Healthy Border 2030

Collaborative Action to Improve the Health and Wellbeing of the United States - Mexico Border Population

United States-Mexico Border Health Commission

Comisión de Salud Fronteriza México-Estados Unidos

U.S. Section
United States - Mexico Border Health Commission
2024

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I. Executive Summary

The U.S. - Mexico border extends 1,954 miles from the Pacific Ocean to the Gulf of Mexico as the border area reaches 62.5 miles north and south of the international boundary. The region includes 44 counties in four U.S. states (Arizona, California, New Mexico, and Texas) and 80 municipalities in six Mexican states. **The U.S. side of the border is a complex area with varied geographic features, a multicultural and multilingual population, and strong historical and economic connections with the Mexican side. Importantly, this region has more significant risk factors for inequality and poverty, particularly regarding healthcare access, compared to the population of four U.S. border states.**

The **U.S. - Mexico Border Health Commission** (Commission) has taken a collaborative approach to assess and help address the region's complex health issues. Through the development of *Healthy Border 2030*, the third iteration of this initiative, and working collaboratively and binationally, the Commission identified ten priority areas and eight cross-cutting capacities and capabilities that need to be addressed and/or strengthened to improve the health and well-being of the border population, in particular considering the most underserved.

In brief, the ten priority areas are Chronic Diseases, Communicable Diseases, Healthy Environments, Impact of Climate Change on Public Health, Maternal and Child Health, Mental Health, Mobile Populations and Health, Preparedness and Response for Public Health Emergencies and Disasters, Substance Use Disorders, and Public Health Approach to Interpersonal Violence Prevention. The eight cross-cutting capacities and capabilities focus on Healthcare System Strengthening and Equitable Access to Resources; Interoperable Surveillance Systems and Laboratory Capacity; Joint Research Systems and Guidelines; Interoperable Information Sharing – Routine/ Emergency Communication Systems; Joint Risk Assessment and Integrated Data-based Border Health Priorities; Aligned Professional Competencies, Joint Training, and Personal Exchanges; Cross-sectoral Federal/State/Local-level Collaborations and Community Outreach; and Joint Preparedness and Response Plans and Exercises.

To develop *Healthy Border 2030*, each of the sections of the Commission focused on a data set from each side of the border and on their unique challenges and opportunities. **This document, which represents the U.S. side of the U.S. - Mexico border, is intended to present a brief assessment of health data and issues that affect the health of a diverse population and to provide leadership and high-level strategic recommendations for federal, state, and local governments, and community-based stakeholders to take action to address them.** The U.S. Section of the Commission developed these recommendations focusing on the U.S. context and considering, when feasible, the importance of a binational approach.

II. Purpose of Healthy Border 2030

Healthy Border 2030 is the third iteration of Healthy Border, an initiative of the Commission. **This document, which focuses on the U.S. side of the U.S. - Mexico border, is intended to present a brief assessment of health data and issues that affect the health of the U.S. side of the border population and to provide leadership and high-level strategic recommendations for federal, state, and local governments, and community-based stakeholders to take action to address them.** The U.S. Section of the Commission developed these recommendations based on a set of priority areas common to both countries and defined binationally but with a focus on the U.S. context and considering the importance of a binational approach when feasible.

III. Introduction

Overview of the U.S. – Mexico Border

The U.S. - Mexico border, extending over 3,145 kilometers (1,954 miles) from the Pacific Ocean to the Gulf of Mexico, is a geopolitical boundary that strongly influences the relationship between the two countries. For this document, we refer to this region as the "border area" or the "border." The area was defined by the La Paz agreement in 1983 as the area 100 km (62.5 miles) north and south of the international boundary.[1] The region includes 44 counties in four U.S. states (Arizona, California, New Mexico, and Texas) and 80 municipalities in six Mexican states (Baja California, Chihuahua, Coahuila de Zaragoza, Nuevo León, Sonora, and Tamaulipas). The list of U.S. counties within their respective states is in the Annex.

Fig. 1. Map of the border area as defined in the La Paz agreement of 1983. The expanded list of counties and municipalities and their respective states is listed in the Annex.

The border area plays a vital role in the economic activities of the U.S. and Mexico. Goods worth billions of dollars cross the border yearly through numerous ports of entry. As of 2022, Mexico is the largest goods trading partner for the U.S., with $779.3 billion in total bidirectional trade.[2] In addition, the area has a unique blend of cultures with a rich diversity of languages, identities, and traditions. Just on the U.S. side of the border, there are significant variations in terms of population demographics, migration, trade patterns, and social determinants of health, such as economic stability, educational access and quality, healthcare access and quality, neighborhoods and built environments, and social and community contexts.[3]

Briefly, the U.S. side of the border is made up of over 19 million people, 4 million of whom are documented migrants.[4] Over half of the population is Hispanic or Latino (for the purpose of this document we will refer to this group as Hispanic)[1], 4% is Black or African American (for the purpose of this document we will refer to this group as Black), one in ten people identify as Asian or Native Hawaiian/Other Pacific Islander, and 33% is White

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[1] White House's Office of Management and Budget (OMB) defines "Hispanic or Latino" as a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race.

(compared to the national average of 60% White population). Therefore, White in this report refers to the White, non-Hispanic population. The make-up of the border diversity varies between the four states; for example, 81% of Texans living at the border identify as Hispanic, compared to 38% of Arizonans at the border. Overall, each border state is more diverse than the national average.[4]

Additionally, the border population is younger than the U.S. average, with a median age of 37 years old, compared to the national median of 38.9 years old. Regarding their origin, 77% of the border population is U.S.-born, compared to the 87% national average. California has the highest share of immigrants in the border area, where a quarter of border residents (23%) were born in another country. In Texas, 21% of border residents are immigrants, followed by 13% of New Mexico residents and 12% in Arizona. Of the more than 4.4 million immigrants in the region, 67% are proficient in English.[4,5]

In terms of education, the border area is in line with the national average: nearly 40% have a high school degree or less, and approximately 30% attained a two-year degree or some college education. Each state varies within the region; for example, half of the adult population living in the Texas border area have a high school degree or less, compared to the national average of 40%. Meanwhile, California has the highest portion of border residents with a college or advanced degree.

The degree of population diversity, some of the socio-economic factors, migration status, mobility, and environmental factors have an impact on the health condition and health outcomes as we describe in this document, requiring specific and strategic solutions, with targeted interventions to address the vulnerabilities and to improve overall health as the underlying foundation of a safe and prosperous society.

The U.S. – Mexico Border Health Commission

Recognizing the population diversity and the multitude of factors influencing their health, the U.S. and Mexico created the Commission in 2000 to "identify and evaluate current and future health problems affecting the population of the U.S. - Mexico border area and to encourage and facilitate actions to address these problems."[6] In brief, the 1994, Public Law (PL) §103-400 of 1994 (U.S. – Mexico Border Health Act) gave the authority to and encouraged the President of the United States to establish the Commission.[7] In 2000, the governments of the United States of America and the United Mexican States established the binational Commission with an agreement signed by the U.S. Secretary of Health and Human Services and the Secretary of Health of Mexico.[8] The agreement establishes the U.S. and Mexican Sections of the Commission and delineates the functions, composition, operation, and legal status of both of them. The functions of the Commission are to:

- Conduct public health needs assessments in the U.S. - Mexico border area, and conduct or support investigations, research or studies designed to identify and monitor health problems.

- Provide financial, technical, or administrative support to assist the efforts of public and private nonprofit entities to prevent and resolve health problems.

- Conduct or support health promotion and disease prevention activities in the U.S. - Mexico border area.

- Conduct or support the establishment of an extensive and coordinated system, which uses advanced technologies to the extent possible, for gathering health-related data and monitoring health problems in the U.S. - Mexico border area.

Fig. 2. U.S. and Mexico Commission members. Special Meeting, San Diego, CA, October 5, 2023.

The Commission is composed of the federal secretaries of health of the two countries, the chief health officers of the ten binational border states, and prominent community health professionals from both nations (Fig. 2).[8] The U.S. Section is formed by the U.S. Secretary of Health and Human Services or represented by a delegate; the four border state health officers, who are members by virtue of their positions and serving their respective governors; and by an additional two private members from each state who are nominated by the four border-state governors and appointed by the President of the United States.[8] The Commission's Mexican Section is represented by the México Secretariat of Health, or represented by a delegate, and 12 members appointed by the Mexican government.

Healthy Border Initiative and Healthy Border 2030

Healthy Border was established as a Commission initiative to identify, evaluate, and propose actions to address health issues affecting the border populations. In 2003, the Commission published ***Healthy Border 2010: An Agenda for Improving Health on the U.S. – Mexico Border***,[9] building on the Healthy People 2010 framework and Mexico's Outcome Indicators for National Health.[10]

In 2015, the Commission published ***Healthy Border 2020***, which emphasized the importance of sustained cross-border collaboration, data sharing, and health system integration to improve outcomes in the border area focusing on chronic and degenerative diseases, communicable diseases, maternal and child health, mental health and substance use disorders, injury prevention[11] and a series of targets and metrics to improve border health, drawing on Healthy People 2020. However, one of the greatest challenges was to have the necessary tools to truly integrate, monitor, and evaluate the 2020 goals and objectives using common survey instruments and sound statistical approaches in a national transversal fashion across the states on each side of the border, and even more, in a binational fashion given the innumerable differences among the surveillance and data collections systems. In addition, the increasing fluctuations in the movement of border-crossing populations and changes in border programs and policies in both countries made the comparison of progress untenable.

Thus, leveraging past experiences and considering the fluid dynamics of the border, the U.S. Section of the

Commission developed *Healthy Border 2030: Collaborative Action to Improve the Health and Wellbeing of the U.S. - Mexico Border Population* with the purpose of **providing leadership and high-level strategic guidance for federal, state, and local governments as well as community-based stakeholders to take action to improve the health of the border population.**

Healthy Border 2030 focuses on the U.S. side of the border and includes an introduction to each priority area, key data, a brief description of the challenges, and a series of high-level recommendations for all border stakeholders to take action and develop solutions according to their respective missions. Given the differences in the availability of comparable data sets, the bilateral decision was made for each section to develop recommendations focused on their respective sides of the border. **These recommendations are based on a set of priority areas common to both countries and defined binationally but with a focus on the U.S. context and considering, when feasible, the importance of a binational approach.**

IV. Healthy Border 2030 Framework

Determining the Priority Areas, Cross-cutting Capacities and Capabilities, and Underserved Populations

The first step in the development of *Healthy Border 2030* was to identify border health priorities of binational interest. Initially, each section of the Commission worked independently to identify priorities on their respective side of the border area. The U.S. Section underwent a comprehensive process that included consulting subject matter experts, engaging in focused discussions, and adapting a prioritization process model from the Centers for Disease Control and Prevention's (CDC) One Health Zoonotic Disease Prioritization Process.[12] The criteria to determine priorities involved assessing the impact on the health and well-being of the border population and communities, the potential risk to national and regional health security, the possibility of leveraging cross-border collaboration to enhance health outcomes, and the existence of viable, appropriate, and actionable interventions to improve access to healthcare.

Fig. 3. Members of the U.S. - Mexico Border Health Commission at the *Healthy Border 2030* Technical Workshop. El Paso, Texas, September 22, 2022.

On September 22-23, 2022, the Commission held a bilateral technical workshop in El Paso, Texas (Fig. 3), where participants from the U.S. and Mexico reached a consensus, identifying the components of border health, including ten priority areas, eight cross-cutting capacities and capabilities and the underserved border populations that should be the focus of action (Fig. 4).

Fig. 4. Border Health Framework: Priority Areas, Cross-cutting Capacities and Capabilities, and Underserved Populations

After the technical workshop, participants conducted additional research and held regular meetings to discuss and review the priority areas and develop recommendations to address the identified challenges. During this period and due to the different surveillance and reporting data systems, each country focused on its own set of data and challenges for each priority to develop recommendations appropriate to their unique systems with consideration of those actions that need bilateral collaboration as appropriate.

When interpreting the data in each section of this document, it is important to consider several data constraints and gaps encountered. The data reported in this document are based on publicly available data sources, and interpretation and analysis should be made with care and taking into account several caveats, such as:

- **Unreliable Data:** Small sample sizes and small numbers (e.g., less than 20 deaths per reporting unit) are unreliable due to high relative standard error.

- **Suppressed Data:** Data representing small numbers (e.g., less than 10 persons per reporting unit) are suppressed for privacy concerns. Suppression extends to infant mortality data for fewer than 20 deaths per reporting unit and may include race and ethnicity due to confidentiality constraints.

- Tables and figures referencing a **border area are data sets aggregated for the 44 border area counties.** In instances where a region is listed as a state, the data reported are for the entire state, including all reported counties in the state.

Based on these constraints, when evaluating data from various U.S. sources within this document, it is essential to consider those counties with limited population sizes do not have singular data to report and, thus, are collected with other low population centers, that may or may not be in the U.S. - Mexico border area. Furthermore, these data aggregation methods protect the privacy of the data collected at an individual level and, as a result, are not included in the border area figures and tables within this report.

Healthy Border 2030 Priority Areas

Chronic Diseases

Chronic diseases pose a significant and growing public health challenge for underserved populations in the U.S. - Mexico border area. Understanding the unique challenges individuals face in this region is crucial for developing effective strategies to address the burden of chronic diseases.

Overview

Chronic diseases are conditions lasting at least one year that require ongoing medical attention and/or limit an individual's daily activities.[13] Also known as noncommunicable diseases (NCDs), chronic diseases develop from a combination of genetic, physiological, environmental, and behavioral factors and affect people of all nations, ages, and races.[14] Risk factors such as poor nutrition, sedentary lifestyle, genetic predisposition, and chronic lifetime stress can increase an individual's likelihood of developing them. NCDs account for 41 million deaths per year, or 74% of all deaths globally,[14] and include cardiovascular diseases and hypertension, which are the leading NCD causes of death, followed by cancers, chronic respiratory diseases, and diabetes (including diabetes-related kidney disease).[14] Hypertension is a concern among NCDs in the U.S. - Mexico border area, especially given the high rates of obesity. This region faces unique socioeconomic and healthcare challenges that contribute to the impact of hypertension.

Compared to national averages, the region experiences higher rates of chronic conditions such as obesity, and diabetes, primarily due to factors such as poverty, limited access to healthcare, and low engagement in preventive health behaviors like exercise and healthy eating.[16,17] These diseases disproportionately affect people in low- and middle-income countries, with 77% of NCD deaths occurring in these nations.[14] In 2023, the Centers for Medicare & Medicaid Services (CMS) finalized the 2024 Medicare Physician Fee Schedule, focusing on enhancing health equity, supporting primary care, and expanding behavioral and oral health services. The schedule includes payment updates for various services, new navigation services for serious illnesses like cancer, and support for underserved communities, while reducing the overall payment rate by 1.25% compared to 2023.[18]

NCDs affect the U.S. - Mexico border area in unique ways that reflect its cultural, geographical, and socioeconomic conditions. Language barriers, lower health literacy, lack of access to healthcare, lack of insurance coverage, trauma, and transportation issues limit the care that border residents receive for chronic conditions.[19] These challenges are especially pronounced in the U.S. - Mexico border area, where socioeconomic factors and healthcare disparities further complicate the management of chronic diseases, intensifying the impact of trauma on both physical and mental health.

Trauma can have a significant impact on both mental and physical health, and it is closely linked to the development of chronic diseases. Research has demonstrated that adverse childhood experiences such as abuse, neglect, or exposure to household dysfunction can elevate the risk of various chronic conditions, including heart disease, diabetes, and cancer. This is primarily because trauma triggers a prolonged stress response that disrupts the body's physiological systems over time, leading to long-term damage such as increased inflammation, cardiovascular strain, and impaired immune function. [20,21]

Furthermore, trauma can have a significant impact on mental health, as conditions like post- traumatic stress disorder (PTSD), depression, and anxiety are closely associated with chronic illnesses. When individuals experience persistent heightened stress, their bodies become more susceptible to conditions such as high blood pressure, breathing problems, and sleep disturbances. This emphasizes the critical role of trauma in the development and persistence of these diseases.[21,22] In border areas where individuals may experience compounded stress from migration-related trauma, poverty, and limited access to healthcare, the mental health challenges are heightened.

For example, many seeking asylum have experienced violence, exploitation, or separation from family members, leading to complex trauma that worsens both their psychological and physical health issues.[23] Addressing these challenges requires trauma- informed care approaches that integrate physical and mental health interventions, recognizing that untreated trauma is a root cause of many chronic conditions.[20,21]

The relationship between chronic diseases and trauma highlights the importance of a holistic healthcare approach, particularly in areas like the U.S. - Mexico border where access to care is limited. Socioeconomic challenges, combined with cultural and geographical barriers, complicate the management of NCDs in this region. Addressing both physical and mental health needs, while considering the impact of stress and adversity, is essential for improving outcomes and reducing the burden of chronic diseases in underserved populations.

Background

In the U.S., NCDs are the leading cause of death, with 6 in 10 adults suffering from at least one chronic condition.[13] Heart disease and stroke claim the most lives, with 877,500 Americans dying from these conditions every year. Cancer, with 600,000 deaths, is the second-leading cause of death.[24] Additionally, 37 million Americans have diabetes, with another 96 million at risk of developing it.[13] By 2030, it is expected that 14% of the U.S. population will be living with diabetes,[25] explained in part by the rising obesity epidemic. For example, in the U.S., 42% of adults and 20% of children have obesity, which puts them at a significantly higher risk for developing type 2 diabetes, heart disease, and some cancers.[13] In addition to lives lost and decreased quality of life, the cost of treating chronic diseases, which often requires long-term, intensive treatments, is staggering. The cost of cancer treatment in the U.S. alone is predicted to reach over $240 billion by 2030.[31] In 2022, the total direct and indirect estimated costs of diagnosed diabetes in the U.S. was $413 billion.[26] As examples, below we discuss the impact of diabetes, obesity, and cancer, which are among the chronic diseases that affect the border population.

Diabetes

NCDs have differing impacts on border communities. Type 2 diabetes mellitus stands out, arising from a blend of lifestyle, nutritional, and physiologic factors. For example, among border counties on the U.S. side of the border, the median prevalence of individuals living with diabetes is 11.7%, compared to 10.8% among non-border residents of Arizona, California, New Mexico, and Texas.[27] The difference is even greater among rural communities, where prevalence along the border is 17.6% compared to 13.2% in non-border counties.[27] Based on data from the U.S. Diabetes Surveillance System for 2015-2021, the mean annual U.S. - Mexico border county-level prevalence of diagnosed diabetes in adults ranged from 7.5% (Texas) to 8.9% (Arizona), with Texas having the greatest range in annual county-level diabetes prevalence (6.7% in Brooks County to 12.2% in Hidalgo County) (Table 1). When left undiagnosed or uncontrolled, diabetes can lead to blindness, stroke, foot ulcers, neuropathy, and even limb amputation.[28]

Region	Border County Maximum Prevalence (%)	Border County Minimum Prevalence (%)	Border County Average Prevalence (%)
Arizona Border Area	10.9	7.5	8.9
California Border Area	9.3	7.6	8.5
New Mexico Border Area	9.5	7.1	8.4
Texas Border Area	12.2	6.7	7.5

Table 1. Age-Adjusted Prevalence of Diagnosed Adult Diabetes in U.S. - Mexico Border Area Counties. Data from the U.S. Diabetes Surveillance System database (n=44) for 2015 – 2021 combined.[29]

Obesity

Obesity is a growing problem in this region that can increase an individual's risk of developing diabetes and certain cancers, along with many other chronic complications. Nationwide, 32% of U.S. adolescents and adults are overweight or have obesity.[30] Across the border states, 64.6% of adults are overweight or have obesity.[27] Within rural counties in border communities, the prevalence of obesity among adults was 77.2%.[27]

Adolescent obesity is more prevalent and increasing faster among Hispanic children compared to non-Hispanics and may start as early as kindergarten.[30] Adolescent obesity can lead to complications later in life, including heart disease, musculoskeletal issues, hypertension, and an increased risk of developing type 2 diabetes mellitus.[30] Among adolescents in the U.S. - Mexico border states, the average annual prevalence of obesity ranged from 12.9% (New Mexico) to 19.2% (Texas) between 2015-2021, with Texas reporting the highest prevalence of 22.1% in 2021 (Table 2).

State	State-Level Maximum (%)	State-Level Minimum (%)	State-Level Average (%)
Arizona	20.0	15.2	16.5
California	15.9	13.9	14.6
New Mexico	14.9	10.9	12.9
Texas	22.1	16.9	19.2

Table 2. Percentage of Adolescents with Obesity in the U.S. - Mexico Border States, 2015-2021. Students aged 13-17 who were ≥95th percentile for body mass index, based on sex-specific and age-specific reference data from CDC growth charts in 2000.[31]

Cancer

Cancer is another chronic disease that impacts communities throughout the U.S., including the U.S. - Mexico border area. However, access to high-quality healthcare can affect the speed of diagnosis, level of care, and long-term patient outcomes. U.S. - Mexico border county-level cancer mortality rates ranged from 120.2 to 155.5 deaths per 100,000 population between 2015 and 2020. New Mexico had the highest county-level cancer mortality rate (Table 3), significantly above the average cancer mortality rate in the U.S., which is 146.0 deaths per 100,000 people per year, based on deaths from 2018–2022.[32]

Region	County-Level Maximum	County-Level Minimum	County-Level Average
Arizona Border Area	138.2	129.8	133.6
California Border Area	143.2	129.6	137.0
New Mexico Border Area	155.5	137.4	143.8
Texas Border Area	128.2	120.2	124.2

Table 3. Age-Adjusted Cancer Mortality Rates per 100,000 Population Among U.S. - Mexico Border Area Residents, 2015-2020.[33]

The Hispanic population accounts for 56.1% of the U.S. border area population.[34] Among Hispanic women, breast cancer is the leading cause of cancer death in the U.S.[19] In 2020, age- adjusted mortality rates in border counties for breast cancer averaged between 17.1 and 21.3 deaths per 100,000 individuals (Table 4). While the rates of breast cancer are not significantly higher for border versus non-border counties as compared to the national average, Hispanic survivors of breast cancer report lower quality of life and poorer survivorship care compared to non-Hispanic White survivors.[19] At the border, rural border counties report that fewer women receive an age-appropriate mammogram compared to urban border counties (59.7% versus 71.0%).[27]

Region	County-Level Maximum	County-Level Minimum	County-Level Average
Arizona Border Area	18.5	14.1	17.1
California Border Area	21.1	18.4	19.6
New Mexico Border Area	23.5	19.4	21.3
Texas Border Area	21.1	18.3	19.1

Table 4. Age-Adjusted Female Breast Cancer Mortality Rates Among Women in the U.S. - Mexico Border Area per 100,000 population, 2015-2020.[35]

Human papillomavirus infection (HPV)-related cancers also disproportionately affect the Hispanic population. HPV is primarily transmitted through sexual contact, and persistent oncogenic-type HPV causes 91% of all cervical cancers.[36] Cervical cancer mortality is 40% higher among U.S. Hispanics compared to non-Hispanic Whites.[36] Age-adjusted cervical cancer mortality in California ranged between 0.9 and 1.3 per 100,000 population between 2015- 2020.[31] In comparison, the age-adjusted cervical cancer mortality cases in Texas ranged from 1.7 to 2.3 deaths per 100,000 population between 2015-2020,[31] and the national average throughout the period is 1.3 cases per 100,000 population.[31]

Region	County-Level Maximum	County-Level Minimum	County-Level Average
Arizona Border Area	12.9	9.9	11.6
California Border Area	12.8	11.1	11.8
New Mexico Border Area	15.4	11.2	13.3
Texas Border Area	14.4	11.4	12.6
National			**13.2**

Table 5. Age-Adjusted Colorectal Cancer Mortality Rates in U.S. - Mexico Border Area per 100,000 population, 2015-2020.[37]
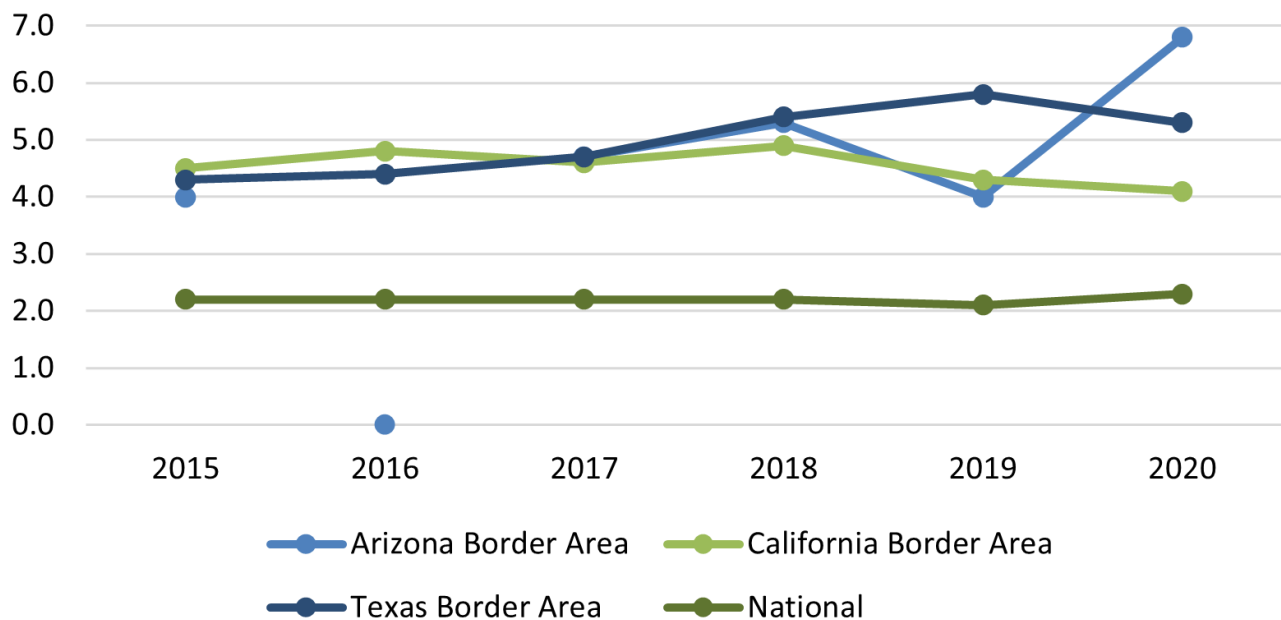
Fig. 5. Age-Adjusted Colorectal Cancer Mortality Rates Among U.S. – Mexico Border Area Residents from 25-54 Years Old, 2015-2020.[31] *New Mexico data are suppressed throughout the period. **Arizona data are unreliable in the 2016 period.

