortality by 30%.
Diabetes	Reduce diabetes mortality by 10%.	Reduce diabetes mortality by 10%.
	Maintain the current level of hospital admissions for diabetes.	Reduce hospital admissions for diabetes by 25%.
Environmental Health	Reduce proportion of households not connected to sewage systems to less than 21.3%.	Reduce to zero the proportion of households without complete bathroom facilities.
	Maintain the current level of hospital admissions for acute pesticide poisoning.	Reduce by 25% the hospital admissions for acute pesticide poisoning.
HIV/AIDS	Maintain HIV incidence at 2000 level or below.	Reduce incidence of HIV cases by 50%.
Immunizations and Infectious Diseases	Reduce the incidence of hepatitis A and B cases by 50%.	Reduce the incidence of hepatitis A and B cases by 50%.
	Reduce the incidence of tuberculosis cases by 10%.	Reduce the incidence of tuberculosis cases by 50%.
	Maintain immunization coverage at 95% or higher for children under age 1 and age 1-4 years.	Achieve and maintain immunization coverage rate of 90% for children 19-35 months.
Injury Prevention	Reduce the motor vehicle crash death rate by 20%.	Reduce the motor vehicle crash death rate by 25%.
	Reduce the childhood death rate due to accidents by 50%.	Reduce the childhood death rate due to accidents by 30%.
Maternal, Infant and Child Health	Reduce the infant mortality rate by 50%.	Reduce the infant mortality rate by 15%.
	Reduce the infant mortality rate due to birth defects by 50%.	Reduce the infant mortality rate due to birth defects by 30%.
	Raise initiation of prenatal care in first and second trimesters to 70%.	Increase initiation of prenatal care in first trimester to 85%.
	Reduce pregnancy rate in adolescents 10-19 years by 20%.	Reduce pregnancy rate in adolescents 15-17 years by 33%.
Mental Health	Reduce suicide mortality rate by 25 percent.	Reduce suicide mortality rate by 15%.
Oral Health	Ensure that 25% of population uses oral care services annually.	Raise proportion of population using oral care to 75% annually.
Respiratory Diseases	Maintain hospital admission rate for asthma at current level.	Reduce hospital admission rate for asthma by 40%.

APPENDIX 3

REMAINING INDICATORS UNITED STATES HEALTHY "GENTE" PROGRAM MEXICAN "INDICADORES DE RESULTADO" PROGRAM

United States Healthy "Gente" Program:

Environmental Health

1. Reduce to zero the proportion of persons living in counties exceeding EPA air quality standards;

Nutrition and Overweight

2. Reduce the proportion of adults who are obese to 15 percent;

Oral Health

3. Increase to at least 75 percent the proportion of the population served by community water systems with optimally fluoridated water;

Substance Abuse

4. Reduce the number of alcohol-related motor vehicle crash deaths by 50 percent;
5. Increase to 89 percent the proportion of 12-17 year-old youths not using alcohol or any illicit drugs during the past 30 days;

Tobacco Use

6. Reduce by 33 percent the proportion of adults and adolescents currently using tobacco.

Mexico Health Indicators Program:

I. Public Health

1. Age-adjusted mortality rate;
2. Life expectancy at birth for men, women;
3. Life expectancy at age 40 for men, women;

Prevention and Control of Diseases

A. Reproductive health

1. Percent of deliveries by cesarean section;
2. Active users of family planning per 100 women in childbearing ages;
3. Birth rate;
4. Total fertility rate;
5. Maternal mortality;

B. Child health

Mortality

1. Pre-school mortality rate (1-4 years);

Nutrition

1. Mortality due to nutritional deficiencies at ages 0-4 years;

Immunizations

1. New cases of measles;
2. New cases of tuberculosis of meninges;
3. Cases of neonatal tetanus;

Intestinal infectious diseases

1. Mortality due to diarrheal diseases at ages 0-4 years;

Acute respiratory infections

1. Mortality due to acute respiratory infections at ages 0-4 years;

C. Accidents

1. Deaths due to accidents;

D. Mycobacteriosis

1. Percent of new cases of tuberculosis that complete supervised treatment;

E. HIV/AIDS and other sexually transmitted diseases;

1. Morbidity due to gonorrhea;
2. New cases of congenital syphilis;
3. New cases of AIDS;
4. New cases of HIV infection;

F. Zoonosis

1. New cases of human rabies transmitted by dogs;

G. Diseases transmitted by vectors

1. New cases of malaria;
2. Cases of malaria by *P. falciparum*;
3. Dengue fever morbidity;
4. Deaths due to hemorrhagic dengue fever;

H. Adult and elderly health

1. Mortality due to diseases of the heart;
2. New cases of arterial hypertension per 100,000 population;
3. Mortality due to cerebrovascular diseases;
4. Mortality due to diabetes mellitus;
5. Mortality due to malignant tumors;

