



BINATIONAL BORDER INFECTIOUS DISEASE SURVEILLANCE PROGRAM

2022–2023 BIDS Program Highlights



Figure 1 — CDC and BIDS program partners gathered in San Diego, California for a grantee meeting in 2023



EXECUTIVE SUMMARY

The Centers for Disease Control and Prevention (CDC) Division of Global Migration Health (DGMH), in collaboration with the U.S. Section of the Border Health Commission (BHC), managed by the U.S. Department of Health and Human Services Office of Global Affairs, has supported the Binational Border Infectious Disease Surveillance (BIDS) program since August 2018 to support public health activities in the U.S.-Mexico border region. The program aims to characterize infectious diseases affecting the border region, enhance surveillance, develop interventions, and bolster bilateral communication with Mexico for greater disease prevention and control along the U.S.-Mexico border and among mobile populations coming from many countries around the world that cross the border for various reasons. To achieve this, CDC provides oversight, technical support, partnership, and funding to the U.S. border states. CDC-DGMH and the BHC provided core funding to the BIDS projects for fiscal year 2024.

The report outlines program activity progress and outcomes, including binational case reporting, promising public health interventions, and border region population assessments.

Binational Case Burden and Reporting

In 2022, BIDS sites reported 2,764 binational cases of priority diseases, with some states reporting additional conditions. Program success stories include timely response to a hepatitis A case and binational collaboration on an mpox case.

Border Region Population Assessments

BIDS teams in California, New Mexico, and Texas conducted surveys whose results provided insights into the health, mobility, and healthcare access of border crossers and border region communities. CDC and BIDS California are preparing a report or manuscript with the survey findings that aims to inform targeted public health strategies.

Migrant, Asylum Seeker, and Farmworker Mobility

BIDS programs in Arizona and California assessed shelter intake processes, disease management, and mobility of migrants and asylum seekers. California's assessment focused on farmworker communities to inform outreach for COVID-19 and other vaccine-preventable diseases.

COVID-19 Vaccination and Testing for Hard-to-Reach Populations

New Mexico and California BIDS programs collaborated on mobile vaccination events, addressing hard-to-reach populations like binational truck drivers. California conducted vaccination gap assessments and designed outreach campaigns for migrant and farmworker populations.

Enhanced Surveillance

Focusing on febrile respiratory illness surveillance, BIDS programs in California, Texas, and New Mexico continued or resumed activities that contributed to regional and national pathogen surveillance efforts.

California's binational TB surveillance project facilitated testing, treatment, and information sharing for binational contacts of TB cases in Imperial County, California, USA and Mexicali, Baja California, Mexico.

Texas Public Health Region 11 assessed the characteristics of border region typhus cases to improve prevention education, treatment, and information-sharing methods.

Combating Antibiotic-Resistant Bacteria (CARB)

BIDS programs in Texas and California initiated projects to understand antibiotic use practices and address antibiotic resistance. California binational collaborative efforts included a symposium on healthcare-associated infections and multidrug-resistant microbes.

INTRODUCTION

BIDS Collaboration

Since August 2018, the U.S. Section of the Border Health Commission (BHC), managed by the U.S. Department of Health and Human Services Office of Global Affairs (OGA), has combined resources with the Centers for Disease Control and Prevention (CDC) Division of Global Migration Health (DGMH) to support the Binational Border Infectious Disease Surveillance (BIDS) program. This collaboration aims to achieve common objectives, including the characterization of infectious diseases affecting the U.S.-Mexico border region and assisting public health entities to prevent, detect, and control these health conditions. To achieve these objectives, CDC provides funding to the four U.S. border states on the U.S.-Mexico border to sustain or enhance:

- 1) information systems through integration of binational variables
- 2) infectious disease surveillance
- 3) local and binational information, reporting and collaboration protocols
- 4) targeted disease prevention or control interventions

BIDS’ programmatic focus aligns with the objectives of the BHC “to identify and evaluate current and future health problems affecting the United States-Mexico border area, and to encourage and facilitate actions to address these problems.”¹

Figure 2 — BIDS Sites in the U.S.-Mexico Border Region



¹ United States-Mexico Border Health Commission Act, Pub. L. 103-400, 108 Stat. 4169 (Oct. 22, 1994).