Colorectal cancer is the third most common cancer and the fourth-leading cause of cancer- related deaths worldwide. Its incidence has been decreasing in the U.S., but not equally among all races and ethnicities.[38] Additionally, the overall incidence of early-onset cancer in the U.S., defined as cancer diagnosed before 50 years of age, was higher in 2019 compared to 2010. In 2019, among early-onset cases of cancer, colorectal cancers were in the top 3.[39] Colorectal cancer is now the third-leading cause of cancer death among individuals under 50 years old, and it is estimated that by 2030, one in ten colon cancer diagnoses and one in four rectal cancer diagnoses will occur in this age group.[40] For U.S. border area residents, average county-level age-adjusted mortality rates for colorectal cancer ranged from 9.9 -14.4 deaths per 100,000 population in 2015-2020, with the New Mexico border area having the highest county-level age-adjusted mortality rate (Table 5) compared with the national average of 12.9 per 100,000 population per year.[41] Once diagnosed, border residents tend to have worse overall outcomes than non-border residents, potentially due to sub-optimal treatments, lack of private health insurance, and delayed care.[42] Early-onset cancer incidence is an emerging topic that should be monitored in the U.S. - Mexico border area to determine if and how it affects that population.

Main Challenges

Residents living in the U.S. - Mexico border area encounter a multitude of challenges that elevate their susceptibility to chronic diseases. These challenges include the high cost of and limited access to nutritious foods and unsafe environments in specific communities that limit residents' capacity for physical activity.[30] Moreover, the overall lack of access to high-quality preventive healthcare plays a prominent role in the development of chronic diseases. Lack of access can be influenced by many factors, including transportation issues, language barriers, lack of culturally competent interventions, and socioeconomic factors. For example, lower socioeconomic status and lack of health insurance are linked to obesity in Hispanic children.[30] A timely diagnosis can greatly affect the overall outcome of a chronic condition, especially in diseases such as breast cancer, when the prognosis is improved by early detection. However, residents of the border are more likely to delay care for a medical condition than non-border residents (16% versus 14%). Among rural residents, the disparity was even more pronounced, with 24% of rural border residents delaying care compared to 16.1% in rural non-border communities.[27] Factors influencing an individual's decision to seek care include lack of health

insurance, lack of paid sick leave, lack of knowledge of the importance of screening tests, and difficulty finding accessible care.

Once a chronic disease is diagnosed, many of the challenges mentioned above limit the quality of care and follow-up that patients living in border communities receive. For example, 23.9% of U.S. border residents lack health insurance, compared to 20.9% of non-border residents in the four border states.[27] Even among insured individuals, the level and quality of care received might be limited, either by the type of insurance offered by their employer or by reliance on government programs such as Medicare or Medicaid. In addition, a lack of understanding of diagnoses and recommended treatments – whether from language barriers or low health literacy – can lead to poor long-term outcomes. For example, female Spanish-speaking breast cancer survivors are less likely to receive follow-up care and are in more need of clinical information than their English-speaking counterparts.[19] Residents along the U.S. - Mexico border also have unique healthcare needs based on their geographic location. Many people seek care on both sides of the border; however, crossing the border to find more affordable treatment or to reach a referral center can cause fragmented care.[19]

Recommendations

- Work with state and local partners to increase access to screening and preventive healthcare services at a younger age and as a part of medical and behavioral routine healthcare.

- Work with academic institutions to expand residency programs, medical and postgraduate opportunities, and community health worker programs to include training for high-risk chronic diseases.

- Promote the development of policies along the border to provide access to affordable, nutritious food, particularly in low-income areas.

- Develop health literacy initiatives to educate border residents about the importance of prevention, early diagnosis, and treatment for NCDs, and advocate for access to health care services for these conditions.

- Leverage binational communication channels and promote cross-border initiatives among policymakers and healthcare providers to increase culturally relevant, culturally targeted, culturally specific care on both sides of the border.

- Explore opportunities to share best practices and new scientific and technological developments on diagnostics, prevention, treatments, and protocols to facilitate patient information for cases that need attention on both sides of the border.

Communicable Diseases

New, re-emerging, or recurrent communicable diseases can create public health emergencies of binational concern and continue to require a robust cross-border approach with involvement from federal, state, and local governments as well as the community.

Overview

Communicable diseases, also known as infectious diseases or transmissible diseases, are caused by infectious agents (bacteria, viruses, parasites and fungi and their toxic products). Many infectious diseases are also communicable diseases, meaning they can be passed from one person or animal to another. Transmission can occur directly (through contact with blood and bodily fluids) or indirectly (through contaminated food, water, air or surfaces) or by means of vectors (such as mosquitoes).[43] Communicable diseases have been, and continue to be, a significant challenge to populations worldwide. In the last two decades, the emergence of the severe acute respiratory syndrome coronavirus in 2003, the 2009 H1N1 influenza pandemic, the Middle East respiratory syndrome coronavirus outbreaks in 2012-2014, the Ebola virus epidemic in West Africa in 2014-2016, and the Zika virus reemergence in the Americas in 2016 changed how nations approached prevention, preparedness, and response to communicable diseases. These severe outbreaks, along with more common and recurrent communicable diseases such as human immunodeficiency virus (HIV), viral hepatitis, tuberculosis (TB), sexually transmitted infections (STIs), and zoonotic diseases, among a myriad of others, continue to pose a threat to people and a burden to the healthcare systems of countries around the world.

The pathogens responsible for most of these communicable diseases are endemic in certain regions of the world and under specific conditions they can be introduced and/or reemerge by the movement of people, products, or animals between regions and countries. They can affect a country's public health and social, environmental, and economic infrastructure, all critical factors in health and national security. These diseases and their potential impact are particularly important at the U.S. - Mexico border, where the interconnectedness and cross- border flow of people and trade is among the most fluid in the world.

Factors such as increased global travel connecting previously isolated areas, increased population density in urban areas, increased contact of people with farm animals and wildlife, and severe environmental changes, in addition to inequity in access to healthcare and preventive medicine in many countries, continue to escalate the threat of communicable diseases. All of these factors – plus increased global population migration and disparities in life expectancy, poverty, healthcare access, and participation in safety-net programs (government assistance programs meant to protect low-income Americans from poverty and hardship) in some areas of the U.S. - Mexico border – make this region particularly vulnerable.[45]

Background

Several communicable diseases are among the top 20 contributors to the global disease burden in terms of disability-adjusted life-years lost, including respiratory infections and TB, enteric diseases, neglected tropical diseases and malaria, HIV/AIDS, and STIs.[46] Respiratory infections and TB alone contribute to an estimated 3.6 million deaths annually.[47] Although there is a global decline in deaths from communicable diseases, they still pose a significant challenge in low and middle-income countries.[47] In the U.S., respiratory infections and TB, HIV/AIDS, syphilis, and enteric infections are among the top contributors to the communicable disease burden.

The range and potential impact of infectious diseases at the border are vast but not entirely determined. In the 2018 *Infectious Disease Prioritization for Multijurisdictional Engagement at the United States Southern Border Region* report, border health experts recommended that select priority diseases be addressed binationally, including TB, Aedes mosquito-transmitted arboviral diseases (dengue, chikungunya, Zika, yellow fever, and

West Nile virus), enteric diseases (*Vibrio spp., Listeria monocytogenes, non-typhoidal Salmonella, Brucella spp.*), and rickettsioses (*Rickettsia typhi, Rickettsia parkeri*). This disease prioritization was based on criteria such as assessing epidemic/pandemic potential, presence and rate of disease, impact on human health capacity, and effective prevention and control measures. In addition, influenza, COVID-19, and other respiratory pathogens; hepatitis C, HIV, syphilis, and other STIs; and other emerging and re-emerging diseases, such as Chagas disease and leishmaniasis, may impact health along the U.S. - Mexico border in the near future with pandemic potential, and are substantial threats to the border area that require special consideration.[49,50]

Tuberculosis

TB has become a public health priority due to its high transmissibility, global prevalence, and the increasing challenge of drug-resistant strains, which threaten to undermine existing treatment efforts and exacerbate health disparities. TB has a higher disease burden among groups that have historically experienced substantial obstacles to healthcare access.[51] Although TB is treatable, it remains one of the world's top killers among communicable diseases; it claims nearly 4,500 lives and infects 30,000 people world-wide every day.[52] In 2020, there were 7,174 reported TB cases in the U.S. (a rate of 2.2 per 100,000 persons), with an incidence rate as high as 33.1 cases per 100,000 persons in U.S. border counties,[53] whereas TB infection rates in the U.S. border states are slightly higher than those in non-border states as well as the national average (Fig. 6).[54]
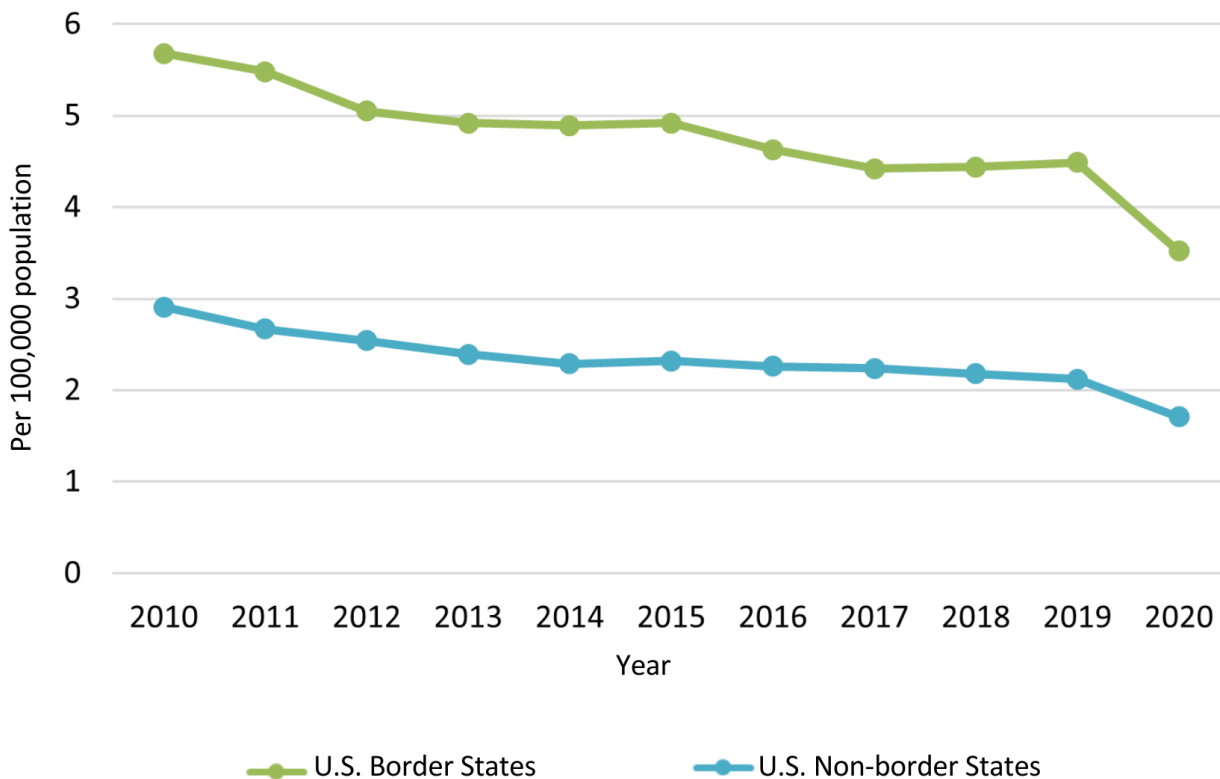

Fig. 6. Tuberculosis Rates for Border and Non-Border States in the U.S. (2010-2020).[54]

Human Immunodeficiency Virus (HIV)

HIV weakens the immune system, increasing the risk of other health complications. An estimated 39.9 million people worldwide are living with HIV as of 2023, with an estimated 1.3 million new infections occurring in 2023. In the U.S., approximately 1.2 million people are living with HIV as of 2022, with an estimated 31,800 people newly acquiring HIV in 2022.[55] Similar to TB, social determinants of health such as geographic location, poverty, and unequal access to healthcare contribute to HIV disparities.[56] In 2017, there were 321 new cases and 5,120

people living with HIV in the Texas-Mexico border area.[57] Between 2017 and 2021, the average prevalence of individuals living with HIV (per 100,000 population) in the border area is shown in Figure 7, indicating a higher prevalence of HIV at the border area when compared with the national level 7.1 (2015) and 7.6 (2021) per 100,000 population.
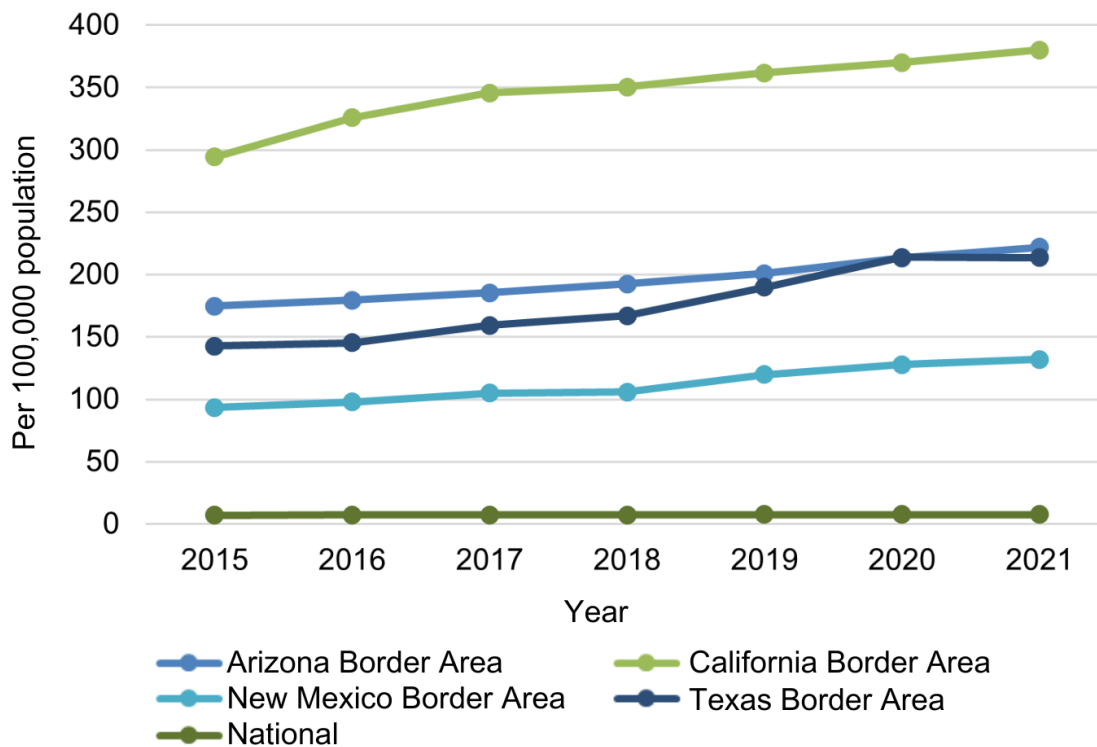

Fig.7. Average Prevalence of HIV Diagnoses in the U.S. - Mexico Border Area (2015-2021).[58]

Syphilis

Acquired syphilis is another example of a sexually transmitted infection with consistently higher rates in the U.S. border states compared to their respective non-border states (Fig. 8). Syphilis is preventable and curable but causes severe consequences if left untreated. This is presumably due to the prevalence of the latent stage of syphilis, which is asymptomatic and may not be detected by healthcare providers.[59] Reduced access to healthcare services may delay treatment for syphilis, leading to complications of chronic disease and resulting in further disease transmission.

During 2022, a total of 207,255 cases of syphilis (all stages and congenital syphilis) were reported in the U.S., which is a 17.3% increase from 2021.[59] These cases included 59,016 primary and secondary cases, representing the most infectious disease stages, for a national rate of 17.7 cases per 100,000 population.[60] Congenital syphilis occurs when syphilis is transmitted from a pregnant person to their fetus. In 2022, over 3,700 cases of congenital syphilis were reported in the U.S.[61] Among the U.S. border states, New Mexico has reported the highest increase in rates of congenital syphilis, from 43.4 births per 100,000 population (2018) to 355.3 births per 100,000 population (2022).[62]
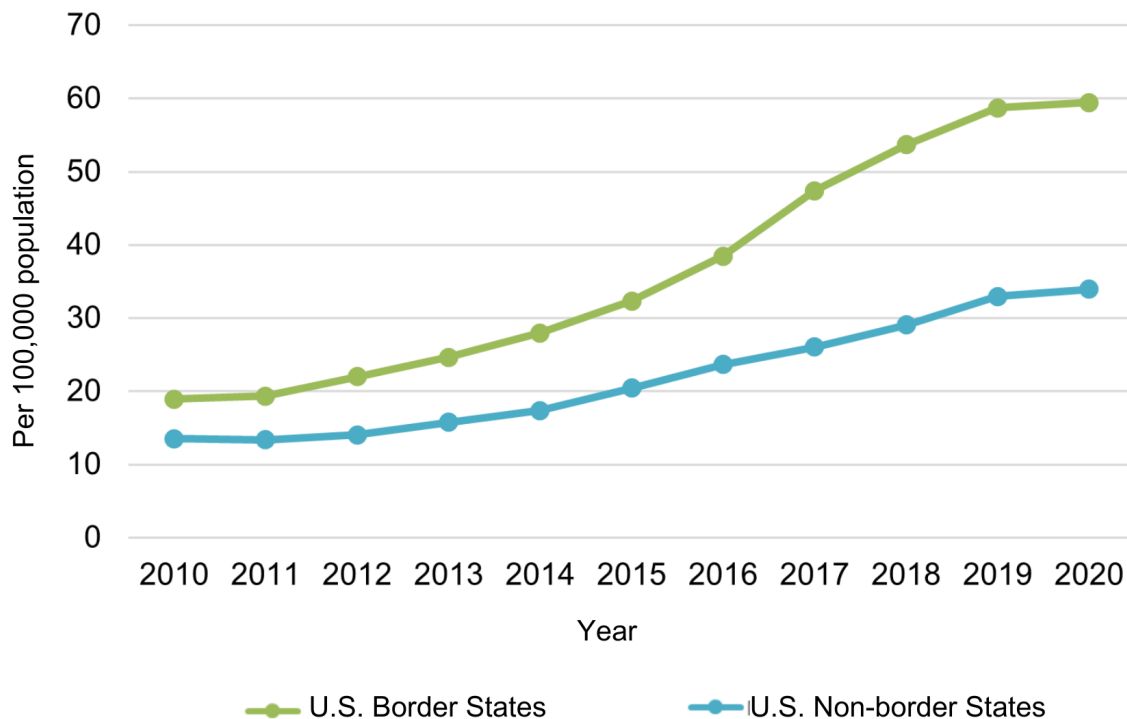
Fig. 8. Rates of Acquired Syphilis for U.S. Border and Non-border States Compared to National Averages (2010-2020).[58]

SARS-CoV-2

The SARS-CoV-2 virus is the novel coronavirus responsible for causing the respiratory illness COVID-19. COVID-19, the disease, manifests with symptoms ranging from mild respiratory issues to severe conditions like pneumonia and acute respiratory distress syndrome, which are caused by the SARS-CoV-2 infection. COVID-19 is the latest example of the negative impact that emerging communicable diseases can have on the border area and globally. Over 760 million cases of COVID-19 have been reported globally, with close to 7 million deaths. In the U.S., over 100 million cases of COVID-19 have been reported, with more than 1.1 million deaths. Although border states did not show significant differences in the numbers of cases, deaths, and hospitalizations compared to non-border states, the initial perception that the border area was a potential threat in terms of COVID-19 spread led to measures with severe implications for trade and travel (e.g., binational cases, border measures, interconnected supply chains, etc.).[63,64]

Vaccine-Preventable Diseases

The U.S. - Mexico border area faces significant public health challenges related to vaccine- preventable diseases, exacerbated by factors such as high population density, frequent cross- border travel, and disparities in healthcare access. Influenza notably poses a persistent concern, especially for vulnerable populations like the elderly, children, and those with chronic health conditions.[65] It is imperative to recognize the importance of vaccination efforts in reducing the incidence of influenza and alleviating the strain on healthcare systems during flu season.,, In 2021, seasonal flu vaccination rates varied along the border area. For example, the highest rate reported was in San Diego County, California (47.9%) and the lowest reported rate reported was in Reeves County, Texas (27.6%) (Fig. 9). Similarly, the 2021 seasonal flu vaccination rate for children aged 24 months (Fig. 10) varied by border state, from a coverage estimate of 49.4% (Texas) to 70.3% (California).
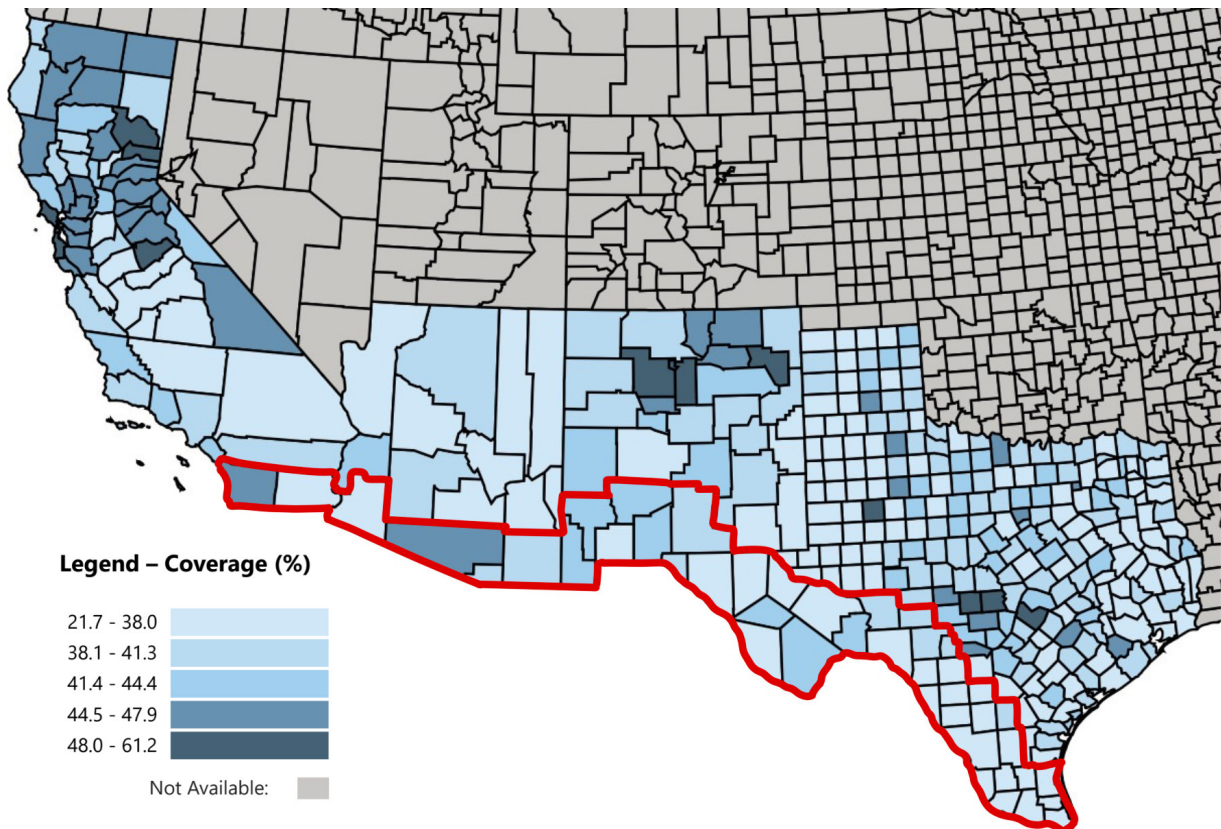
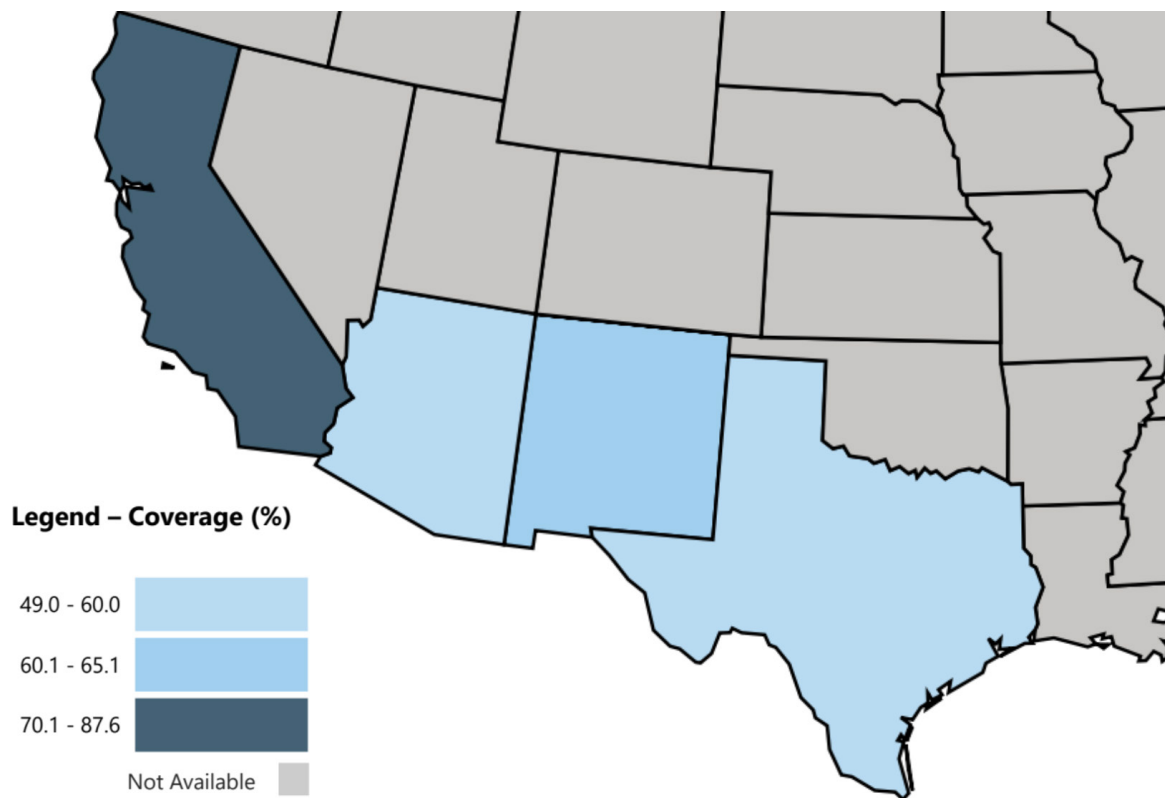**Fig. 9. Influenza Vaccination Coverage Among Adults, 2021.**[69] **Border counties outlined in red.**

Fig. 10. Influenza Vaccination Coverage by Age 24 Months Among Children Born in 2020 in Four U.S. Border States.[70]

The COVID-19 pandemic has underscored the crucial role of vaccination in controlling the spread of communicable diseases. Border communities have been particularly affected by the pandemic due to the substantial cross-border movement for work, family, and essential services. Vaccination campaigns have played a pivotal role in reducing COVID-19 transmission, severe cases, and fatalities.[71] Coordinated efforts in the border area have been essential in ensuring vaccine availability, equitable distribution, and public education regarding the significance of vaccination in alleviating the impact of the pandemic.