I. Cholera

1. Deaths due to cholera;
2. New cases of cholera;

II. Health Services

1. Primary care

1. Average number of patients per physician;

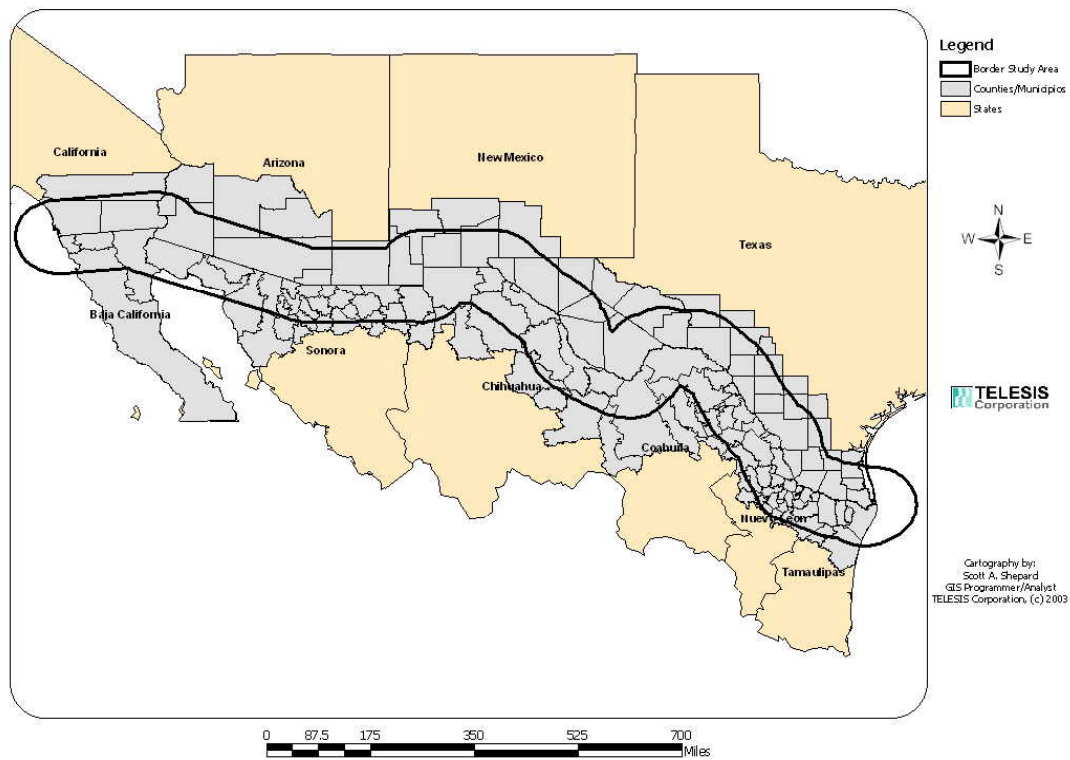
2. Secondary care

1. Percent of hospital beds occupied;
2. Average length of stay;
3. Average number of surgical interventions per surgeon.

APPENDIX 4

**MAP OF THE
UNITED STATES-MEXICO BORDER**

U.S./Mexican Border Municipios and Counties



APPENDIX 5

COUNTIES AND *MUNICIPIOS* OF THE UNITED STATES-MEXICO BORDER REGION

UNITED STATES COUNTIES			
STATE	COUNTY	STATE	COUNTY
ARIZONA	Cochise Pima Santa Cruz Yuma	NEW MEXICO	Dona Ana Grant Hidalgo Luna Otero Sierra
			Brewster Brooks Cameron Crockett Culberson Dimmit Duval Edwards El Paso Frio Hidalgo Hudspeth Jeff Davis Jim Hogg Kenedy Kinney La Salle McMullen Maverick Pecos Presidio Real Reeves Starr Sutton Terrell Uvalde Val Verde Webb Willacy Zapata Zavala
CALIFORNIA	Imperial San Diego	TEXAS	

Healthy Border 2010 aims to improve health in the United States - Mexico border region, an area defined as 100 kilometers (62 miles) north and south of the United States -Mexico border. This area includes 80 *municipios* in 6 Mexican states and 48 counties in 4 U.S. states. For the purposes of this program however, the U.S. data are limited to 44 border counties, excluding Maricopa, Pinal, and La Paz counties in Arizona and Riverside county in California.

MEXICO MUNICIPIOS				
STATE	MUNICIPIO	STATE	MUNICIPIO	
BAJA CALIFORNIA	<i>Ensenada Mexicali Tecate Tijuana Playas de Rosarito</i>	NUEVO LEÓN	<i>Anáhuac Agualeguas Aldamas, Los Cerralvo China Doctor Coss Doctor González General Bravo General Treviño</i>	<i>Los Herreras Higueras Lampazos de Naranjo Marín Melchor Ocampo Parás Los Ramones Sabinas Hidalgo Vallecillo</i>
CHIHUAHUA	<i>Ahumada Ascensión Coyame del Sotol Guadalupe Janos Juárez Manuel Benavides Nuevo Casas Grandes Ojinaga Praxedis G. Guerrero</i>	SONORA	<i>Agua Prieta Altar Arizpe Atil Bacoachi Bavispe Caborca Cananea Cucurpe Fronteras General Plutarco Elías Calles Imuris</i>	<i>Magdalena Naco Nacozari de García Nogales Oquitoa Puerto Peñasco San Luis Río Colorado Santa Ana Santa Cruz Sáric Tubutama</i>
COAHUILA	<i>Acuña Allende Guerrero Hidalgo Jiménez Juárez Morelos Nava Ocampo Piedras Negras Sabinas Villa Unión Zaragoza</i>	TAMAULIPAS	<i>Camargo Guerrero Gustavo Díaz Ordaz Matamoros Méndez Mier Miguel Alemán Nuevo Laredo Reynosa Río Bravo Valle Hermoso</i>	



HEALTHY BORDER 2010

An Agenda for Improving Health on the United States-Mexico Border

We are very much interested in your feedback about the Healthy Border 2010 publication – what you liked, what you found most helpful and least helpful. We would like to hear your stories and what you learned in the process of using it.

Tell us what you think about the Healthy Border 2010 publication.

Please comment on:

- Whether this was too simple or too complex
- Whether you found the information useful and well presented
- What other information you would like to have about Healthy Border 2010
- Any other thoughts you have about how we can improve the publication

Write your comments below, and fax or mail them to us at:

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Thank you

This publication can be downloaded from our web page - www.borderhealth.org

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