Furthermore, the combined 7-series vaccines, which safeguard against diseases such as diphtheria, tetanus, pertussis, polio, Haemophilus influenzae type B (Hib), hepatitis B, and pneumococcal disease, are of vital importance in the U.S. - Mexico border area. These vaccines are primarily administered to children and are instrumental in preventing the resurgence of once-common diseases.[72]
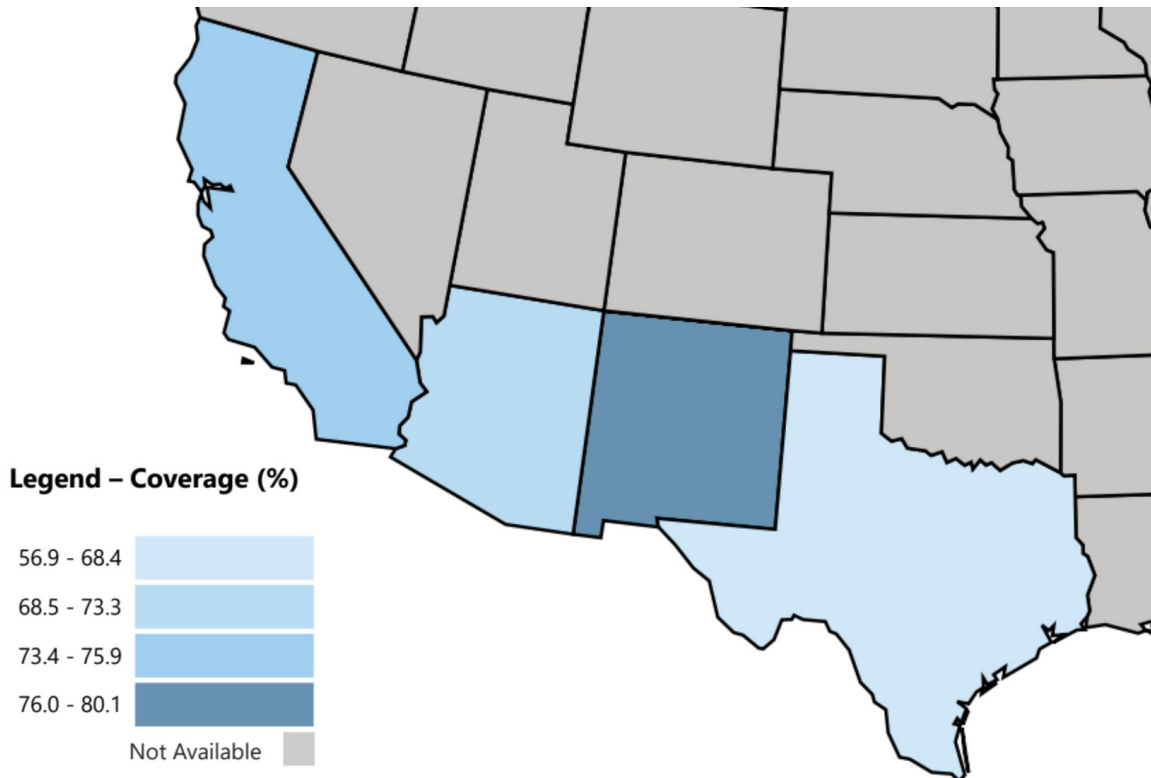

Legend – Coverage (%)

56.9 - 68.4	
68.5 - 73.3	
73.4 - 75.9	
76.0 - 80.1	
Not Available	

Fig. 11. Combined 7-Series Vaccination Coverage by Age 35 Months Among Children Born in 2020 in Four U.S. Border States.[78]

Sustaining high vaccination coverage is essential in preventing outbreaks, particularly due to close proximity and frequent interactions between populations on both sides of the border. The estimated coverage of vaccination of children age 35 months varied between 67.2% (Texas) and 79.8% (New Mexico) (Fig. 11). Ensuring that children receive their full vaccination series can significantly reduce the burden of these diseases and safeguard public health in the border area.

Main Challenges

Border residents, including migrant populations, have high rates of poverty and more risk factors for communicable diseases than residents of non-border states. Border residents also experience unequal access to preventive medicine and medical treatments.[74,75,76] In the periphery of some cities and rural communities in the border states, there is a lack of running water, electricity, and sewers, all contributing to the incidence and spread of communicable diseases. Given considerations of risks for STIs, needle sharing, and food, water, and sanitation concerns, hepatitis A, B, C, and E are of particular concern.

A fundamental gap in the capacity to assess the incidence of communicable diseases at the border and to subsequently address them is the lack of common epidemiological surveillance systems among U.S. border states and across the two countries. Different case definitions, reporting requirements, and surveillance platforms with restricted access levels (in particular, binationally) hinder the ability to access and analyze real-time surveillance data, and thus hinder timely and adequate action.

Large quantities of data come from laboratory surveillance, and as observed during COVID-19, having timely access and affordable laboratory and patient-side diagnostic tools for high- priority diseases at local levels (including rural and underserved areas) are of paramount importance. This is particularly critical for diseases with pandemic potential, where understanding disease incidence in a timely manner is critical to implementing adequate border measures.

The continued presence of TB at the border highlights the need for updated protocols[77] that enable binational case detection, tracing, and treatment on both sides of the border. This is especially important given the challenges faced during COVID-19 and recent outbreaks such as mpox[78] and fungal meningitis.[79]

Recommendations

- **Continue exploring models to partner with local healthcare providers to set up vaccination clinics and deliver vaccines to all community members, including high- risk and uninsured populations.**

- **Strengthen community outreach programs that educate border populations on common communicable disease risks, prevention, and treatment options.**

- **Enhance detection, preparedness, response, and recovery capacities focusing on diagnostic capacity (laboratory and rapid testing).**

- **Develop binational border exercises and plans, and mapping of public health and healthcare infrastructure in the border area, in alignment with federal policies and plans to address communicable diseases with the potential to cause a public health emergency.**

- **Strengthen cross-border collaboration among stakeholders to develop standardized surveillance protocols and reporting systems and train healthcare and public health workers in disease surveillance.**

Healthy Environments

Healthier environments could prevent almost one-quarter of the global burden of disease. Clean air, stable climate, adequate water, sanitation and hygiene, safe use of chemicals, protection from radiation, healthy and safe workplaces, sound agricultural practices, health-supportive cities and built environments, and a preserved nature are all environmental factors contributing to health outcomes.[80] In the U.S. - Mexico border area, these factors are key determinants of health as people socially and economically disadvantaged are usually more exposed to them and carry a heavier burden of disease.

Overview

The living environment, defined here as the conditions where individuals are born, live, and work, is impacted by environmental factors such as air, water, and soil pollution; the widespread use of lead in building structures, toxic chemicals in household products, and pesticides used in agriculture; scarcity of nutritious foods due to natural environment limitations; and inadequate living structures, among others. These factors can affect health outcomes, including quality of life and associated disease risks.[81] This is of major importance at the U.S. - Mexico border, where these environmental factors make people more vulnerable to the burden of disease, in particular certain underserved populations that already experience disparate access to safe housing, education, job security, and adequate income.[82,83,84]

Background

While a variety of environmental and socio-economic factors impact the health of the border population, air and water quality, safe housing, and availability of and access to nutritious food are among some of the key factors affecting health outcomes. For example, the border area contains settlements called *colonias*, defined by the U.S. Department of Housing and Urban Development and U.S. Department of Agriculture Rural Development as "rural communities within the U.S. - Mexico border area that lack adequate water, sewer, or decent housing, or a combination of all three."[85] One area of great public health concern in the *colonias* is the **lack of wastewater systems and potable water**. Nearly half of the *colonias* have drinking water conditions of concern, and a third have wastewater conditions of concern, according to a 2022 report by the Rural Community Assistance Partnership.[83] This limits residents' ability to perform basic handwashing and hygiene practices. The *colonias* also are exposed to higher concentrations of chemical contaminants and heavy metals in their drinking water.[86] Many of these communities lack sewer or drainage systems; the resulting sewage in standing pools of groundwater constitutes a health hazard. Residents of *colonias* without potable water may rely on water from unsafe wells or other unsafe sources, increasing their chances of exposure to health hazards and contamination from bacterial pathogens. For example, in Arizona, while most binational infectious disease cases are attributed to enteric pathogens, cases of vector-borne and zoonotic diseases are rising.[87] Watersheds are shared binationally; therefore, a joint effort is required to preserve water quality and protect residents from sewage spills and other forms of contamination.[88] Rapid population growth strains the aging infrastructure in the border area and puts individuals at heightened risk for exposure to contaminated water and associated health repercussions.[88]

Another environmental factor, disproportionate exposure to air pollution, is associated with specific demographic and socioeconomic factors, such as race/ethnicity, English proficiency, renter status, foreign birth status, and age (which apply to many of the border populations).[89] Exposure to air pollutants has been linked to various cancers, respiratory diseases, and early mortality.[89] The health effects of these exposures are especially harmful to older individuals, outdoor workers, and children.[89] Disproportionate exposure to poor air quality is an environmental justice issue that must be considered along the U.S. - Mexico border. The southern border area experiences traffic congestion due to personal vehicles and the substantial trucking industry moving goods across the border and among the industrial facilities in the region.[89] Delays in border crossings due to inefficient inspection procedures increase the overall level of vehicle emissions.[90] For example, one study found that

concentrations of fine particulate matter, a commonly measured air pollutant, were higher at the San Ysidro and Otay Mesa points of entry in California compared to other community sites further from border crossings.[91] Due to their geographic proximity, many U.S. and Mexican cities along the border have common airsheds.[88] This puts border communities at increased risk of exposure to harmful air pollutants and requires a binational commitment to improving air quality.

Unsafe housing conditions and inadequate building structures at the border, combined with the limited resources to remediate unsafe levels of home hazards (e.g., lead, asbestos, mold, and other toxic chemicals) are, in great part, due to poverty. The 2022 U.S. Census report indicates that the poverty rates in the border area states are slightly higher than the national average of 11.5% (Arizona 12.1%, California 11.4%, New Mexico 18.2%, Texas 13.7%), which makes it difficult for them to access safe housing. Besides low income, people from ethnic minorities are more likely to be affected by these environmental factors.

In low socio-economic areas, health is also impacted by the availability of nutritious foods. This depends in part on the limitations of the natural environment, but also on cultural aspects as well as the presence of supermarkets and grocery stores to provide a balanced diet. In many parts of the border area, this is of particular importance given that scarcity of nutritious food has been linked to increased obesity (as discussed in *Chronic Diseases*). One region of particular concern is southern Texas, where the prevalence of obesity and health-related disorders is documented in a population that is predominantly low-income and lacks education and access to healthy food options.[92,93] The obesity epidemic is even more concerning when combined with inadequate access to healthcare. In fact, according to the Health Resources and Services Administration, most U.S. counties in the U.S. - Mexico border area qualify as health professional shortage areas and/or medically underserved areas for primary medical care.[94]

Main Challenges

The U.S. - Mexico border area faces significant environmental hazards, particularly air and water. Many communities, especially *colonias*, lack access to clean drinking water and proper wastewater systems, which poses health risks due to contaminated sources. Residents are exposed to high concentrations of chemical contaminants and heavy metals, increasing the likelihood of disease. Additionally, building contaminants, such as lead and toxic chemicals, further endanger the health of the border population, particularly in low-income areas. Air pollution is another critical issue, worsened by heavy traffic, industrial activities, and inefficient border crossings, leading to elevated rates of respiratory diseases, cancers, and premature mortality. Additionally, in some parts of the border area, socioeconomic factors exacerbate exposure to environmental hazards, primarily due to high poverty rates. Limited access to safe housing in these areas exposes residents to environmental risks and hazardous building materials.

One of the main challenges in supporting healthy environments at the border is housing quality along the U.S. - Mexico border. Housing quality includes the physical condition of a home and the quality of the home's social and physical environment (such as air quality, home safety, and the presence of mold, asbestos, or lead). Low-income families are at increased risk of living in poor-quality housing, which can worsen health-related outcomes. For example, those living in overcrowded housing facilities are at increased risk for mental health issues, food insecurity, and communicable diseases.[95]

Access to foods that allows for healthy eating patterns and the rise of "food deserts"[2] along the U.S. - Mexico

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[2] "Food deserts" are neighborhoods and communities that have limited access to affordable and nutritious foods. In the U.S., food deserts tend to be in urban and rural low-income neighborhoods, where residents are less likely to have supermarkets or grocery stores that provide healthy food choices.

border.[96] Here, nutritious food sources are lacking or limited, specifically in low-income areas with higher amounts of economic inequity, where the prevalence of fast-food restaurants and convenience stores leads to increased rates of obesity and other chronic diseases near the U.S. - Mexico border (see *Chronic Diseases*).[97] Several studies have shown a relationship between the inability to access healthier foods and adverse health outcomes.[92,93]

The U.S. - Mexico border area needs to strengthen healthcare infrastructure and access, as many areas are designated as health professional shortage areas or medically underserved areas. This shortage of healthcare professionals and facilities limits residents' health prevention and medical care options, which contributes to increased health disparities.

Recommendations

- Foster dialogue to support the improvement of the community environment challenges specific to the border communities (e.g., potable water, sewage, etc.).

- Promote educational and workforce opportunities for healthcare providers to address workforce shortages and lack of economic growth by offering incentives such as school and/or college community service credits, job training, and succession planning to foster community resilience with overall workforce shortages.

- Explore innovative ways to expand access to nutritious foods, improve local farmers' markets, and promote community gardens, all while encouraging physical activity and fostering healthy eating behaviors.

- Establish new or strengthen existing community outreach programs to educate communities on the health risks caused by hazardous conditions such as poor air quality, home safety, and the presence of mold, asbestos, lead, etc.

- Work across sectors to develop and promote policies and regulations for accessible remediation programs for hazardous housing conditions that affect health outcomes.

Impact of Climate Change on Public Health

Climate-related changes pose significant direct and indirect threats to public health. Heat, droughts, severe storms, and rising sea levels significantly affect vector-borne and airway diseases, food and water insecurity, and population movement. The U.S. - Mexico border area faces significant health challenges due to a combination of these environmentally coupled socioeconomic vulnerabilities.

Overview

Long-term, large-scale shifts in weather patterns and temperatures around the globe have been documented over the past century.[98] It is estimated that the Earth's surface is, on average, about 1.1°C warmer than before the Industrial Revolution and is the warmest it has been in the past 100,000 years.[99] While this might seem inconsequential, even this slight increase is linked to increased droughts and floods, more frequent wildfires, rising sea levels, and declining biodiversity.[99] Rapid environmental shifts can result in increased natural disasters and contamination of natural resources.[99]

Extreme weather events and ecosystems do not stop at national borders, so a coordinated binational approach to environmental challenges is crucial.[100] Binational conservation efforts along the boundary rivers, lakes, and other wetlands with a primary goal of flood control and water reservoir protection must be implemented to protect lives and property.

Background

According to the Pan American Health Organization (PAHO), climate change directly and indirectly impacts human health. The direct impacts include injuries, disease, and deaths due to extreme weather events. These events lead to increased frequency and intensity of heat waves; excess heat-related mortality and incidence of heat exhaustion; aggravated circulatory, cardiovascular, respiratory, and kidney diseases; health losses (morbidity and mortality); and mental health and substance use concerns caused by disasters such as storms, hurricanes, tornadoes, and floods. Additionally, indigenous and traditional peoples are expected to suffer the most from these impacts due to disparate access to essential resources, health disparities, and threats to food and water to contribute to resilience measures.[101]

PAHO emphasizes that the indirect impacts on both natural and socio-economic systems encompass a wide array of health and environmental challenges. These include exacerbating airway diseases and allergens, the projected escalation of food and water-borne diseases, and the expanded distribution of vector-borne diseases due to a warmer climate. In addition, there are far-reaching socio-economic ramifications, including food and water insecurity, heightened occupational health hazards, and the potential for forced displacements, mental illness, and stress-related impacts.[92]

The Fifth National Climate Assessment developed by the U.S. Government shows that the effects of human-caused climate change are already far-reaching and worsening across every region of the U.S.[102] In particular, the assessment of the U.S. Southwest region reveals that drought and increasing aridity threaten water resources. Adaptation efforts are growing to address accelerating impacts on the region's coast and ocean, while food and fiber production challenges are also rising. The U.S. Southwest faces significant challenges from climate change, including increased droughts, declining snowpack, and water shortages, which strain water resources like the Colorado River Basin. Coastal areas are also impacted by sea level rise and marine heatwaves, while agriculture suffers from reduced water availability and rising temperatures.[103,104] Adaptation strategies, including water conservation efforts and incorporating Indigenous knowledge in agriculture, are essential to address these issues and protect the region's environment and economy. Additionally, climate change compromises human health and reshapes demographics, and changes in wildfire patterns pose challenges for residents and
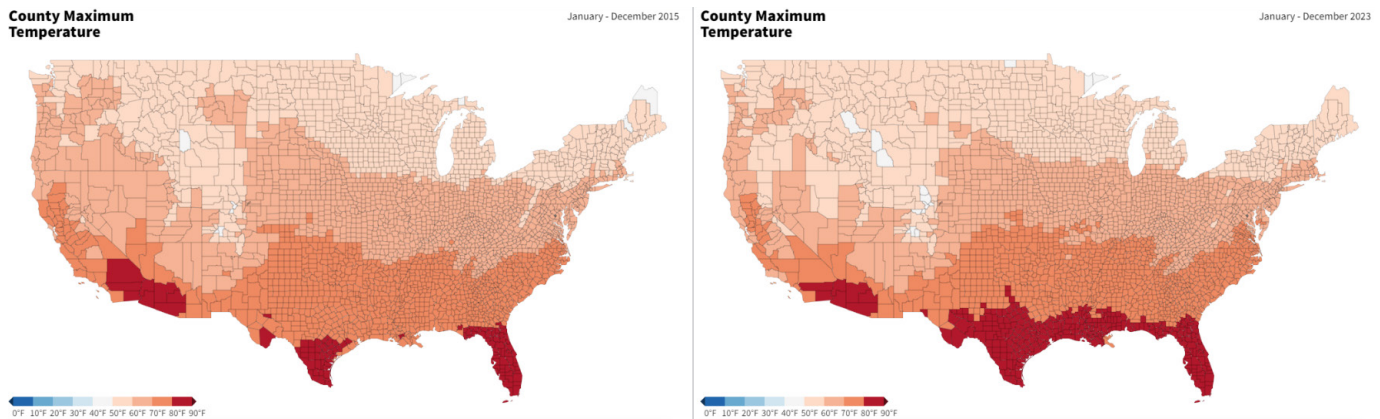
ecosystems in this region.

Fig. 12. 12-Month Average Maximum Temperatures (°F) in the U.S., 2015 (left) and 2023 (right).[105]

Understanding the burden of environmental changes on the U.S. - Mexico border necessitates an in-depth examination of the region's unique climate and ecosystems. For example, the twelve-month average maximum temperatures (°F) and precipitation levels (inches) for the U.S. in 2015 and 2023 are shown in Figures 12 and 13. A growing population and overuse of drought-stressed land and aquifers strain limited resources, potentially leading to degraded air and water quality and shortages.[106]
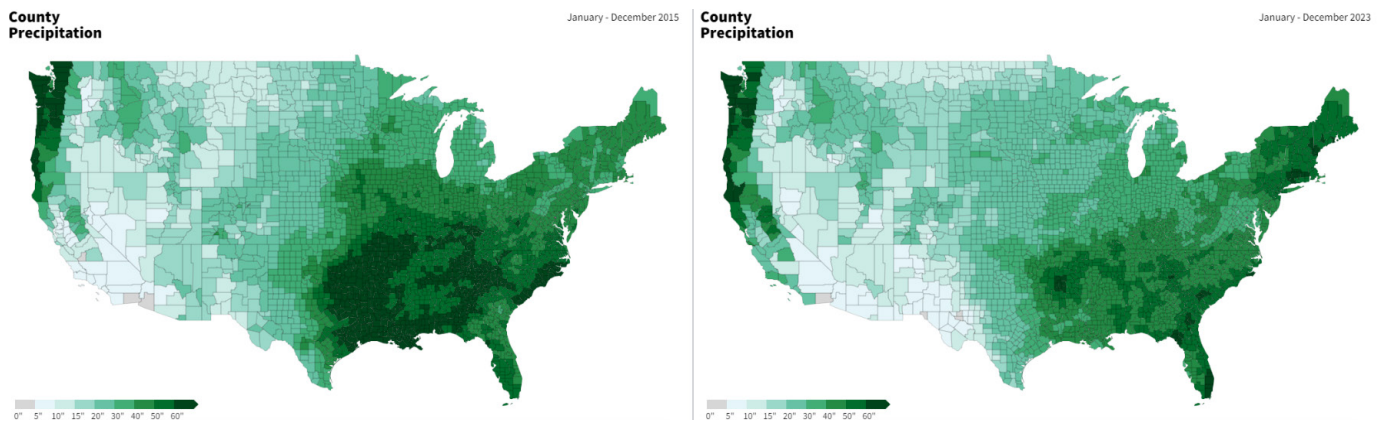

Fig. 13. 12-Month Average Precipitation (inches) in the U.S., 2015 (left) and 2023 (right).[105]

One consequence of changing environments is the alteration of habitats and breeding seasons of specific disease-causing vectors. Climate limits the geographic and temporal spread of arboviral diseases such as dengue fever and West Nile virus by creating inhospitable environments for mosquito vectors. As temperatures rise, the transmission zones for these species and the diseases they bring also increase.[107] Mosquito breeding seasons and physiologic traits (such as the speed with which mosquitoes develop) increase with rising temperatures up to a point. While increased precipitation is often associated with increased mosquito breeding sites, in contrast, water storage can become new breeding grounds for vectors during drought.[107] For example, the average incidence number of West Nile virus cases diagnosed in counties located in each state's border area ranged from 0.3 to 1.5 per 100,000 population from 2015 to 2022 (Table 6). The average incidence of West Nile virus cases diagnosed in the U.S. is 0.6 per 100,000 population from 2015 to 2022.[108] Beyond mosquito-borne diseases, incidence rates of other communicable diseases such as hantavirus, Chagas disease, and listeriosis all could potentially increase with changing environmental conditions and should be closely monitored in the border area.

Region	County-Level Maximum	County-Level Minimum	County-Level Average
Arizona Border Area	7.4	0.0	1.5
California Border Area	1.2	0.1	0.3
New Mexico Border Area	1.9	0.3	0.9
Texas Border Area	0.8	0.4	0.6
National			**0.6**

Table 6. Annual Diagnosed West Nile Virus Cases per 100,000 Population in the U.S. Border Area, 2015-2022.[109]

People in certain professions, especially those working outdoors, are at an increased risk for climate-related health complications.[110] A second consequence of changing environments is an increase in ambient temperatures. Contributing factors include rising temperatures and humidity, which increase health stress and heat-related illnesses of workers in the U.S. – Mexico border area. Outdoor workers are more likely to be exposed to poor air quality and wildfire smoke than other workers due to their time spent outdoors. This exposure increases these workers' risks for respiratory issues, cardiovascular problems, mental health and substance use, and exacerbation of pre-existing conditions.[111,112] The border areas employ a more significant percentage of their populations in high-risk outdoor professions compared to the national average. For example, in 2015, 7.5% of the population in the Arizona border area worked in these professions, compared to the national average of 6.0%. In Texas, the percentage of the population employed in high-risk outdoor professions has changed from 6.3% (2015) of the border area population to 6.9% (2022). Meanwhile, the national average of outdoor workers has decreased from 6.6% (2015) to 5.8% (2022).[113] The average numbers of people employed in outdoor professions for each border state are shown in Table 7.

Region	2015	2016	2017	2018	2019	2020	2021	2022
Arizona Border Area	7.5%	6.0%	6.1%	6.4%	6.2%	5.8%	5.6%	5.6%
California Border Area	5.9%	5.8%	5.9%	5.8%	5.7%	5.5%	5.0%	5.1%
New Mexico Border Area	6.9%	6.8%	5.7%	5.3%	5.0%	6.2%	5.0%	5.8%
Texas Border Area	6.3%	6.5%	7.0%	6.9%	7.0%	6.8%	6.2%	6.9%
National	**6.0%**	**6.0%**	**6.1%**	**6.1%**	**6.1%**	**5.9%**	**5.6%**	**5.7%**

Table 7. Percentage of Employees in Outdoor Professions in the U.S. - Mexico Border Area, 2015-2022.[114]

Rising temperatures, worsening heat waves, and more frequent natural disasters or extreme weather events may worsen unsafe working conditions. Heat-related illness is frequently reported among agricultural farmworkers based on the high temperatures of the environment they work in. For example, in California, on average, agricultural workers are exposed to 42 unsafe working days annually. In comparison, the average U.S. agricultural worker is exposed to 21 working days in the summer growing season that are unsafe due to heat.[115] Exposure to high temperatures increases the risk of mental health and substance use concerns, and for people with pre-existing conditions, there is an increased risk of heat-related death.

The World Health Organization (WHO) emphasizes prioritizing mental health in global responses to climate change. Climate change poses significant threats to mental well-being. Extreme weather events, loss of livelihoods, displacement, and food insecurity contribute to rising anxiety, depression, and other mental health disorders. Vulnerable communities, especially those with fewer resources, are disproportionately affected. The WHO calls for more robust integration of mental health support into climate action policies. This involves promoting resilience and addressing the mental health impacts of climate-related stressors to foster overall community well-being.[116]

Figure 14 shows county-level mapping of agricultural workers and social vulnerability in the U.S. The California and Arizona border area has a larger share of farmworkers compared to most parts of the U.S. and compared to other state border areas, so issues for farmworkers in that area are particularly salient. Exposure to high temperatures can lead to severe illnesses, including heat stroke, kidney disease, and worsening of cardiovascular or respiratory diseases.[93] The farmworker community also faces unique vulnerabilities that make them more susceptible to heat stress than average U.S. workers. Factors including low wages, social and cultural isolation, barriers to medical care, substandard housing, and inadequate regulatory standards make it difficult to prevent and treat heat-related illnesses within the U.S. farmworker community.[117] Furthermore, farmworkers and other low-income laborers often lack access to high-quality health insurance, further worsening their healthcare and medical treatment.[93]
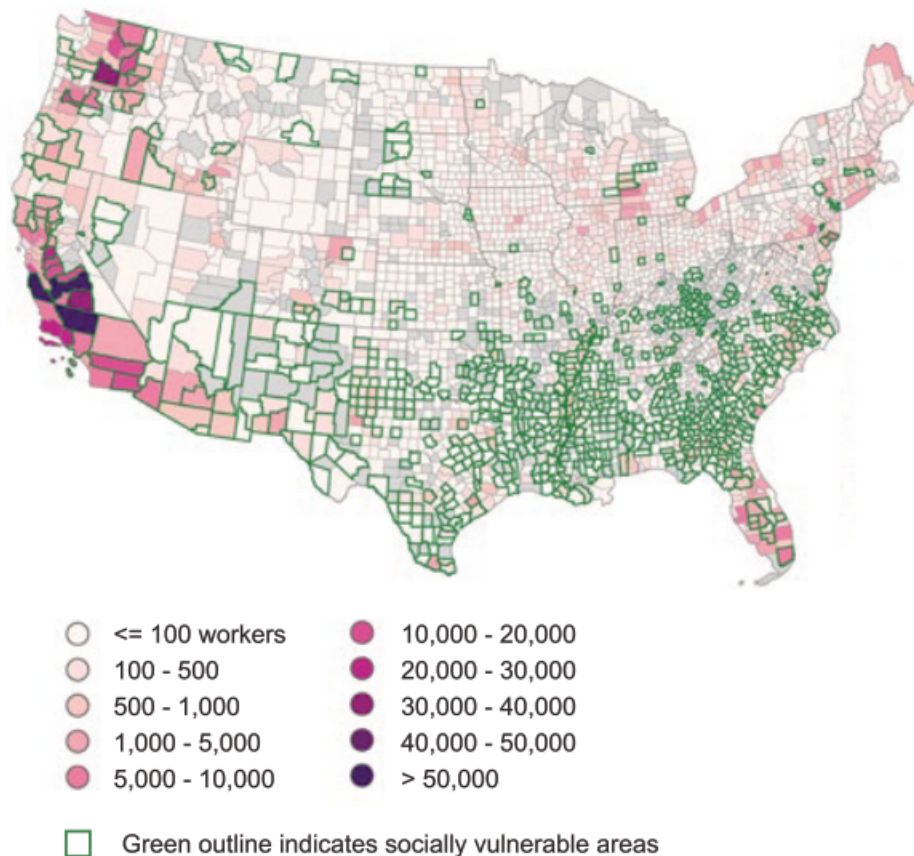

Fig. 14. Distribution of Agricultural Workers and Social Vulnerability. National distribution of agricultural workers and areas with the least resilience to heat stress. Counties outlined in dark green are in the upper quartile of the CDC's Social Vulnerability Index, highlighting areas especially at risk during public health emergencies. Color scale depicts the numbers of agricultural workers hired in the summer as reported by the Bureau of Labor Statistics Quarterly Census of Employment and Wages.[117]

Legend:
- <= 100 workers
- 100 - 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- 30,000 - 40,000
- 40,000 - 50,000
- > 50,000

☐ Green outline indicates socially vulnerable areas

The U.S. - Mexico border area is facing a pressing issue at the intersection of climate change and mental health. Climate-related events like droughts, heatwaves, and hurricanes increasingly impact the region, causing significant physical and psychological distress. The communities along the border, already vulnerable due to socioeconomic disparities, are particularly susceptible to the mental health consequences of climate-induced displacement, resource scarcity, and environmental degradation.[118] This can lead to heightened levels of anxiety, depression, and post-traumatic stress disorder (PTSD) among residents.[119] Migrants and locals in these areas face compounded stress from both climate events and pre-existing economic or social struggles, necessitating

increased mental health interventions. The unique cultural and geographical characteristics of the border area and limited access to healthcare, including mental health services, further exacerbate the challenges.

Main Challenges

Border residents and border crossers are particularly vulnerable to the effects of rising temperatures and disease vectors. Sanitation, housing quality, and poor infrastructure can all heighten exposure to these external elements, as discussed in *Healthy Environments*.

Furthermore, poverty and lack of high-quality health insurance limit individuals' access to healthcare and mental healthcare for environmental-related illnesses such as heat stroke, mosquito-borne diseases, and catastrophic events. Individuals working outdoors in extreme conditions are often the most socially and economically vulnerable and the least able to protect themselves or obtain improved working conditions.

Environmental conditions are important drivers in migration, with rising temperatures and extreme weather causing economic instability and agricultural failure that influence individuals' decisions to emigrate. The World Bank estimates that by 2050, climate change, an increasingly potent driver of migration, could force 216 million people across six world regions to move within their countries. Over 17 million of these "internal climate migrants" are estimated to be living across Latin America.[120] Moving to another kind of work might be the only option for families who have lost everything to drought or natural disasters. An increase in harmful degree days was related to labor reallocation within Mexico and increased migration to the U.S.[121] This alteration in migration patterns created by a worsening climate will further strain an already overwhelmed immigration system at the border, creating further health and economic instability for those affected.

Ecosystems, extreme weather events, and disease vectors disregard national boundaries. Binational coordination and consistency in the surveillance and reporting of environmental health data are needed to prepare for and respond to current and future environmental challenges. Reliable data on climate fluctuations and their environmental and health consequences in the U.S. - Mexico border area will expand the ability to respond and provide necessary resources to underserved populations.[122]

Recommendations

- **Foster and support binational cross-sectoral research focused on understanding the impacts of environmental changes on the health of the U.S. - Mexico border communities.**

- **Promote policies, regulations, and best practices that protect workers in high-risk environments, addressing prolonged exposure to extreme temperatures and other risk factors and improving access to screening and healthcare services.**

- **Incorporate climate-informed prevention, treatment, and recovery resources for mental health (including for trauma and substance use disorders).**

- **Strengthen binational cross-sectoral collaborations to develop and implement plans to protect environmental resources to mitigate the impact of environmental changes on public health.**

- **Promote targeted education to prevent transmission of vector-borne human diseases and encourage housing improvements to mitigate exposures.**

- **Work binationally to improve surveillance systems and standardize data collection and reporting for vector-borne illnesses to enhance early detection and response efforts linked to environmental changes.**

Maternal and Child Health

Ensuring the well-being of mothers and children is imperative for health equity and society's well-being. Poverty, lack of health insurance, and lack of available healthcare providers remain drivers of adverse maternal and child health outcomes in the U.S. - Mexico border area.

Overview

Protecting maternal and child health (MCH) is central to healthy communities and improving it has been a global target for decades. While significant progress has been made, the number of unnecessary deaths of mothers and children is still very high. Worldwide, an estimated 800 women die every day from preventable pregnancy- and childbirth-related causes.[123] One of the sustainable development goals set by the United Nations for 2030 is good health and well- being, which includes reducing infant, child, and maternal mortality rates and improving access to reproductive healthcare services, including family planning.[124] As stated by WHO, "Simply surviving pregnancy and childbirth can never be the marker of successful maternal health care."[125] Appropriate, timely, and ongoing prenatal and postnatal care for mothers is also vital for MCH. Prenatal care allows health providers to check for conditions such as high blood pressure and gestational diabetes and address them before they become serious complications. They can also advise expectant mothers on healthy behaviors to help keep their infants and themselves safe.[126] High-quality healthcare for women also includes access to education on reproductive health, contraceptive methods, and family planning when desired. A specific area to improve maternal health is to prevent adolescent pregnancy, which persists in many communities and can have devastating economic, social, and physical consequences. Globally, in 2022, 13% of adolescent girls give birth before they reach 18 years old.[127] Their bodies may not be physically developed enough to deliver infants safely, and they are at higher risk for complications such as fistulas and eclampsia. Globally, maternity-related conditions are the second-leading cause of death for young women between 15 to 19 years old.[127] Adolescent pregnancies can also lead to lower birth weights and severe health conditions among infants.[128] Furthermore, early pregnancy often causes girls to drop out of school and can lead to isolation, stigmatization, and violence from family members.[125,126,129]

The U.S. faces issues pertaining to MCH, especially regarding healthcare access, access to contraception and family planning, and maternal health outcomes. Social determinants of health, such as poverty, ethnicity, and geographic isolation, significantly affect the care that mothers receive. For example, approximately 15% of all mothers receive no or inadequate prenatal care, but when separated by race and ethnicity, almost 19% of Hispanic mothers receive inadequate to no care.[130] Inadequate care is particularly important at the border, given the high percentage of Hispanic population. The U.S. - Mexico border area is unique culturally, geographically, and socioeconomically, and the challenges mothers and children face in this region are complex and distinct.

Background

The U.S. - Mexico border has certain unique geographic and cultural characteristics that influence MCH. Limited availability of health care resources is a barrier that may reduce access to health services and increase the risk of poor health outcomes. For example, physician shortages may mean that patients experience longer wait times and delayed care.[131] The disparity in the number of healthcare and social assistance establishments of all sizes is shown below in Figure 15. For example, New Mexico had minor growth in available healthcare establishments, with 10,243 in 2019 to 10,899 establishments in 2023. This growth represents an increase of 656 establishments over the five-year period, compared to establishment growth of 4,520 in Arizona, 75,411 in California, and 12,487 in Texas during the same period. In large sections of the border area, the population is geographically isolated from access to large metropolitan areas with more available healthcare providers. As such, this geographic isolation can make seeking high-quality care more challenging.
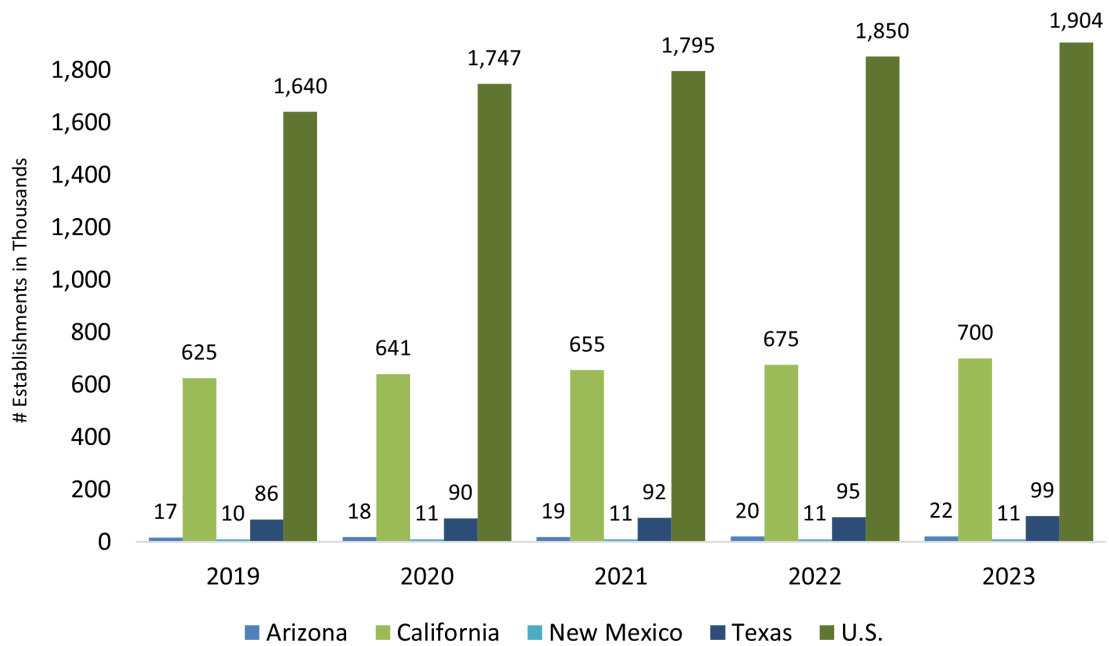
Fig. 15. Healthcare and Social Assistance Establishments of All Sizes. Annual averages, 2019-2023.[132]

Furthermore, inadequate health insurance coverage is one of the most considerable barriers to healthcare access, and the unequal distribution of coverage contributes to disparities in health. Out-of-pocket medical care costs may lead individuals to delay or forgo needed care (such as doctor visits, dental care, and medications), and medical debt is common among insured and uninsured individuals. People with lower incomes are often uninsured, and people from racial and ethnic minority groups account for over half of the uninsured population.[131] Certain "qualified" non-citizens may sometimes qualify for Medicaid and CHIP, and undocumented persons may be eligible for emergency Medicaid benefits.[173] These programs can assist women and children. However, accessing the help may require assistance navigating the available assistance within each state area along the U.S. - Mexico border and the qualifications to access that care. An example of this disparity can be seen in the quantity of prenatal visits that mothers receive (Fig. 16).
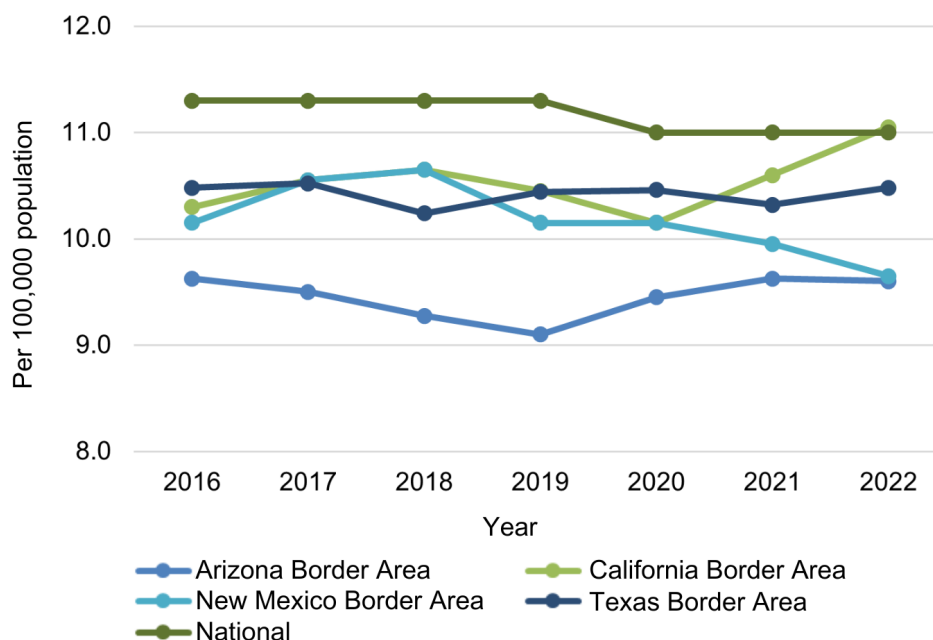

Fig. 16. Average Numbers of Prenatal Visits in the U.S. Mexico Border Area, 2016-2022.[133]

Expectant mothers in the U.S. - Mexico border area have lower rates of prenatal care compared to the national average. They also report being unable to obtain adequate information and support during their pregnancies. The consequences of insufficient prenatal care can be substantial. Congenital syphilis, which is prevalent in this region, is a direct result of untreated syphilis during pregnancy, often due to late entry into prenatal care (i.e., first visit during the second trimester or later) or lack of prenatal care. Early detection and treatment of maternal syphilis before the third trimester can prevent congenital syphilis, stillbirth, and severe complications in newborns.[134] New Mexico has the highest rate of congenital syphilis, likely due to limited prenatal care access. Syphilis can have impacts newborn morbidity, mortality, and disabilities.[134] Untreated gestational diabetes, high blood pressure, or exposure to smoke or alcohol can have serious consequences for both mothers and children. The presence of existing chronic diseases, such as obesity, can cause additional complications and contribute to poor birth outcomes. In addition, social and economic stressors related to financial difficulties, families living on both sides of the border, and fears surrounding changing immigration policies can impair the health of both mothers and infants during pregnancy.

Immigration status and families split between Mexico and the U.S. add extra challenges for mothers and children. Individuals with lower incomes are more likely to encounter barriers to healthcare access, particularly in terms of skipping medical appointments and delaying the filling of necessary prescriptions, primarily due to financial constraints. This association between lower income and obstacles to healthcare access highlights the impact of financial burdens on individuals' ability to access and prioritize necessary medical care.[135] Finally, lack of education about birth control and reproductive health can lead to unexpected pregnancies, including teenage pregnancies, placing more social and economic strains on families.
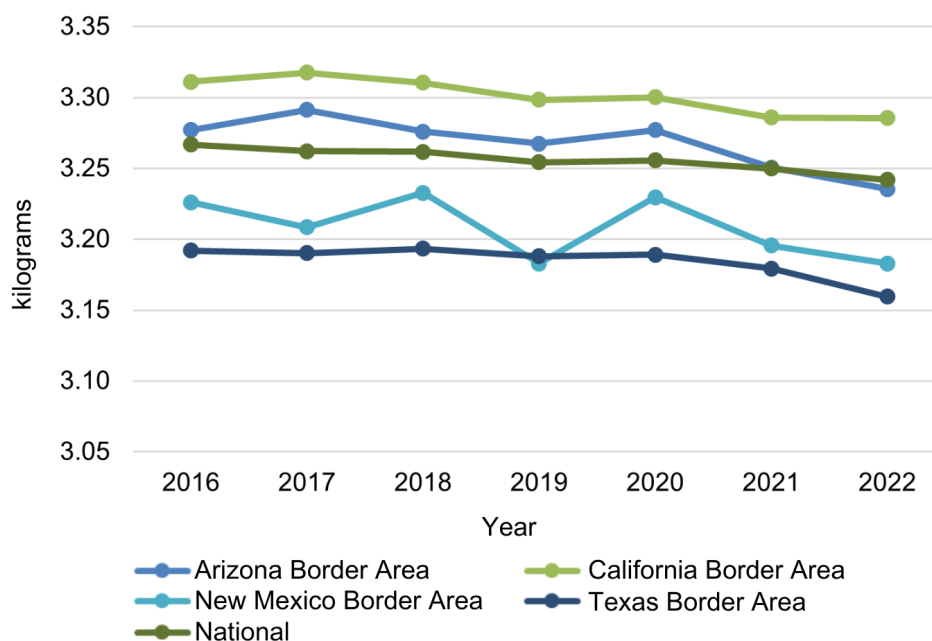

Fig. 17. Average Birth Weights in the U.S. - Mexico Border Area, 2016-2022.[133]

While the U.S. teen birth rate has declined since 1991, it is still the highest of any high-income country.[136] However, the rate of teenage pregnancy among Hispanic and non-Hispanic Black adolescents is twice as high as for non-Hispanic White teens.[137] Among Hispanics in the U.S., 57% of all adolescent births occur in the U.S. - Mexico border area (Fig. 18).[138]
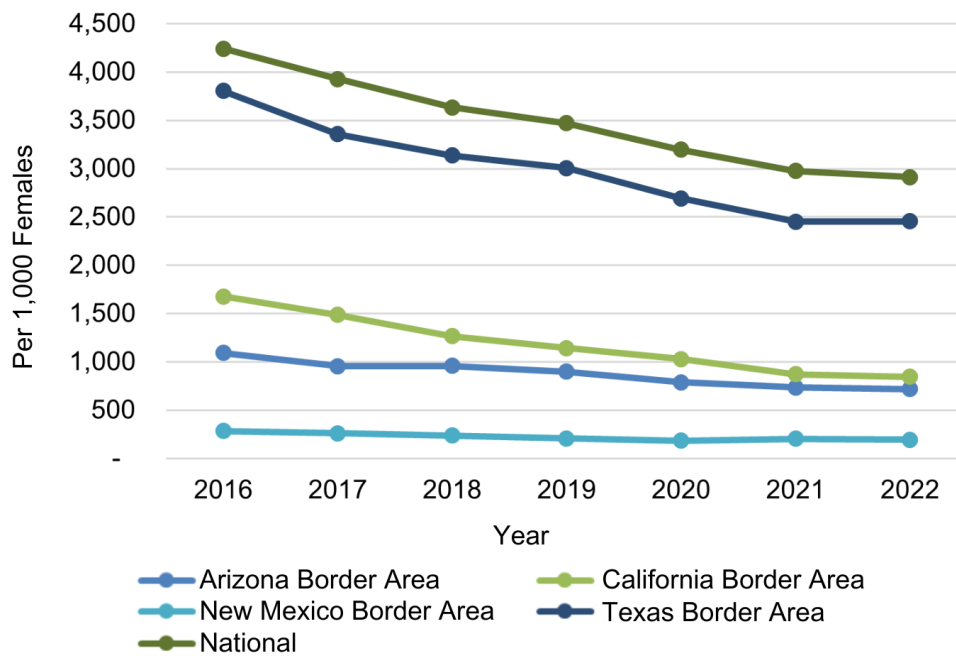
Fig. 18. Adolescent Birth Rates in the U.S. Border Area, 2016-2022.[133] Counties included: Arizona -Cochise, Pima, Yuma, Unidentified; California – Imperial, San Diego; New Mexico – Dona Ana, Unidentified; Texas – Cameron, El Paso, Hidalgo, Unidentified.

When reviewing the data in Figure 18, it appears that living in the border area is protective against teenage pregnancy; however, the data on this topic are only reported in counties with populations over 100,000 people. All other reported births in counties that do not meet this threshold are reported as "unidentified counties" in the CDC Natality database; therefore, the current border area data cannot exhibit the actual teenage pregnancy rate and related births across the border area. Teenage pregnancy might be partially explained by social or cultural patterns but can also be related to socioeconomic conditions. Notably, such births put both the mother and child at risk for health complications and have economic consequences.

Main Challenges

In the U.S. - Mexico border area, poverty and lack of health insurance are significant drivers of many adverse health outcomes of MCH. Poverty is linked to adolescent pregnancy, and almost 48% of all teen mothers live below the poverty line.[138] In addition, reliance on partners for financial support, transportation, or other essentials can increase a woman's dependence on her partner and decrease autonomy in cases of domestic violence and unwanted pregnancies. Women who are uninsured or underinsured may not be able to afford high-quality healthcare, which might limit their knowledge about and access to proper contraceptive use, reproductive health services, or family planning. Lack of insurance or financial restrictions might also limit a pregnant person's access to prenatal care, which can be important for detecting complications such as gestational diabetes. Uninsured children might be less likely to attend routine visits where conditions such as childhood obesity can be detected and addressed at an early stage. Among vulnerable mobile populations, uncertain immigration status can make it more difficult to access available services, a topic discussed in *Mobile Populations and Health*.

In addition, the lack of accessible providers can limit the healthcare children and women receive. Most counties on the U.S. - Mexico border are considered health professional shortage areas or medically underserved areas, which can create a "provider desert" for border residents.[139] If pregnant people share vehicles or rely on others for transportation, they might not be able to keep prenatal or routine health appointments, potentially leading to lower infant birth weight and other health concerns. Some families might also spend extended

time or seek care on both sides of the border. All these factors can lead to disrupted continuity of care for pregnant individuals during the perinatal period, and pregnancy-related complications may go undetected or be addressed only after causing serious harm. Beyond limiting provider access, geographic isolation from a woman's family can make her more vulnerable to domestic abuse and less able to leave an abusive situation.

Protecting the health of mothers and children is crucial in any community, and their unique needs must be considered to have a flourishing, healthy society. Improving access to healthcare, both pre- and post-conception, and empowering women through education and economic opportunities should be a binational priority that is seen as a key step in developing a healthy border. To fully support MCH, a binational, holistic approach is needed that protects women and children from domestic violence and from unwanted or unsafe pregnancies due to lack of contraception, education, or access to care.

Recommendations

- Facilitate the establishment of mobile clinics or telemedicine services to provide healthcare to women and children in remote areas.

- Collaborate with local and national governments and healthcare providers to educate women about affordable health insurance coverage.

- Educate women on the importance of prenatal and postnatal care through community outreach programs and education campaigns, including appropriate language services. Support prenatal care programs that include syphilis screening and treatment, as well as education for expectant mothers in the border area to reduce congenital syphilis.

- Support prenatal care programs that include syphilis screening and treatment, as well as education for expectant mothers in the border area to reduce congenital syphilis.

- Support reproductive health and family planning education programs for parents, children, and adolescents in the border area to reduce unintended and adolescent pregnancies.

- Share best practices among border stakeholders to address obstetric emergencies and establish training programs for healthcare providers.

Mental Health

Mental health is a critical aspect of overall well-being, encompassing emotional, psychological, and social dimensions. The unique challenges faced by individuals in the U.S. - Mexico border area, including social determinants of health, contribute to the complexity of their mental health issues. Understanding these challenges is essential for developing effective strategies to support the mental well-being of individuals in the region.

Overview

Mental health is a broad category that encompasses a person's emotional, psychological, and social well-being.[140] It includes an individual's thoughts, emotions, and behaviors and how these contribute to overall health. In the past decade, significant advancements have been made in recognizing mental health as an essential component of total health. Factors increasing the risk of mental illnesses are complex. They can include past traumas, especially in childhood, genetic and other biological vulnerabilities, use of alcohol or drugs, and social isolation or loneliness.[140] External stressors, such as caring for family members, working long hours, and economic instability, can also negatively impact an individual's mental health. In addition, people with mental health and substance use concerns have higher rates of heat-related illness and death.[141]

The negative consequences of mental illness are more than emotional and/or social. The mortality rate for individuals with severe mental illness is 2-3 times that of the general population, which translates into a 10 to 20-year reduction in life expectancy.[142] Most of these deaths are not from accidental or intentional self-harm but rather from conditions such as cardiovascular disease and diabetes, which share many of the same risk factors as mental illnesses.

The U.S. - Mexico border area has a unique cultural, demographic, and economic landscape that must be considered when approaching mental illnesses among its residents. Certain stressors and structural challenges faced by border residents – high levels of poverty, limited English proficiency, and lack of access to healthcare – contribute to their poor mental health.[143] For those already diagnosed with a mental illness, lack of available mental health resources, inability to access the available resources, and cultural stigma surrounding mental illness all contribute to lower rates of treatment among border residents. In addition to addressing the physical health priorities and structural issues mentioned throughout these chapters, it is critical to identify existing mental illness and treatment resources to improve mental health.[144]

Background

Approximately 23% of U.S. adults live with a mental illness, with higher rates among women (27.2%), young adults aged 18-25 (33.7%), and adults of two or more races (34.9%).[145] Additionally, 1 in 25 U.S. adults suffers from what is considered a serious mental illness, such as bipolar disease or major depression.[140] However, in 2021, fewer than half of U.S. adults with a mental illness reported receiving treatment for their condition within the past year.[145] Treatment services could include inpatient or outpatient treatment, counseling, or prescription medication to help with a mental health issue. In 2021, 52% of White adults with a diagnosed serious mental illness received treatment, compared to only 36.1% and 39.4% of Hispanic and Black adults with a diagnosed serious mental illness, respectively.

A needs assessment conducted by PAHO and various partners on both sides of the border found that the four priority mental health conditions on the U.S. - Mexico border were depression, anxiety, bipolar disorder, and substance use.[146] Among the four U.S. border states, 36,766 individuals (46.8 per 100,000 population) scored at risk for severe depression in 2022. When the data were restricted to border counties, the rates were similar.[147] These were self-reported rates, and only 23 of the 44 border counties had available data for 2022. Therefore,

these results likely underestimate the true burden of disease from mental health disorders in the border area.

Suicide rates are often used as a proxy to assess the burden of mental health issues in a population. Among the U.S. border states, in 2022 alone, approximately 50.3 people per 100,000 population reported frequent suicidal ideation (defined as having suicidal thoughts at least half of the days in the two weeks before the assessment).[147] In comparison, among the U.S. non-border states, in 2022, 49.7 people per 100,000 population reported frequent suicidal ideation.[147] These data were compiled by the organization Mental Health America, which provides a free online screening tool for mental health disorders.[147] Since these data were self-reported and obtained by convenience sampling, the results likely underestimate the actual burden of suicide and suicidal ideation among border residents. However, many adults live with a mental health disorder that can be debilitating but do not attempt suicide or self-harm. Therefore, other measures need to be considered when describing the background for mental health in any population, including the U.S. - Mexico border area.

Recognizing the gravity of the situation, suicide mortality rates in the border area serve as a poignant barometer of the mental health landscape in the region. Figure 19 compares the national age-adjusted mortality rate to the border area rates. The data show that both California and Texas have lower rates of suicide mortality than the national age-adjusted average, although these data are an incomplete view of the situation. For example, due to privacy concerns, the data reported are suppressed for counties with populations under 100,000, which in the case of the state of Texas means there are data for only four of the 32 counties in the border area. The data suppression rules also result in skewed rates in New Mexico, where only two out of six counties meet the population reporting threshold, and Arizona, where three out of four counties meet the reporting threshold.
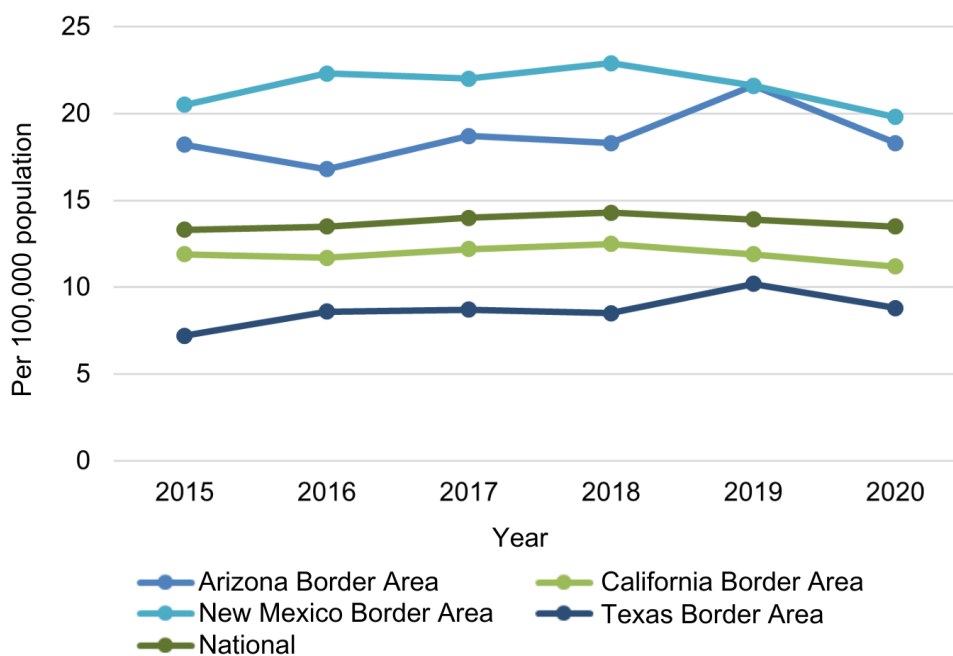

Fig. 19. Age-Adjusted Rates of Mortality from Suicide in U.S. Border Areas versus National Data, 2015-2020.[148]

The impact of the COVID-19 pandemic on the physical and mental well-being of individuals at the U.S. - Mexico border also must be evaluated and addressed. Communities of color were disproportionately affected by COVID-19, with age-adjusted mortality rates for Hispanics three times higher than for non-Hispanic White individuals.[149] The pandemic also exacerbated social inequities, such as limited access to healthcare, and created new stressors for underserved communities, such as loss of employment or the fear of infection while working as essential workers in low- wage jobs.[143,150] Within a cross-sectional study of 305 Hispanic adults in the U.S. - Mexico border area in 2020, approximately half scored above the cutoff for anxiety and depression, and over a quarter showed signs of post-traumatic stress.[149] Widespread disease outbreaks like the COVID- 19

pandemic reveal and heighten the health disparities in underserved communities and place additional physical and mental health burdens on those least able to protect themselves.

Another avenue to attempt to characterize mental health in the border area is the reported use and/or availability of mental health resources. Finally, it is important to know what resources are available for individuals seeking care for a mental illness.
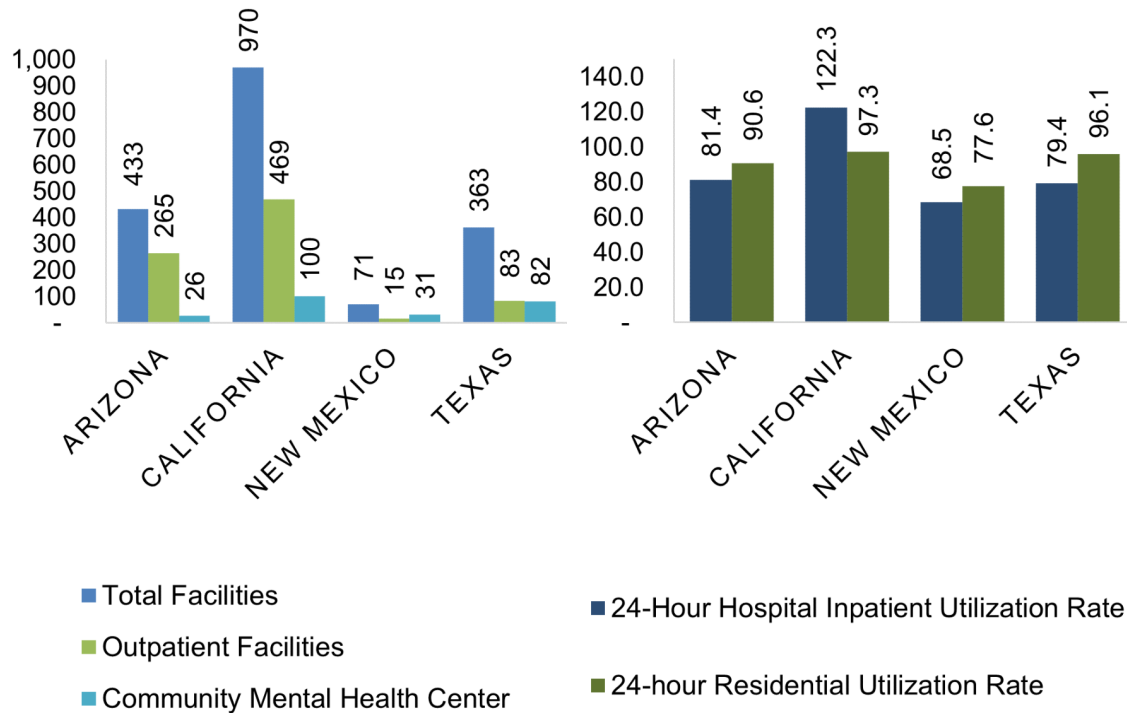

Total Facilities
Outpatient Facilities
Community Mental Health Center

24-Hour Hospital Inpatient Utilization Rate
24-hour Residential Utilization Rate

Fig. 20. Mental Health Facilities and Utilization Rates in the U.S. Border States in 2020.[151]

Individuals already living with a mental illness in the U.S. - Mexico border area encounter a variety of barriers to accessing mental health resources. One of these barriers is the number of mental health facilities within the border area (Fig. 20). Notably, the state of New Mexico reports the highest rate of suicide mortalities (Fig. 19) and the least number of available mental health facilities (Fig. 20). In 2020, New Mexico reported a total of 71 mental health facilities across the entire state; 31 of those facilities are Community Mental Health Centers, which provide crisis care to people experiencing mental health challenges – often when a referral to a private therapist or clinician is impossible.[152] When reviewing the locations of the available mental health facilities, the access challenges faced by border area residents become more readily apparent (Fig. 21).
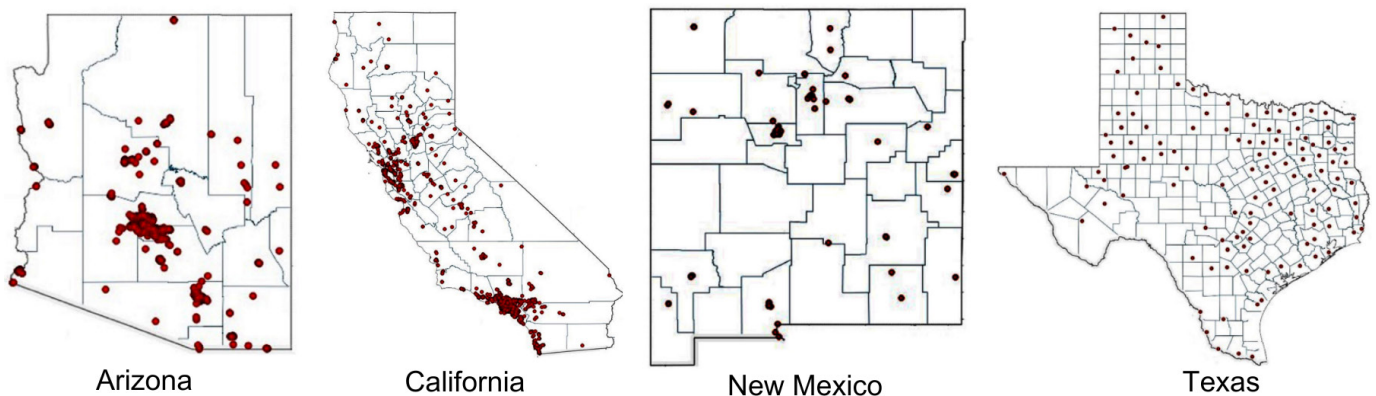

Arizona   California   New Mexico   Texas

Fig. 21. Location of Mental Health Treatment Facilities in the U.S. Border States, 2020.[151]
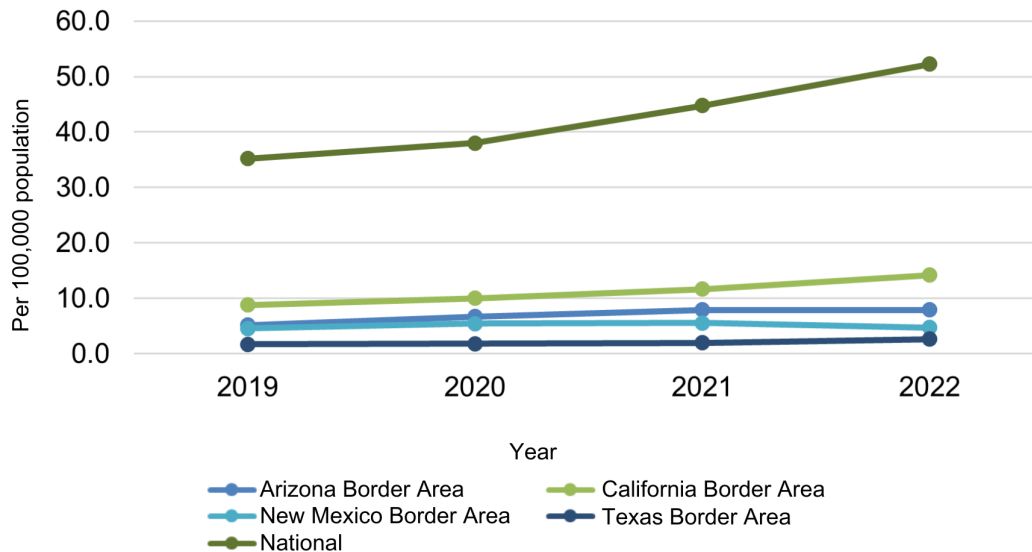
Fig. 22. Private Mental Health Practitioners in the U.S. Border Area, 2019-2022. Establishments of psychiatrists, psychoanalysts, and psychotherapists with a degree in M.D. or D.O. as classified in U.S. Industry 621112, Offices of Physicians, Mental Health Specialists. Data from U.S. Quarterly Census of Employment and Wages. Mental Health Services.

One of the challenges faced by residents of the U.S. - Mexico border area is a lack of mental healthcare professionals in the area (Fig. 22).[153] The shocking difference between the national number of practitioners compared to the number of mental health practitioners in the region shows the challenge that public health officials face when attempting to address the availability of mental healthcare for the residents of the border. The locations and number of facilities available to residents can provide insight into the utilization percentages that the Substance Abuse and Mental Health Services Administration (SAMHSA) reports for the border area. Interestingly, in 2018, when the utilization rate for New Mexico rose above the national average, the state also saw a decrease in the suicide mortality rate in the subsequent years of data (Fig. 19 and 23).
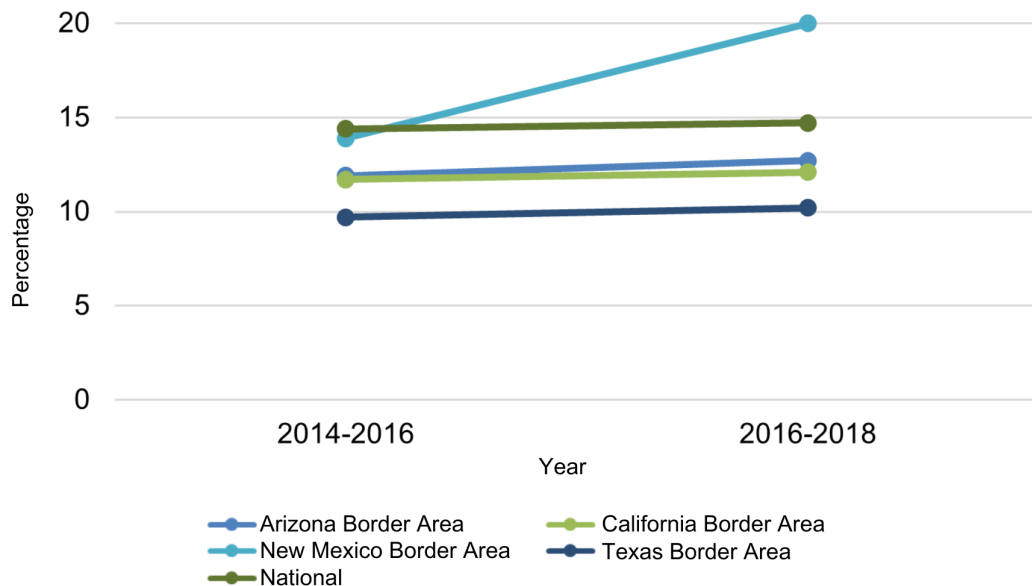

Fig. 23. Mental Health Services Used in the U.S. - Mexico Border Area, 2014-2018. Average percentage of adults who received mental health services in the U.S. border area.

A related limitation is the lack of access to transportation, which prevents individuals from seeking in-person care with medical or mental health professionals. Other barriers include the cost of care and lack of insurance to cover such costs. This structural barrier can be particularly crippling because it can prevent people from

receiving treatment for chronic diseases, which can lead to poor mental health. Simultaneously, financial barriers can prohibit people from accessing mental health resources such as medication and counseling. Other cited barriers include language barriers, lack of time, and lack of awareness or education about mental health.[154]

Main Challenges

Several unique challenges work together to create a "perfect storm" for undiagnosed and untreated mental illnesses along the U.S. - Mexico border. Poverty is linked to poorer overall mental health, and border communities have poverty rates as high as 30-35%.[146] Poverty can limit access to essential services such as food, stable housing, and educational and employment opportunities, all of which negatively impact mental health. For example, food insecurity, an issue discussed in *Healthy Environment*, is linked to increased rates of stress and depression.[154]

The cultural stigma surrounding mental illness must be addressed to fully understand and improve mental health in the border area. For example, factors such as loneliness and isolation are associated with an increased risk for cardiovascular health effects.[155] Lingering misconceptions and stigma about mental illness might dissuade an individual in the U.S. - Mexico border area from seeking diagnosis and treatment.[153,154,156] Shame, fear of being judged by others or labeled as crazy, spiritual concerns, and lack of support from families were frequently cited as reasons not to seek mental health treatment.[154] Cultural concepts of collectivism and power distance (a feeling of helplessness stemming from unequal power dynamics in society, e.g., migration status) may exacerbate self-stigma among individuals with mental illness.[157] Self-stigma was also associated with lower levels of income and/or education.[157]

Physical health affects mental health and cannot be improved without considering the complex connections between the two. Improving access to adequate mental health resources and dismantling the stigma surrounding mental illness will be vital in decreasing suicide rates and improving the quality of life for individuals with mental health issues. However, underlying causes of poor mental health, including poverty and lack of access to healthcare, employment, and essential services, such as the lack of culturally competent behavioral health providers (including Spanish and other indigenous language speakers), must be addressed to improve mental health in the border area. Finally, addressing the other health priority areas mentioned in these sections will have the secondary benefit of improving the mental health of individuals affected by those challenges.

Recommendations

- **Promote research to identify the underlying causes of mental health issues at the border to support the development of prevention and treatment strategies, taking into account the socio-economic factors of the populations across the border.**

- **Conduct a gap assessment of the mental health workforce and infrastructure needs to develop targeted strategies to enhance access to mental health services.**

- **Foster expansion of telemedicine capabilities and (through appropriate incentives) increase the availability of mental health providers and infrastructure with appropriate language services.**

- **Engage members of border populations in research and gap assessment of mental health needs. Include voices of the border population in the development of awareness campaigns, policies, and other actions created to support border populations.**

- **Create and/or leverage existing awareness campaigns and education programs to combat mental health stigma in the border area, focusing on addressing misconceptions and fostering acceptance and encouragement for those seeking treatment.**

Mobile Populations and Health

Population mobility is considered a determinant of health, so as the border area continues to see increasing movement of people, it becomes imperative to develop comprehensive strategies that address the challenges of accessing health care with a humanitarian approach that supports economic and social development.

Overview

The term "mobile populations" refers to groups of people who frequently travel or move from one country to another due to several factors. The U.S. – Mexico border is one of the most fluid areas in the world in terms of mobility. Here, we will refer to the mobile populations in the U.S. - Mexico border area as:

- **Frequent border crossers:** people from the U.S. or Mexico who cross the border frequently, often several times daily, to provide goods and services on either side of the border or who cross to attend school, seek medical care, shop, or to visit family but maintain a permanent residence in one country or another.[158]

- **Migrants (includes immigrants[3], refugees[4], asylum seekers[5], migrant seasonal workers[6], and irregular migrants[7]):** individuals who seek to enter the country through the border area driven by a series of factors such as seeking better job opportunities, social factors (including family reunification), political reasons, and escaping violence, conflict, or adverse environmental factors.[158]

Population mobility can influence health outcomes, and as movement in the border area increases, it is essential to develop targeted strategies that address public health and healthcare access challenges for specific vulnerable mobile populations while fostering economic and social development in a supportive and humanitarian manner. Mobility can impact access to care for some populations. Access to care can be particularly complex for irregular migrants and other migrants in transit, and necessitates targeted and inclusive health strategies.

Addressing the challenges faced by these groups requires recognizing various factors, including limited access to high-quality preventive healthcare, language barriers, discrimination, and socioeconomic disparities.[159]

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[3] Immigrant: [In the United States] Any person lawfully in the United States who is not a U.S. citizen, U.S. national, or person admitted under a nonimmigrant category as defined by the Immigration and Nationality Act (INA) section 101(a)(15). (U.S. Department of Homeland Security, Office Homeland Security Statistics, Glossary. https://ohss.dhs.gov/glossary#I

[4] Refugee: [In the United States] Status granted to a person, prior to departure for and arrival in the United States, who has been determined by competent authority to be fleeing persecution or have a well-founded fear of persecution in their own country because of race, religion, nationality, membership in a particular social group or political opinion. (U.S. Department of Homeland Security, Office Homeland Security Statistics, Glossary: https://ohss.dhs.gov/glossary#I

[5] Asylum Seeker: [In the United States] a person physically present in the United States or at a port of entry who is seeking international protection from persecution on account of race, religion, nationality, and/or membership in a particular social group or political opinion and whose claim for asylum has not yet been decided. (Adapted from the U.S. Department of Homeland Security, Reporting Terminology and Definitions Glossary definition of asylee and asylum and from the Immigration and Nationality Act § 208 (8 USC § 1158))

[6] Migrant Seasonal Worker: [In the United States] a person who entered the United States through a border area and is employed in agricultural a seasonal or other temporary nature, and who is required to be absent overnight from his permanent place of residence. (Modified from 29 CFR § 500.20 https://ecfr.io/Title-29/Section-500.20)

[7] Irregular Migrant: [In the United States] A person with movement that takes place outside the laws, regulations, or international agreements governing the entry into or exit from the State of origin, transit or destination. (Modified from International Organization for Migration, Key Migration Terms https://www.iom.int/key-migration-terms

Background

The U.S. – Mexico border is one of the busiest in the world, with millions of people crossing annually. Many of these travelers are border residents who live on one side but frequently cross for work, to visit family, or to access services. Among these services is health care, with individuals often seeking treatment on the other side of the border due to factors such as insurance coverage, the availability of specialized care, or more affordable and accessible medical services.

In addition to border residents, the region also experiences significant migrant movement. PAHO reported that in 2020, 3.6% of the world's population (around 281 million people) were international migrants living outside their birth countries.[160] Migration in Latin America, in particular, has surged in recent years. In 2023, Mexico received 782,176 migrants, marking a 77% increase from the 441,409 migrants recorded in 2022.[161] This trend is expected to continue. Meanwhile, legal U.S. border entries from Mexico in 2023 exceeded 174 million, both crossings by pedestrians and passengers in personal vehicles.[162] California's San Ysidro port was the busiest, with over 31.5 million inbound crossings in 2022, followed by El Paso, Texas, which saw nearly 18 million crossings the same year.[163]

The Department of Homeland Security estimated in 2022 that there were approximately 10.99 million irregular migrants[164,174] in the U.S. in 2022. California and Texas have with the highest proportion of irregular migrants, accounting for 40 percent of the U.S.'s irregular migrants. In addition, more refugees arrived in the U.S. in the first eight months of the fiscal year 2023 than any year since 2017.[171] Regarding irregular migration, the number of encounters reported by the U.S. Customs and Border Protection (CBP) in 2023 (including U.S. Border Patrol (USBP) Title 8 Apprehensions, Office of Field Operations (OFO) Title 8 Inadmissibles, and Title 42 Expulsions) reached 3.2 million compared with 2.7 million in 2022. The U.S. - Mexico land border alone saw 2.475 million of those encounters in 2023,[165] showing the complex and dynamic environment resulting from being one of the busiest borders in the world for goods and people. The increased volume of border crossers can create multifaceted challenges encompassing security and social dynamics, economic activities, and an impact on the health system on both sides of the border.
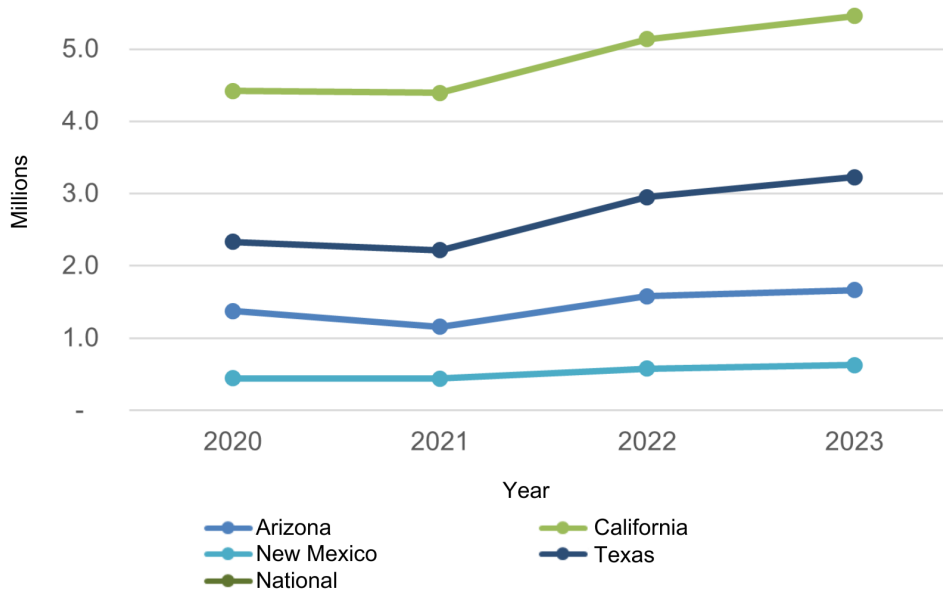

Fig. 24. Average Land Traffic at the Port of Entry in the U.S. - Mexico Border Area (Passenger Vehicles and Trucks), 2020-2023.[166]

Main Challenges

The challenges some mobile populations face to access health care at the border are multiple and multifaceted and depend greatly on their economic circumstances and migration status. According to a study conducted by the U.S. Department of Health and Human Services (HHS), access to health care varies widely across migrant mobile population groups with barriers to health care and health insurance coverage primarily due to the complexity of the health care system, policy exclusions, cultural and linguistic barriers, discrimination, mistrust, and legal concerns.[167] For example, in the U.S., the Affordable Care Act (ACA) and, more recently, the American Rescue Plan (ARP), expanded health coverage eligibility and subsidies for certain migrant populations, including naturalized citizens and lawful permanent residents.[168] After passage of the ACA, the uninsured rate fell substantially for children and adults in migrant communities, with the most considerable change occurring among adult non-citizens who immigrated to the U.S. between 2013 and 2019 (48.1% in 2013 to 30.6% in 2019).[169] However, gaps in coverage for migrants persist, with uninsured rates still substantially higher than those among the U.S.-born population. For these migrant populations, concerns over actual and perceived adverse legal consequences tied to seeking public benefits have affected whether migrants seek to enroll in public programs and can lead to barriers to needed care.[170]

For **migrant seasonal workers** such as agricultural workers, the National Agricultural Workers Survey from 2019-2020 showed that only 56% of migrant farmworkers had work authorization.[171] This can be seen in Figure 25, where the percentage of farm workers without legal authorization has increased dramatically since 1991. Lack of authorized work status restricts workers from receiving health coverage under the ACA, and because of their temporary status, employers are not required to provide health insurance. Although there are some alternative health coverage options, limited English proficiency, complicated and lengthy insurance applications, and lack of familiarity with the U.S. healthcare system can also deter workers from obtaining insurance coverage.[171] The challenges for seasonal and year-round laborers crossing the border for employment must be considered. As mentioned in *Healthy Environments*, many individuals are engaged in outdoor work and are exposed to heightened environmental hazards such as extreme temperatures, poor air quality, workplace toxins, low incomes, unsuitable housing, harsh working conditions, and poor nutrition, all of which increase the rates of chronic diseases in these populations.[172] At the same time, these individuals are often uninsured or underinsured, have limited access to high-quality healthcare, and lack benefits like paid sick leave. As shown in Figure 26, many parts of the border area have a higher percentage of the total uninsured population who are non-citizens compared to other parts of the country. Importantly, these estimates exclude irregular migrants; including this population would likely increase the percentage. Facilitating movement across the border for authorized individuals employed in trucking, agriculture, construction, and other seasonal or day labor is
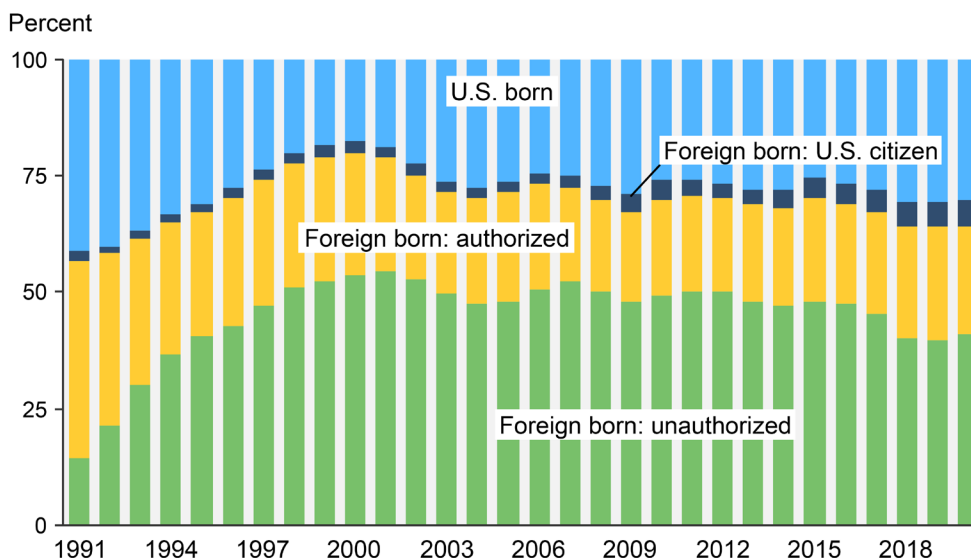

Fig. 25. Legal Status of Hired Crop Farm Workers, fiscal 1991-2020.[173] Values for each year are 3-year moving averages to smooth out fluctuations due to small sample sizes: e.g., data reported for fiscal 2020 are the average over fiscal 2018-20. U.S.-born includes born in Puerto Rico.

critical to U.S. food security, supply chains, and other socio-economic structures. Thus, it is vital to create a framework of mechanisms to protect the uninterrupted flow of workers and supplies across the border, while also supporting workers' physical and mental health during emergencies. When pandemics or extreme weather events occur, these migrant seasonal workers can become cut off from their families on the other side of the border.

Delivering healthcare to **irregular migrant populations** at the U.S. - Mexico border poses a myriad of challenges, including the transient nature of migration through the region, access to insurance, and the often-overwhelmed healthcare infrastructure.[173,174]

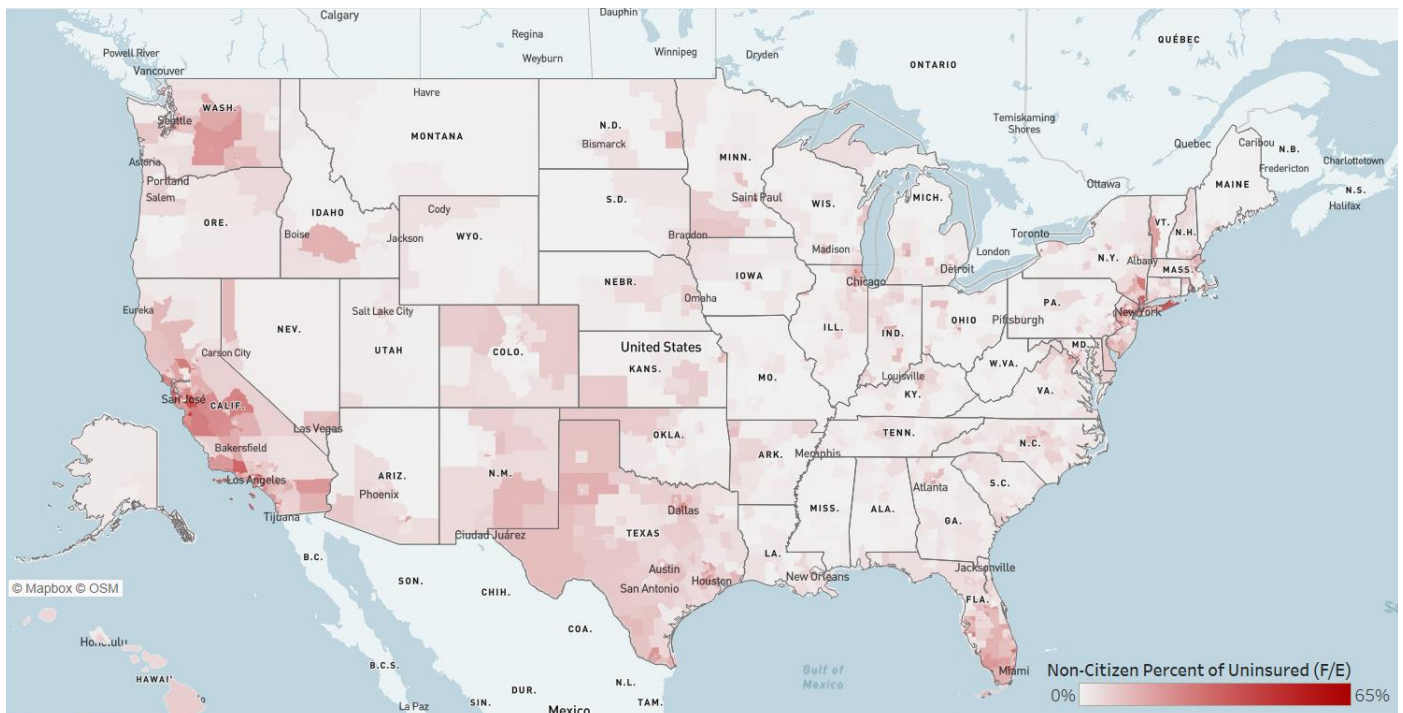- The health insurance system's complexity makes access available or not depending on the migrants' documentation status.[173]

Fig. 26. Percent of Uninsured Population Who Are Non-Citizens, 2019 (excluding irregular migrants).[174]

- Once they reach the U.S. side of the U.S. - Mexico border, a large portion of this population goes to other parts of the country, making it **difficult to establish and maintain consistent disease surveillance and health monitoring systems.** Migrants often move across multiple jurisdictions within the U.S., and the lack of a centralized database or standardized information-sharing mechanisms complicates tracking potential disease outbreaks. Language barriers, varying health literacy levels, and a lack of trust in authorities may impede the timely reporting of symptoms or seeking medical attention.

- **Limited access to medical facilities**, coupled with the unpredictability of migrants' movements, hinders consistent and comprehensive healthcare delivery. Language barriers and cultural differences can impact effective communication between healthcare providers and mobile populations, reducing the quality of care. Moreover, many migrants arrive with pre-existing health issues exacerbated by the harsh conditions during their journey, such as living outside, inadequate nutrition, and insufficient hygiene.

- Overcrowding and limited sanitation options in shelters and detention centers may contribute to the spread of communicable diseases.

- **Legal uncertainties surrounding the status of migrants** may deter them from seeking timely medical assistance, creating a public health challenge. When untreated illnesses develop into more severe medical conditions, it can put additional strain on local health departments and emergency rooms.[175]

- **The physical and mental health impacts of living in transit for long periods and through dangerous areas are especially damaging for children.** This includes children of all ages and especially unaccompanied minors who may have been separated from caregivers or family members in their home country, en route, or, in some cases, at the border. Separation from parents or primary caregivers has negatively impacted development, especially in young children. Lack of stability, community, and safety at a young age can cause significant emotional wounds that lead to acute and long-term mental illness.[158] Studies of unaccompanied children show wide ranges in the prevalence of post-traumatic stress disorder (17-85%) and anxiety (11-85%), but overall, they are more common than in the general population.[176] These adverse childhood experiences can have lifelong behavioral and physical health consequences such as depression, difficulty in attachment, cancer, stroke, diabetes, and heart disease.[158]

Recommendations

- Foster actions at the national and state and territorial levels, including targeted outreach efforts, to increase health insurance coverage among eligible mobile populations and to address challenges related to social determinants of health to improve health equity.

- Support coordinated efforts with nonprofit organizations and local authorities to reach and educate mobile populations on preventive measures and guidance on access to health care through culturally and linguistically appropriate initiatives and programs.

- Continue and strengthen coordination of disease surveillance (e.g., surveys, IT platforms, etc.) in collaboration with local, regional, and national health agencies, as well as cross-border cooperation, to understand the health status of mobile populations.

- Promote access to health insurance and workplace protections for migrant and seasonal workers in high-risk occupations such as agriculture, construction, and trucking, to mitigate health risks associated with their work, including considering timely access to preventive healthcare such as vaccines, to protect the health of seasonal workers and mitigate the risk of work-related health issues and communicable diseases.

- Discuss policy considerations and solutions for the unique needs of individuals crossing the border daily for work, commerce, and school, including during emergencies to ensure access to preventive public health programs and health care as a way of ensuring a healthy border population.

- Develop cross-sectoral strategies to provide timely preventive services to mobile populations, healthcare, mental healthcare, testing, and pharmacy resources. Such services would reduce the burden on emergency rooms and hospitals by ensuring that mobile populations have access to essential healthcare services and resources to maintain their well-being.

- Enhance detection and preparedness efforts for disease outbreaks through vector-borne disease surveillance and municipal wastewater testing in communities on both sides of the border, as well as mapping of public health and health care resources available, including in areas where large numbers of migrants are waiting to cross the border.

Preparedness and Response for Public Health Emergencies and Disasters

The U.S. - Mexico border, recognized as one of the busiest globally, demands an all-hazard approach to prevent, prepare for, respond to, and recover from public health emergencies and disasters. This multifaceted endeavor requires binational collaboration, communication, cross- border training, planning, and capacity building for all levels of government and the community to ensure the well-being and resilience of those in the border area.

Overview

Increasing and maintaining preparedness and response capacities for public health emergencies and disasters in the U.S. - Mexico border area is a critical undertaking that requires bilateral collaboration between various governmental agencies, healthcare providers, and community organizations to succeed. A key factor for each country's federal, state, and local governments is to include border-specific needs that consider the interconnection of the border area. A guiding framework is the strengthening and/or implementation of the core capacities to prevent, prepare for, respond to, and recover from public health emergencies and disasters with an all-hazard approach as referenced by the International Health Regulations (IHR) (2005), a binding global health security framework of which the U.S. and Mexico are states parties.[177]

The U.S. and Mexico have a long-standing history of collaboration in addition to collaborating on IHR (2005) matters. Both countries have been members of the Global Health Security Initiative since 2000.[177] Under this initiative, the U.S. and Mexico have collaborated closely with the G7, the World Health Organization, and the European Commission to establish public health emergency preparedness and response protocols, policies, and capacities to address chemical, biological, or radiologic/nuclear threats and pandemic influenza.

In addition, the U.S., Mexico, and Canada are part of the North American Plan for Animal and Pandemic Influenza (NAPAPI), a cross-sectoral arrangement to enhance preparedness and response capabilities for animal and pandemic influenza outbreaks.[178] In 2024, and based on COVID-19 lessons learned, the three countries launched the North American Preparedness for Animal and Human Pandemics Initiative (NAPAHPI)[179], a new plan for cooperation to prepare for and respond to all public health threats.

Recognizing the uniqueness of these bilateral issues, particularly regarding the border area, the U.S. and Mexico created the Binational Technical Working Group (BTWG), which addresses public health concerns resulting from the inter-connectedness of populations that cross the U.S. - Mexico border. Established in 2012, this multidisciplinary group is composed of federal, state, and regional public health professionals. The BTWG exchanges epidemiologic information from their respective jurisdictions monthly and maintains and promotes collaboration on border and binational topics of public health significance to enhance binational and cross-border preparedness.[180]

Background

Provisional data estimate losses from natural catastrophes in 2022 at $270 billion globally, with Hurricane Ian contributing the most to these losses. The average of the previous five years (2017-2021, losses adjusted for inflation) was $270 billion. Economic modeling efforts estimated that COVID-19's total cost to the U.S. economy would reach $14 trillion by the end of 2023.[181]

In the past two decades, numerous outbreaks of communicable diseases, pandemics, and disasters have required a coordinated binational response (such as H1N1, Zika, fungal meningitis, and COVID-19). This was of particular importance in the border area, given the interconnectedness of people and goods and the different

policies implemented on each side of the border by each country. Pathogens can disseminate more rapidly across the border due to the high mobility of populations, trade, and the lack of coordinated implementation of vaccination programs. However, the border area lacks a common threat and risk assessment that considers its uniqueness and the existing and/or needed capacities and capabilities on both sides of the border. Similarly, plans for binational joint outbreak investigations and coordinated responses in the border area are outdated and have not been tested in recent years. This is of keen importance given that there are multiple previously identified (and also shown during COVID-19) sovereign, legal, and regulatory barriers to mobilizing resources such as diagnostic samples, diagnostic kits, vaccines and medicines, and health care personnel across the
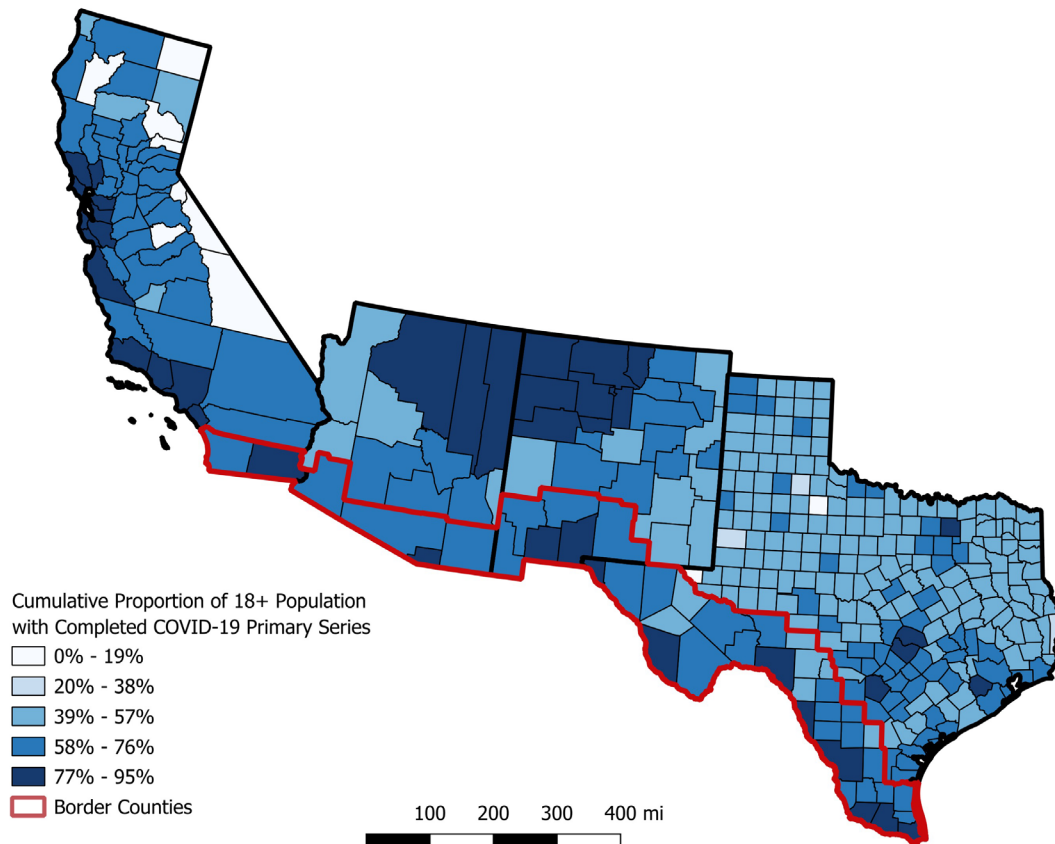

Fig. 27. Cumulative Proportion of 18+ Population with Completed COVID-19 Primary Vaccine Series by County — U.S. Border States, December 13, 2020 - January 12, 2022.[183]

border during emergencies. Border measures implemented during COVID-19 created a discontinuity of supply chains critical for the border area and the nation[182] that cascaded effects across the U.S. economy.

Main Challenges

The border area is vulnerable to public health and socioeconomic repercussions associated with public health emergencies and disasters. Preparing and responding to them involves navigating very different plans, capacities, and capabilities as well as legal and policy frameworks on both sides of the border. Harmonizing policies and regulations, overcoming legal barriers to information sharing, and ensuring compliance with international agreements all pose challenges to seamless cross-border response efforts. Effective communication channels among public health agencies in the 44 counties across the four U.S. border states and their Mexican counterparts' emergency management departments and healthcare providers are essential to allow timely and accurate sharing of information, joint planning and response efforts, and coordinated implementation of measures to have positive outcomes and avoid unnecessary interference with trade and travel as indicated by the IHR (2005).[177]

Risk factors such as poverty, lack of infrastructure, and health conditions of the population, including

migrants, make the border area vulnerable to public health emergencies and disasters. Assessment of public health preparedness and response capacities for a set of threats and risks in the border area is inconsistent. Furthermore, work at the national level does not consistently translate into binational border action or does not account for the nature of the border (mobile populations, geography, different regulatory and policy environments, different resources, diverse populations with different language needs, etc.). The *Technical Guidelines for U.S. – Mexico Coordination on Public Health Events of Mutual Interest*[184] and the *Operational Protocol for Binational Communication and Coordination on Disease Notification Outbreaks*[185] need to be revised and updated based on lessons learned from COVID-19 and other disease outbreaks and disasters of the last decade. Standardization of epidemiological and laboratory surveillance, data systems, communication channels, and collaboration plans among federal, state, and local-level community health departments and healthcare personnel on both sides of the border are not well established. For example, sharing of medical countermeasures, laboratory samples, and mobilization of other health response assets through the border area can be a complex and intricate process that needs be addressed and planned for prior to an emergency.[186,187] Disaster behavioral health is an integral part of the public health and medical response to public health emergencies. Messages, information, and educational materials specifically addressing behavioral health issues that may arise following a public health emergency are essential components of the overall public health communication strategy.

Recommendations

- Based on lessons learned from COVID-19 and from the North American Preparedness for Animal and Human Pandemics Initiative (NAPAHPI) align border activities with federal priorities, as applicable.

- Evaluate the public health preparedness and response capacities in the border area by adapting and using existing global assessment tools such as the World Health Organization's Joint External Evaluation under the International Health Regulations.

- Revise and introduce into practice the Technical Guidelines for U.S. - Mexico Coordination on Public Health Events of Mutual Interest and the Operational Protocol for Binational Communication and Coordination on Disease Notifications and Outbreaks.

- Identify and address the legal, regulatory, and logistical barriers faced by cross- border programs for sharing diagnostic samples, medical countermeasures, and healthcare personnel during events that overwhelm local, state, and national resources.

- Strengthen collaborations among cross-border healthcare centers and institutions to enhance resource sharing and improve public health emergency preparedness and response.

- Establish partnerships with community organizations, faith-based groups, community health workers, and local leaders to foster resilience, increase awareness about emergency preparedness, and facilitate the dissemination of vital information to diverse populations.

- Incorporate disaster behavioral health practices across the continuum of preparedness and response to public health emergencies and disasters, including public health messaging.

- Promote culturally and linguistically appropriate outreach and education efforts to ensure that all community members understand the risks and recommended actions to take during emergencies and disasters.

- Conduct joint training, scenario-based facilitated discussions, and tabletop exercises to test the preparedness for and response capacities to all hazards that pose a threat to the health security of border populations. These should include sectors such as security, environment, and agriculture using a One Health approach.

Substance Use Disorders

Addressing substance use disorders in the U.S. - Mexico border area requires comprehensive, collaborative, multisectoral, and culturally sensitive policies and programs under the behavioral healthcare approach.

Overview

Substance use disorders (SUDs) represent a significant public health challenge around the world, with the U.S. having more than double the rate of drug overdose deaths compared with at least 12 other countries, with more than 100,000 deaths yearly.[188] Public health interventions play a pivotal role in addressing SUDs, as they are essential for understanding, preventing, and treating the complex challenges associated with addiction.

Moreover, mental health is intricately linked to substance use and SUDs, and addressing both issues is crucial for improving the overall well-being of individuals, families, and communities in the border area. Through the White House's *National Drug Control Strategy* (Fig. 28),[189] the U.S. government launched a whole-of-government approach with billions of dollars for funding for 1) addressing untreated addiction for those at risk of an overdose and 2) going after drug trafficking and illicit drug profits. The first part of the strategy focuses on the public health aspects of drug control to:

- Expand high-impact harm reduction interventions like naloxone.

- Ensure those at highest risk of an overdose can access harm reduction services and evidence-based treatment, including access to medications for opioid use disorder (MOUD).

- Improve data systems and research that guide substance use policy development.
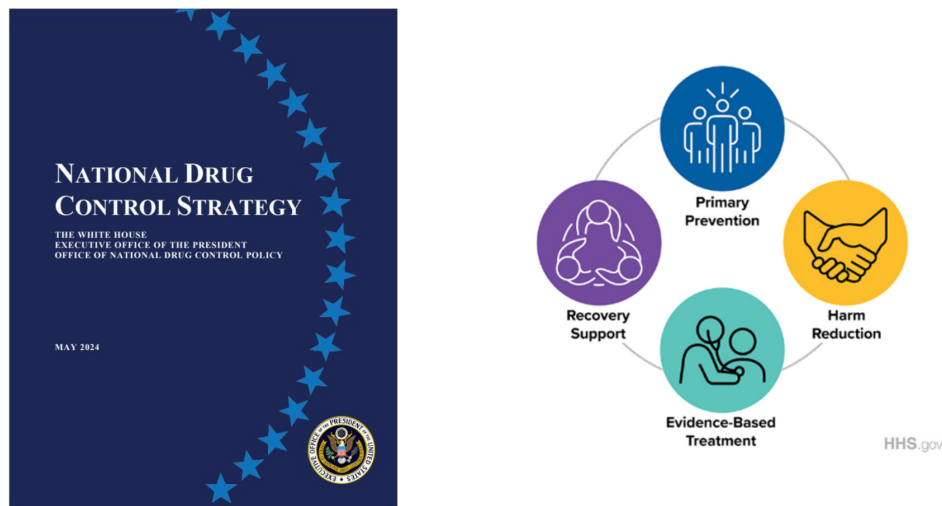

Fig. 28. National Drug Control Strategy189 and Strategic Priorities of the HHS Overdose Prevention Strategy[189]

The U.S. Department of Health and Human Services (HHS), as a key partner in addressing the public health aspects of substance use, launched the HHS Overdose Prevention Strategy,[190] which focuses on primary prevention, harm reduction, evidence-based treatment, and recovery support (Fig. 28).

For the successful implementation of this strategy, the U.S. government has called for action among federal partners, state, and local governments to work with healthcare professionals, law enforcement, policymakers, employers, advocacy groups, and communities to:

- Remove barriers to high-quality care;

- Invest in evidence-based public health and public safety activities;

- Advance racial equity and equity for underserved populations in access to health care, treatment in the justice system, and substance use policy;

- Embrace the full range of interventions, including behavioral and pharmacological interventions, harm reduction, and recovery support services.

The substance use and overdose crisis knows no borders. Previous studies show that the overdose crisis has reached the U.S.- Mexico border area but with a unique border-specific wave pattern compared to the three U.S. waves.[191] Figure 29 shows three U.S. waves of overdose death caused by prescription opioids (wave 1), heroin (wave 2), and synthetic opioids like illicitly made fentanyl (wave 3). In addition, there is a three-year delay in the onset of the fentanyl wave at the border.[192]
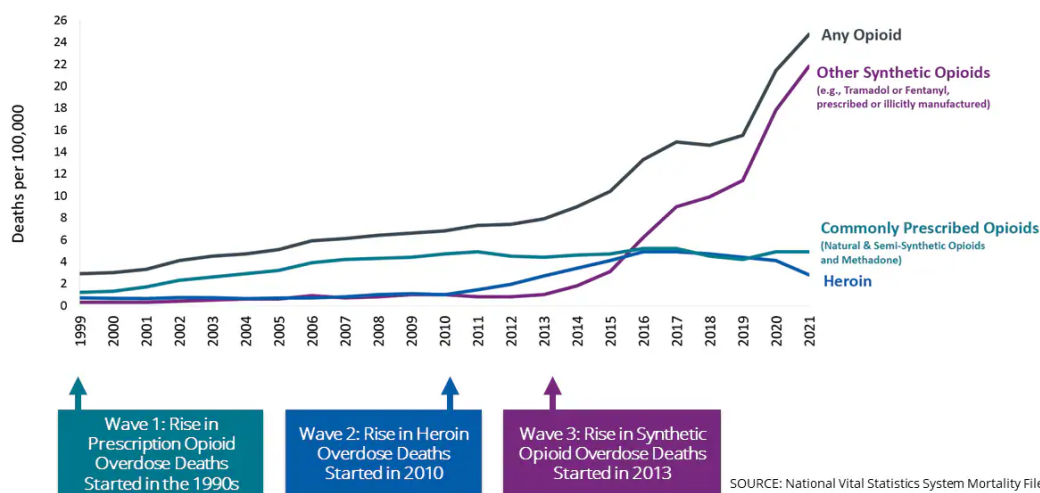

SOURCE: National Vital Statistics System Mortality File.

Fig. 29. Three Waves of Opioid-Involved Overdose Deaths in the U.S.[192]

According to a 2024 study, the substance use crisis in the U.S.-Mexico border area is affecting communities with differing severity and timing depending on social vulnerability and community violence as predictors of overdose deaths over the current wave of fentanyl use.[184] The prevalence of substance use, including the use of alcohol, nicotine, opioids, marijuana, and synthetic drugs, has led to a critical need for concerted, joint action across the border and at all levels of government and society.[193]

Recognizing the importance of bilateral collaboration on substance use, in 2021, the *U.S. – Mexico Bicentennial Framework for Security, Public Health and Safe Communities*[194] formalized the bilateral commitment to build sustainable, healthy, and secure communities to benefit citizens of both nations. Both countries recognized that the demand for illicit drugs needed to be addressed through evidence-based public health interventions such as preventing and reducing substance use. In addition, both understood the importance of also limiting harms associated with addiction, improving access to SUD treatment and recovery support, sharing best practices and lessons learned to better understand substance use patterns, and exploring alternatives to incarceration for people with substance use problems.[195,196,197] In particular, the framework includes goals to protect the people of the U.S. and Mexico by creating strong, healthy, and safe communities for the citizens of both countries. From a public health perspective, the framework aims to stop and reduce substance use while lessening the harm caused by addiction. Specifically, it aspires to improve access to substance use treatment and support for recovery, share best practices and lessons learned to understand substance use patterns better, and considers alternatives to putting people in jail for substance use.[198]

By leveraging this national-level commitment, SUDs and mental health challenges in the U.S. - Mexico border area can be addressed through evidence-based strategies, collaborative partnerships, and a focus on prevention, harm reduction, detection, treatment, and recovery support.

Background

According to the United Nations Office of Drugs and Crime, approximately 296 million people used drugs (cannabis, opioids, amphetamines, cocaine, and ecstasy) in 2021. 39.5 million people are estimated to be affected by SUDs (harmful patterns of substance use or substance dependence), which is up 45% over the previous ten years.[199] Opioid-related deaths, largely due to synthetic opioids, have recently changed mortality trends in some high-income countries. It is estimated that worldwide, in 2021, 13.2 million people injected drugs; among them, 1.6 million are living with HIV and 6.6 million with hepatitis C. In the U.S., among 955 reported cases that included risk information for injection drug use, 289 (30%) reported injection drug use,[200] reflecting the significant global and national public health challenge associated with drug-related transmission of communicable diseases.[199] In addition, people with mental health and substance use concerns have higher rates of heat-related illness and death.

The prevalence of synthetic opioid use is rising, in particular fentanyl. Fentanyl is 50 to 100 times stronger than morphine. Therefore, the risks for overdose or other adverse effects are substantially increased when people use fentanyl, especially among people whose bodies are not accustomed to the effects of opioids. Fentanyl misuse, particularly the use of illegally made fentanyl (IMF), has been of growing interest because of its role in increases in fatal overdoses involving opioids.[201] In the U.S. in 2022, there were 105,452 predicted drug overdose deaths after adjusting for delayed reporting, including deaths involving synthetic opioids (excluding methadone).[202] In 2023, the percentage of people aged 12 or older with an SUD in the past year was highest among young adults aged 18 to 25 (27.1% or 9.2 million people), followed by adults aged 26 or older (16.6% or 37.0 million people), then by adolescents aged 12 to 17 (8.5% or 2.2 million people).[203] In comparison, in 2023, according to the provisional data, there were an estimated 107,543 drug overdose deaths in the U.S., with 74,702 of those deaths involved fentanyl.[204]
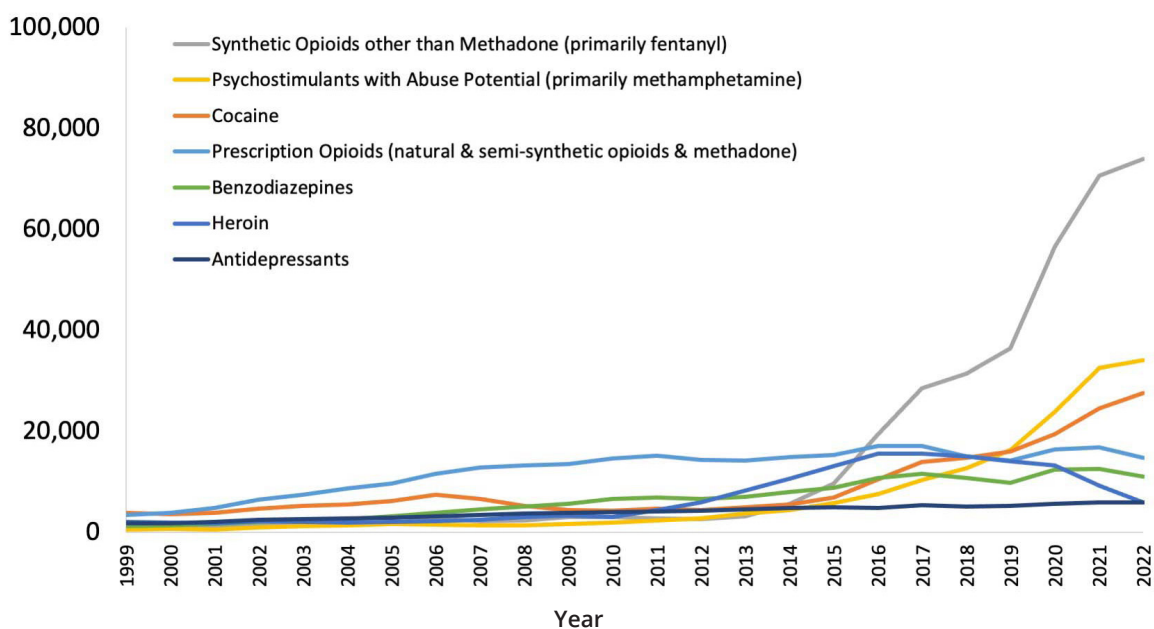

Fig. 30. National Drug Overdose Deaths, 1999-2022. Number among all ages. Includes deaths with underlying causes unintentional drug poisoning (x40-x44), suicide drug poisoning (x60-x64), homicide drug poisoning (x85), or drug poisoning of undetermined intent (Y10-Y14), as coded in the International Classification of Diseases, 10th Revision from CDC Wonder multiple causes of death database.[205]

Overdose death rates vary between age groups and racial/ethnic groups; non-Hispanic American Indian/Alaska Natives (65.2%), non-Hispanic Blacks (47.5%), and non-Hispanic Whites (35.6%) have the highest mortality rates, and Hispanics had a mortality rate of 22.7% in 2022 (Fig. 31).[206] Of note, these data only include U.S. residents and not newly arrived migrants. For example, some studies have suggested that reports of the impact of border crossing on drug use rely on self-reports of people who have crossed the border, which is a significant limitation to understand the impact of SUD and overdose deaths in those across the border populations.[207]
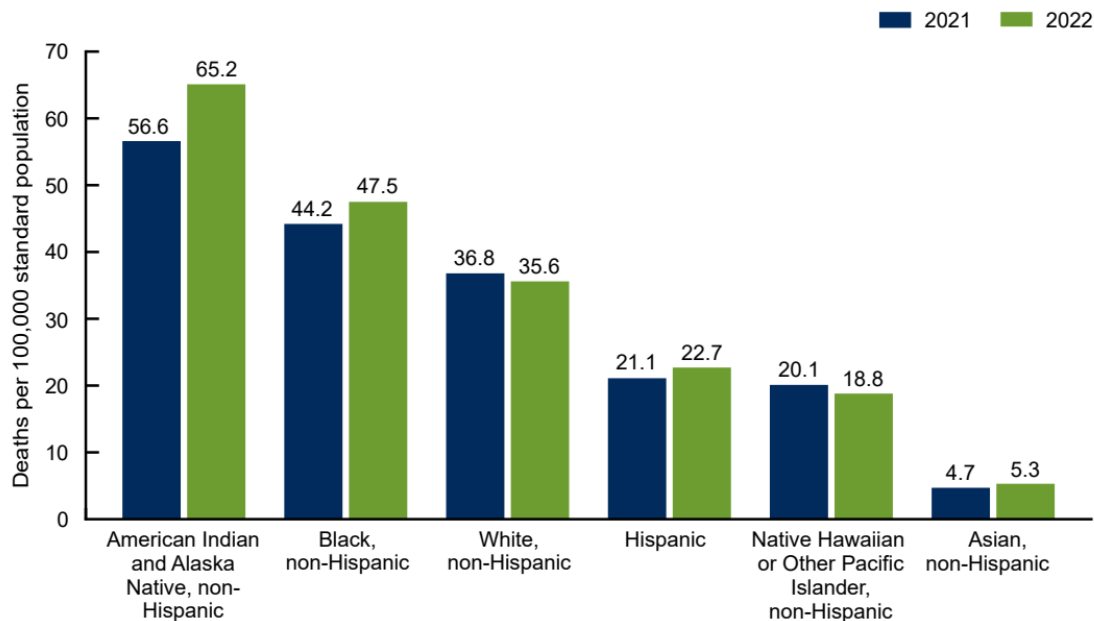

Fig. 31. Age-Adjusted Rate of Drug Overdose Deaths, by Race and Hispanic Origin: United States, 2021 and 2022.[208]

The drug overdose death rate is 3.3 per 100,000 among Hispanic adolescents and 2.8 per 100,000 among Black adolescents. In comparison, the overdose death rate among White adolescents is 2.7 per 100,000. These data indicate that both Hispanic and Black adolescents have higher overdose death rates compared to White adolescents[209] (Fig. 32).
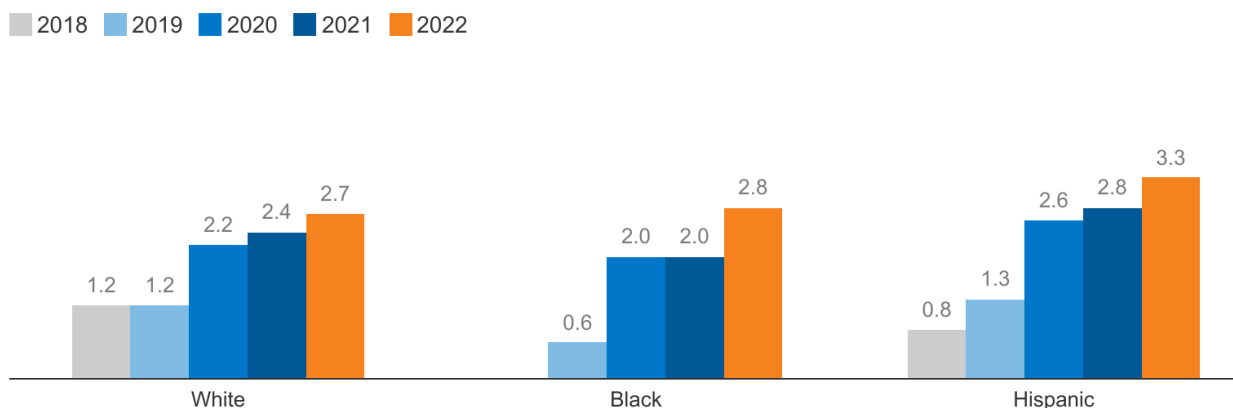

Fig. 32. Drug Overdose Death Rates Among Black and Hispanic Adolescents by Race, 2018-2022.[208,210]

Nationally, the age-adjusted rate of drug overdose deaths increased from 8.2 deaths per 100,000 population in 2002 to 32.6 per 100,000 population in 2022.[211] Compared to the national age-adjusted rate of drug overdose deaths, the rate in Arizona was 19.9 per 100,000 population in 2015 and 38.2 per 100,000 population in 2020, the rate in California increased from 10.7 (2015) to 21.8 (2020) per 100,000 population, and the rate of death in Texas nearly doubled from 5.7 (2015) to 10.3 (2020) per 100,000 population (Fig. 33).
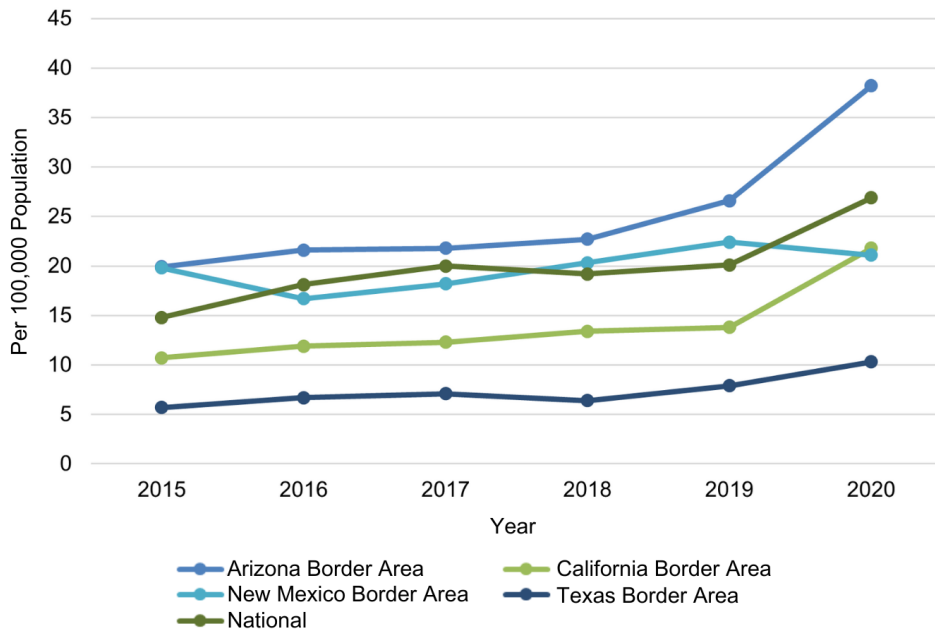
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Fig.33. Age-Adjusted Drug Overdose Mortality by Border Area, 2015-2020. Age-adjusted death rates per 100,000 population for U.S. border area.[212]

In Figure 34, the stark changes in mortality along the U.S. - Mexico border area can be observed in the visualization as it depicts the county-level heat map of drug overdose mortality in 2015 and 2021.
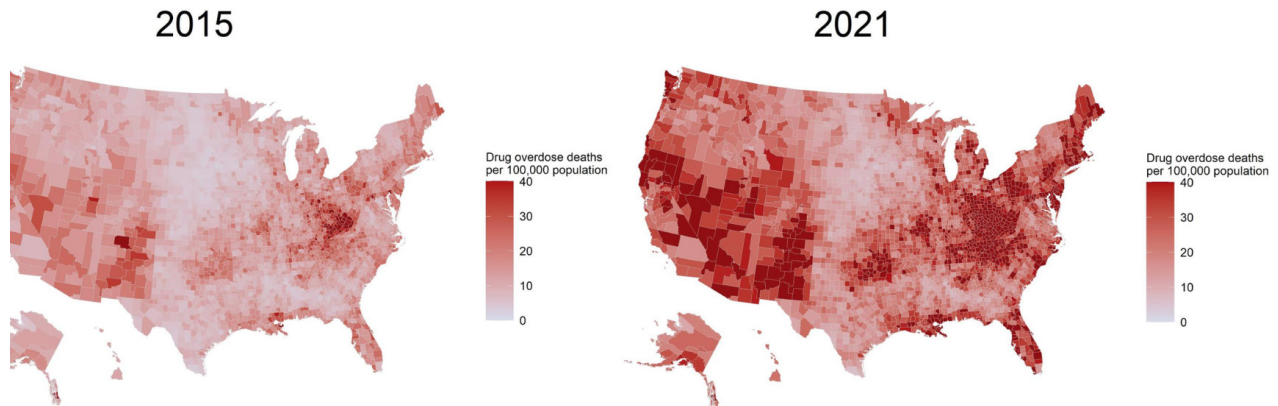

Fig.34. Drug Overdose Mortality Rates in 2015 and 2021.[213]

Main Challenges

The increasing use and distribution of synthetic opioids and novel illicit substances, often with largely unknown potency and underdeveloped treatment protocols, are complex and require a multisectoral approach to address simultaneously the supply and demand. The challenges are vast from a public health perspective, including the overall trends and correlations with mental health issues in society, the burden on the health system, the lack of trained personnel to detect and treat addiction, injection drug use-related harms, including HIV and hepatitis C infections, and the impact of individual situations in the overall community, among many others. The main challenges are the different surveillance systems in each of the border states and the data collection systems in each country, coupled with a lack of consistent data sharing to understand the magnitude of the problem, the affected populations, the types of substances used, new emerging use trends, and other information. Without this structure, prevention campaigns, development of pharmaceutical treatment protocols, policies for timely access, and establishment of adequate treatment and recovery centers become burdensome and inefficient for the healthcare system. In addition, the multiethnic, multicultural, bilingual

border population and the continued mobility across the border (including substance use tourism) require binational, cross-border, culturally sensitive, and cross-sectoral collaboration at the federal, state, and local community levels. These entities, with the support of community organizations, need to develop and implement public awareness campaigns about the risks of SUDs and available resources, training for healthcare workers and community leaders to detect and help prevent addictions, overdose deaths, injection-drug use-related harms, and other issues.

The COVID-19 pandemic caused another challenge. Since the pandemic began, there has been an increased number of people misusing substances and dying from drug overdoses (there were more than 99,000 drug overdose deaths in the United States in the first year of the pandemic, an increase of nearly 30% from the year before). However, recent data from 2024 shows that national provisional counts of drug overdose deaths are reaching a plateau or even decreasing. Figure 35[214] shows rates in the four U.S. border states for 2024.
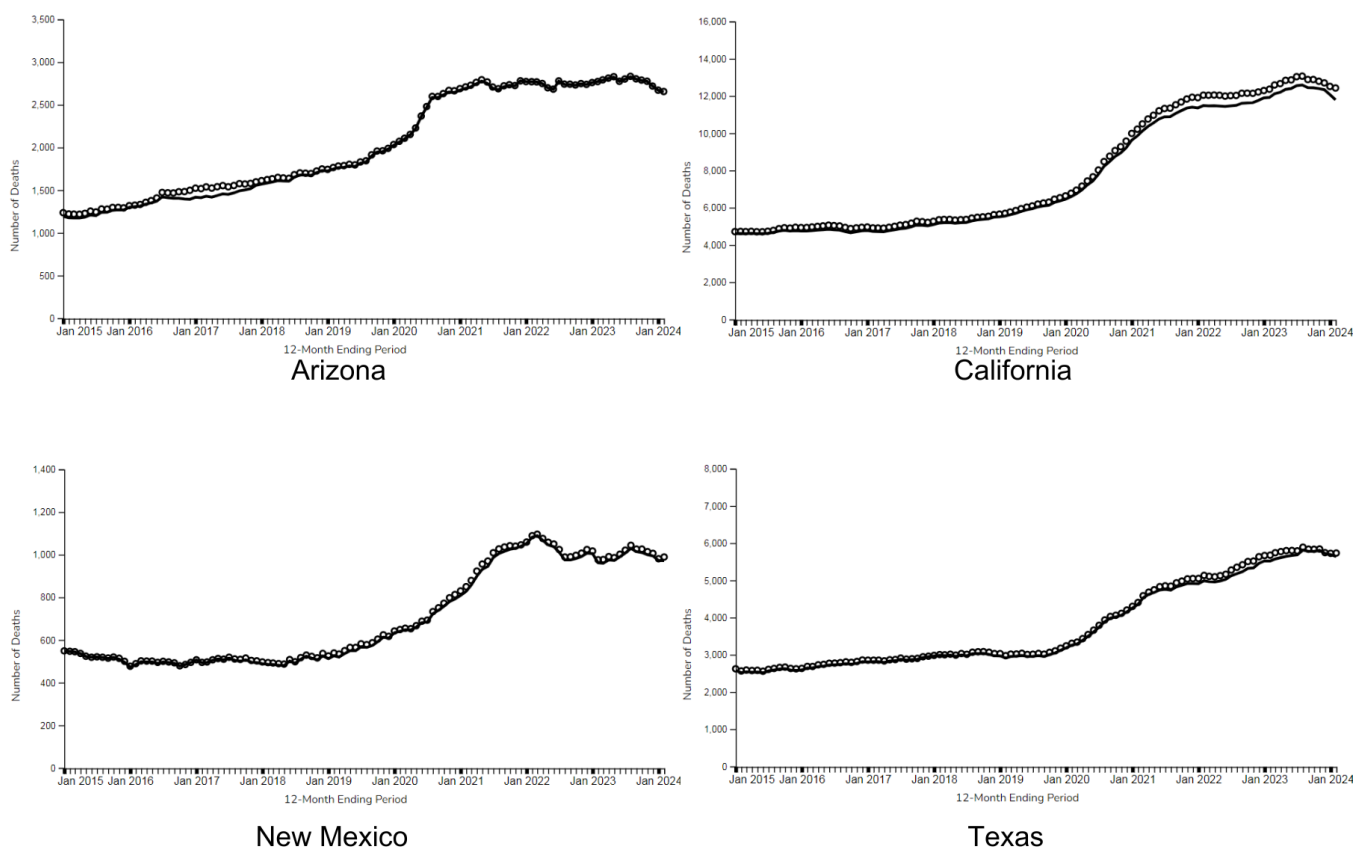
Fig. 35. 12-Month Ending Provisional Numbers of Drug Overdose Deaths, as of July 7, 2024, by State.[214]

As a 2024 study concludes,[192] the more disadvantaged U.S. - Mexico border communities may encounter increasing rates of overdose death over the coming years, indicating that strategies for overdose prevention should include the underlying social root causes of SUDs and the communicable disease consequences of injection drug use. Only with concerted, joint action across the border and across all levels of government and society is there a chance to address the SUD epidemic.

Recommendations

- Foster standardized terminology in both English and Spanish for SUDs to facilitate interoperability of surveillance and data collection systems that include all vulnerable populations.

- Convene key stakeholders to support expanding and improving training for frontline healthcare workers and community leaders on new emerging drugs prevention, harm reduction, treatment, and recovery, as well as cultural awareness and appropriateness.

- Develop and implement evidence-based, border-specific bilingual public awareness campaigns about the risk of drug use (in particular synthetic drugs), and make available information about resources for harm reduction (including syringe services programs), treatment, and recovery programs, in particular in underserved communities.

- Using social media and other relevant communication platforms, create and/or disseminate information about opportunities to expand the availability and access to evidence-based federal, state, tribal, and local resources for prevention, harm reduction, treatment, and recovery.

- Foster discussions about opportunities and challenges at the border related to the distribution and accessibility of overdose reversal medications as tools in fighting opioid-related deaths.

- Collaborate to help establish regular binational multi-sectoral (e.g., health, security, justice, education) information-sharing among all levels of government on current and new drug use trends to identify collaboration areas and inform policy and program development and implementation.

Public Health Approach to Interpersonal Violence Prevention

Collaborative and constructive approaches that promote socioeconomic development, address root causes, and foster positive relations between both nations will reinforce a safe and prosperous U.S. - Mexico border community.

Overview

In 1996, the 49th World Health Assembly (WHA), through resolution WHA 49.25, declared violence as a leading global public health problem.[215] Types of violence mentioned include child abuse and neglect; child sexual exploitation; sexual, physical, and emotional violence; intimate partner and elder abuse; youth, community, labor, and workplace violence; and firearms and gang violence. Over the last 30 years, experts have determined that criminal justice systems are not enough to combat violence as a whole. Instead, they favor a multisectoral approach within a public health prevention framework.[216] In 2024, the U.S. Surgeon General issued an advisory on firearm violence.[217] The publication calls firearm violence an "urgent public health crisis in America," highlighting a rise in gun deaths and injuries over the last two decades. It describes the harm inflicted on families and communities far beyond the individuals directly affected. One overarching challenge to addressing violence is how to develop preventive interventions to avoid an undue burden on healthcare systems.[218] Perceived personal and community environment safety has been linked to improved well-being and the encouragement of health- promoting physical activity. Conversely, feelings of fear and exposure to criminal activities exert a detrimental impact on how individuals evaluate their communities, potentially leading to enduring health problems.

The justice sector in the U.S. has violence prevention programs[219], and the health sectors also have violence prevention programs and resources for victims. The guiding principles of the U.S. CDC Division of Violence Prevention include strategic support in advancing economic, gender, and racial equity, addressing factors that cut across multiple forms of violence, enhancing positive relationships and environments, and prioritizing efforts that create societal- and community-level impact.[220] Approaches include conflict resolution, life skills training, social-emotional learning, safe dating, and healthy relationship skills programs targeted at the individual, family, community, and overall societal levels.[221]

Fig. 36. CDC's Four-Level Social-ecological Model of Violence and Violence Prevention Stategies.[221]

The CDC's social-ecological model is shown in Figure 36. The model's encompassing demographic of relationships includes close relationships that may increase the risk of experiencing violence. The CDC framework suggests that violence prevention in relationships might include parenting or family-focused programs designed to strengthen parent-child communication, problem-solving skills, and the promotion of healthy relationships. As the framework grows to the community level, the complexity of prevention expands to locations such as schools, workplaces, religious/spiritual institutions, and neighborhoods. To address community violence, prevention strategies focus on improving the physical and social environment in these settings. The overarching societal factors include prevention efforts that promote societal norms that protect

against violence and policies that affect the structural determinants of health.[215]

The National Center for Injury Prevention and Control, Division of Violence Prevention, discusses the public health approach to violence prevention as a four-step process rooted in the scientific method that emphasizes input from diverse public health sectors, including health, education, social services, justice, policy, and the private sector (Fig. 37).[222]
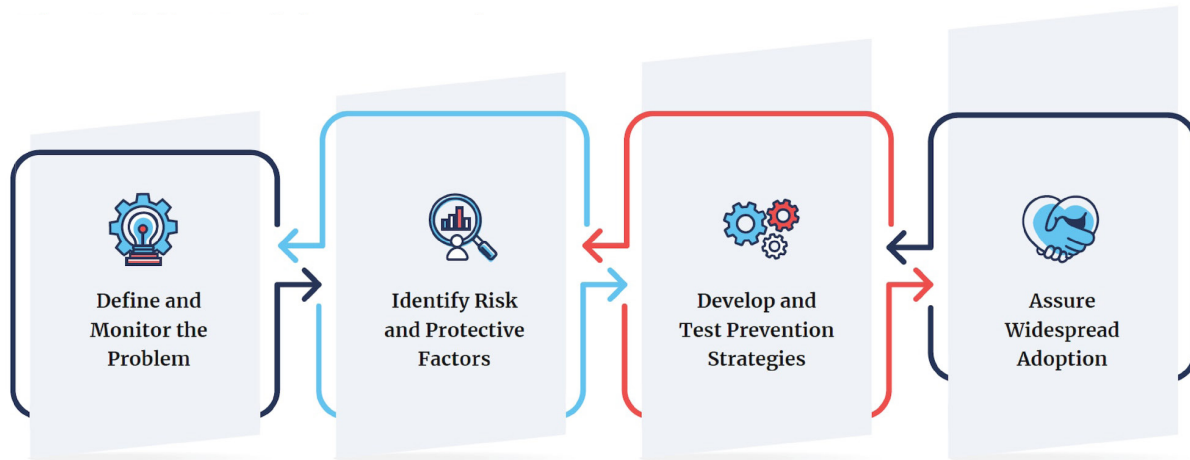

Fig. 37. Public Health Approach: Four-Step Process.[223]

Background

It is estimated that more than 1.6 million people in the world lose their lives to violence each year.[224] Homicides are among the most egregious forms of violence.
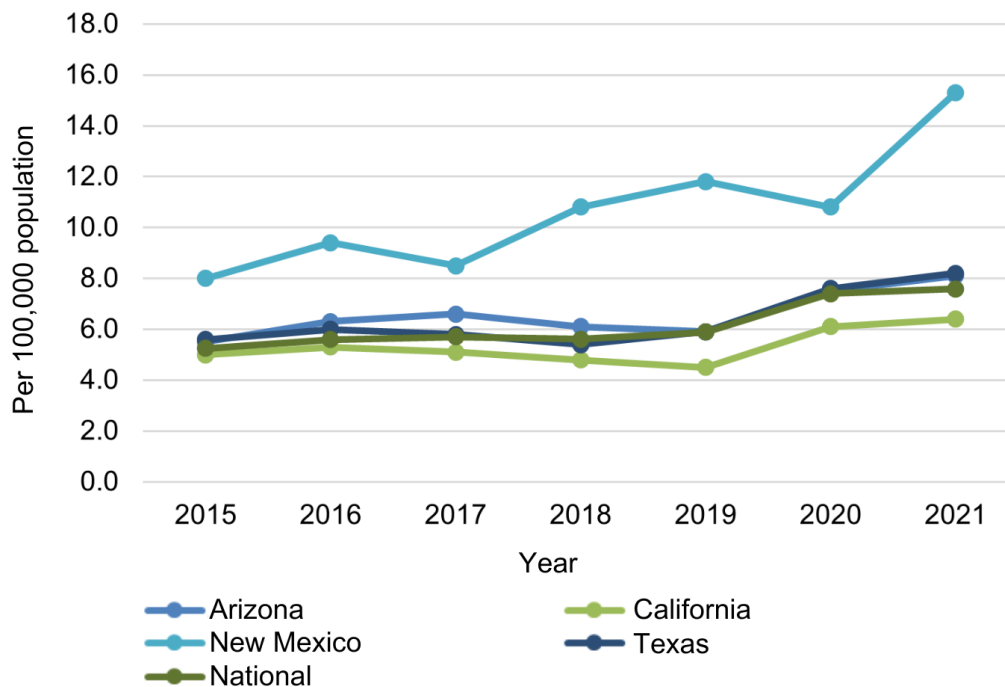

Fig. 38. Homicide Rate for the U.S. and the U.S. Border States per 100,000 Population, 2015-2021.[225]

Figure 38 shows that homicide rates in the overall U.S. and the border states have been rising. In particular, in 2015, New Mexico reported a rate of 8 homicides per 100,000 population, which increased in 2021 to 15.3 cases per 100,000 population. In comparison, the national rate in 2015 was 5.3 cases per 100,000 population and 7.6 deaths per 100,000 population in 2021. However, these homicide rates may be higher or lower when aggregated to the border area counties. More research is needed to provide deeper insights to bridge the gap between the perception and reality of violence in the U.S. - Mexico border area. Beneath these homicides are acts of violence that are non-lethal and much more common. There is violence that is never reported, and violence that is reported but less severe. At the same time, homicide is an accurate representation but also an underestimate of what occurs in the community.

For example, as mentioned in *Maternal and Child Health*, domestic violence or intimate partner violence is a serious issue within the U.S. - Mexico border area that primarily affects women and children and, therefore, may also be addressed under the broader topic of MCH. One study found that 14% of migrant women interviewed in a specific border city experienced violence from their partner during pregnancy.[226] Women living in the border area experience additional challenges such as language barriers, financial dependence on their partners, social isolation from other family members across the border, and fear surrounding immigration status.

However, many cases of domestic abuse go unreported, with women unwilling to file charges against their abuser. Some women fear retaliation and serious harm to themselves or their children if they attempt to leave or report the abuse. Other women stay in the hope that their partner will change or because of the stigma, shame, and embarrassment of breaking up the traditional family that accompanies this problem.[227] Domestic violence can have serious physical and mental health consequences for both women and children living in an abusive household.

Domestic abuse rates among migrant women are reported to be as high as 49.8%, almost three times the national average.[228] Sixty-five percent of these victims report some form of immigration-related abuse, such as threatening deportation or refusing to file immigration paperwork.[228] The hidden burden of domestic violence against women and children is a pervasive reality even among high-income countries. As many as 1 in 4 women are victims of domestic violence each year in the U.S.[229] However, this is likely a gross underestimate, as many cases go unreported. This violence can be physical but also includes verbal, sexual, financial, and emotional forms of controlling or intimidating an intimate partner or family member. Domestic violence can also cause psychological damage, which leads to decreased quality of life and decreased productivity.[230] Additionally, abuse is often cyclical, with children of domestic abusers more likely to become abusers themselves in adulthood.[230] Lower educational attainment and drug and alcohol abuse are all risk factors that increase the likelihood of abuse.[230]

The issue of youth violence at the U.S. - Mexico border is a multifaceted and complex problem deeply rooted in the broader context of organized crime and drug trafficking in Mexico. Mexican cities near the border, such as Ciudad Juárez and Tijuana, are major entry points and have a significant youth population, making them susceptible to intense outbreaks of organized crime and gang-related activity. This violence can spill over into commercial and tourist areas, impacting local communities and migrants. Despite these challenges, research suggests that there is no direct correlation between violence levels on either side of the border. However, law enforcement agencies such as the Federal Bureau of Investigation (FBI) partner with Mexican authorities to target gangs and drug traffickers, who often engage in extreme violence. This focus on gang and drug-related violence can disproportionately impact youth, who may be recruited or coerced into these criminal organizations. Addressing youth violence at the U.S. - Mexico border will require a comprehensive approach that involves both U.S. and Mexican governments, as well as local communities and civil society organizations. By tackling the broader societal and economic factors driving this issue, we can work towards creating a safer environment for the youth living in these border areas.

Main Challenges

Violence is a complex, multifaceted issue at the U.S. - Mexico border. Many barriers exist when considering violence and violence prevention. Too often, violence is addressed once a violent act has been committed; however, with the use of public health models, communities and governments can begin to look at preventive interventions to minimize its impact on society.

Various methods can be employed to prevent violence, such as establishing legal frameworks, implementing societal interventions, utilizing family and community-based strategies, providing economic support to vulnerable families, and offering education and life skills programs aimed at children and youth. More data are needed in the border area to accurately assess violence and its impact on the public health system. It is important for public health and criminal justice systems to work together, not just in emergencies, to leverage collaboration for prevention activities. Reinforcement from various levels of government, promoting and incorporating public health models to develop violence prevention at the border as an innovative concept, will help overcome the challenges.[231] For instance, population-based surveys in the border areas can serve as a valuable method for precisely assessing the extent of violence in those communities. This information allows interventions to be implemented more effectively and economically in key areas and among key populations. Lastly, it is crucial to note that taking action earlier in people's lives will result in more successful and enduring outcomes in terms of preventing violence and its repercussions.

Many of the priority areas within the border area are interconnected. For example, addressing equity issues is important because social determinants of health can affect various health outcomes, including violence. Additionally, the coexistence of problems such as SUDs can worsen the occurrence of violence and hinder the implementation of prevention programs for issues such as child abuse. Recognizing that comprehensive community approaches are multidisciplinary and more cost-effective is crucial. Multisectoral prevention approaches on the federal, state, and local community levels can be used as models and county-level domestic violence coalitions.

Recommendations

- Foster the enhancement and expansion of existing data surveillance systems to effectively measure the frequency, distribution, and risk factors associated with different types of interpersonal violence and its consequences on health at the border. Advance the expansion of population-based surveys on violence against children and youth to gain a better understanding of the challenges faced in the border region and to develop more effective interventions and support systems to address their needs.

- Advance the expansion of population-based surveys on violence against children and youth to gain a better understanding of the challenges faced in the border area and to develop more effective interventions and support systems to address their needs.

- Bring together the education, social services, justice, policy, and private sectors to develop and implement actions to predict and prevent violence using socio-ecological models.

- Promote increased access to immediate protection services for victims and their families, as well as community-based medical, mental health, and public health prevention and treatment resources, and promote victims and family-centered care in a multidisciplinary and inter-institutional approach.

- Expand training programs to healthcare professionals, community leaders, and health workers in early detection of the different forms of interpersonal violence and trafficking.

V. Cross-Cutting Capacities and Capabilities

The **Healthy Border 2030** initiative includes eight essential cross-cutting capacities and capabilities required to tackle the challenges and recommendations outlined in the preceding chapters. These are pivotal for fostering collaboration, enhancing data surveillance, promoting joint research, and strengthening the healthcare system to address the unique health challenges faced in the U.S. - Mexico border area, considering the interconnectedness of the border populations. Thus, the Commission recommends key actions with the ultimate goal of creating solutions that support our states on the U.S. side of the border and with Mexico.

1. **Healthcare System Strengthening and Equitable Access to Resources**

   • Consider developing and/or supporting existing initiatives, programs, and policies to strengthen healthcare systems along the border, focusing on ensuring equitable access to resources for all populations, considering the mobility of the border population across the U.S. and Mexico and the need for continuity of care.

   • Support the development of surge capacity to respond to public health emergencies and disasters. Activities should aim to improve healthcare infrastructure, enhance medical services, address disparities in healthcare access, and provide multicultural- sensible care.

2. **Interoperable Surveillance Systems and Laboratory Capacity**

   • Modernize current surveillance and early warning systems, taking advantage of new technologies and working towards developing interoperable platforms among U.S. states and Mexico to facilitate rapid access and simplify analytical tools to aid decision-making.

   • Enhance laboratory capacity by sharing standard operating procedures, biosafety/biosecurity protocols, developing protocols for rapid sample sharing, joint training for personnel, and data platforms for the exchange of health-related data and information between the U.S. and Mexico with a focus on promoting real-time information sharing and coordinated responses to emerging health challenges.

3. **Joint Research Systems and Guidelines**

   • Foster partnerships between research institutions, academia, and public health agencies to conduct cross-border research, share findings, and establish evidence- based guidelines for addressing health issues that impact both countries.

   • Enhance research capacity to support decision-making to prepare and respond to emergent or re-emergent threats, public health emergencies, and disasters focusing on promoting the exchange of scientific knowledge and best practices to inform public health policies and interventions.

   • Develop a rapid survey infrastructure with pre-approved protocols and participation of diverse border stakeholders to rapidly collect data from border populations, including mobile populations.

4. **Interoperable Information Sharing – Routine/Emergency Communication Systems**

   • Review and update routine and emergency communication protocols between health authorities in the U.S. and Mexico in alignment with the International Health Regulations (2005) and other regional security frameworks based on lessons learned from COVID-19 and other outbreaks and events of

binational importance, with a focus on supporting timely decision-making during emergencies but also to foster routine communications.

5. **Joint Risk Assessment and Integrated Data-based Border Health Priorities**

- Address the importance of conducting joint risk assessments and continually evaluate data-based border health priorities.

- Lead collaborative efforts to identify and prioritize health risks, develop shared health agendas, and allocate resources based on data-driven assessments to promote a unified approach to border health priorities, fostering a shared understanding of the most pressing health challenges in the region.

6. **Aligned Professional Competencies, Joint Training, and Personal Exchanges**

- Foster a dialogue to consider aligning professional competencies, providing joint training opportunities, and facilitating personal exchanges among healthcare professionals, public health practitioners, and emergency responders from both countries, focusing on strengthening the collective expertise in addressing border health challenges.

7. **Cross-sectoral Federal/State/Local-level Collaborations and Community Outreach**

- Emphasize and create opportunities to foster cross-sectoral collaborations involving federal, state, and local-level authorities and community outreach efforts to address border health issues.

- Develop strategies for fostering multi-level partnerships, engaging community stakeholders, and implementing outreach programs to promote health awareness, prevention, and access to services that focus on promoting inclusive and community-centered approaches to address health disparities and improve health outcomes in the border area.

8. **Joint Preparedness and Response Plans and Exercises**

- Develop joint preparedness and response plans based on joint exercises to enhance cross-border coordination in responding to public health emergencies and disasters, focusing on existing agreements or the need for mutual aid agreements to foster a coordinated and effective response to health threats.

VI. Conclusions and Next Steps

Healthy Border 2030 represents a significant milestone in addressing the unique public health challenges prevalent in the U.S. - Mexico border area. This document, which builds upon the successes and lessons learned from its predecessors, underscores the commitment of both nations to collaboratively improve the health and well-being of the border population.

The border area, characterized by diverse cultures, economic significance, and healthcare- related challenges, demands a concerted effort to foster cooperation and sustainable development. Recognizing the distinctive needs of this region is imperative to enhance the quality of life for its diverse population. The unique needs of border populations, for example, stem from public health concerns relevant to the general population, interspersed with issues related to environmental and occupational factors. This is due to special characteristics of border populations due to migration, occupational drivers of unique sectors of the population, and the presence of a broad range of risk factors. The priorities established in *Healthy Border 2030* serve as a roadmap to address specific public health challenges prevalent in the U.S. - Mexico border area, emphasizing the goal of enhancing healthcare accessibility for underserved populations through coordinated efforts.

Moving forward, it is essential for the U.S. Section of the Commission to develop an internal work plan based on the priorities outlined in *Healthy Border 2030*. The intention of this document is to serve as a high-level guide specifically for leaders in government of all levels, as well as community stakeholders, founded on the Commission's mandate to conduct a public health needs assessment in the U.S. - Mexico border area. It is a testament to the ongoing commitment to address the intricate public health challenges prevalent in the border area and improve the health and well-being of its population.

Furthermore, the next steps should involve the implementation of targeted interventions and initiatives to address the ten priority areas and eight cross-cutting capacities and capabilities identified in *Healthy Border 2030*. This will require sustained collaboration and coordinated efforts between the U.S. and Mexican Sections of the Commission, leveraging cross-border collaboration to enhance health outcomes and improve access to healthcare for the most underserved border populations.

In conclusion, *Healthy Border 2030* provides a high-level framework to tackle the unique public health issues in the U.S. - Mexico border area. By implementing the priorities and recommendations outlined in this initiative, the Commission and its stakeholders can work towards improving health outcomes and fostering sustainable development in the region.

VII. Annex: U.S. – Mexico Border Counties

Counties included in the U.S. - Mexico border area as defined by the La Paz Agreement. U.S.:

States	Counties
Arizona	Cochise, Pima, Santa Cruz, Yuma
California	Imperial, San Diego
New Mexico	Doña Ana, Grant, Hidalgo, Luna, Otero, Sierra
Texas	Brewster, Brooks, Cameron, Crockett, Culberson, Dimmit, Duval, Edwards, El Paso, Frio, Hidalgo, Hudspeth, Jeff Davis, Jim Hogg, Kenedy, Kinney, La Salle, Maverick, McMullen, Pecos, Presidio, Real, Reeves, Starr, Sutton, Terrell, Uvalde, Val Verde, Webb, Willacy, Zapata, Zavala

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waiting period for children (35 states) and pregnant women (25 states).45 Immigrants who have a lawfully present immigration status but do not have a qualified status for purposes of Medicaid and CHIP eligibility, such as those with Temporary Protected Status (TPS),† may be ineligible for Medicaid or CHIP (except for treatment of an emergency medical condition) regardless of their length of time in the country, depending on the state in which they reside.‡ Lawfully present immigrants who are ineligible for Medicaid or CHIP are able to enroll in Marketplace plans, if they meet all other eligibility criteria for coverage.46 Non-citizens without a verified immigration status are not eligible to enroll in comprehensive Medicaid coverage, Medicare, or a Marketplace plan. Those granted deferred action under DACA can be eligible for Medicare if they meet other eligibility criteria, but they are not currently eligible for comprehensive Medicaid or Marketplace coverage. However, undocumented persons may qualify for emergency Medicaid benefits. States must provide limited coverage of emergency medical services to non-citizens who would qualify for full Medicaid benefits except for their immigration status, including undocumented immigrants.47 (https://aspe.hhs.gov/sites/default/files/documents/96cf770b168dfd45784cdcefd533d53e/immigrant-health-equity-brief.pdf)

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