2022–2023 BIDS PROGRAM ACTIVITY HIGHLIGHTS

This report describes activities and outcomes of BIDS projects in 2022 and highlights some of the progress made in 2023.²

Identifying binational³ cases of infectious diseases is an essential first step to timely and comprehensive public health follow-up and to understanding the binational dynamics of infectious diseases in the border region.

Binational Case Burden and Reporting

BIDS programs identify and report on binational cases of specific priority diseases: COVID-19, tuberculosis (TB), influenza, vibriosis, salmonellosis, listeriosis, brucellosis, dengue, chikungunya, Zika, spotted fever group rickettsioses, and murine typhus. During calendar year 2022, BIDS sites reported 2,764 binational cases of priority diseases (defined by Binational Reporting Criteria³) in the four border states. In addition, some states are beginning to report other conditions with significant proportion of binational cases. In 2022, New Mexico and Arizona reported 171 binational cases of the following enteric diseases: campylobacteriosis, shigellosis, cryptosporidiosis, giardiasis, and Shiga toxin-producing *Escherichia coli* (STEC).

BIDS sites maintain binational partnerships and communication with Mexican jurisdictions and local border tribes facilitating public health action when binational cases or outbreaks are identified.

During 2022, BIDS programs reported 1,587 binational cases to public health authorities in Mexican border “sister” jurisdictions.⁴ Arizona, California, and New Mexico BIDS sites reported 26 cases with known follow-up in Mexico.

SUCCESS STORIES



In 2022, the California Department of Public Health (CDPH)’s BIDS program in coordination with San Diego County Health and Human Services Agency reported to Baja California’s state epidemiologist a binational case of **hepatitis A** in a person who was hospitalized in San Diego County and had contacts in Tijuana, Mexico. Timely information facilitated investigation and determination about the need for postexposure prophylaxis (PEP) among the person’s close contacts.



In 2022, Arizona and New Mexico BIDS collaborated in reporting a confirmed binational mpox case to Chihuahua, Mexico. The Arizona Department of Health Services (ADHS) identified the case through their MEDSIS surveillance system. This resident of Chihuahua contracted mpox while in Arizona and planned to return to Mexico. Arizona BIDS shared case information with New Mexico BIDS, who informed Chihuahua Mexican health authorities. Chihuahua health authorities contacted the infected person who confirmed he had received and completed treatment in Arizona.



In early 2023, Arizona BIDS resumed coordination of **transnational TB care handoff** (TB “Meet-and-Greet” program) between ADHS, Department of Homeland Security (DHS) Immigration and Customs Enforcement (ICE), and Sonora health authorities. The handoff ensures that individuals in ICE custody in need of continued treatment for TB disease or infection receive guidance from local health authorities in Sonora as they are being repatriated back to Mexico. From May 2013 to September 2023, Arizona successfully connected 74 (96%) patients to Sonora health officials. In 2023, all four meet-and-greets have been successful.

² BIDS sites typically report data to ELC by calendar year, for the previous year.

³ According to Council of State and Territorial Epidemiologists (CSTE) position statement 13-SI-02, 2 the binational reporting criteria variable identifies a case as binational when it meets one or more of the following criteria: a) potentially exposed while in Mexico or Canada, b) potentially exposed by a resident of Mexico or Canada, c) resident of Canada or Mexico, d) has case contacts in or from Mexico or Canada, e) exposure to suspected product from Canada or Mexico, f) other situations that may require binational notification or coordination of response.

⁴ HHS [OGA](#) and the Environmental Protection Agency ([EPA](#)) recognize 15 pairs of contiguous sister cities along the U.S.-Mexico border region.



In May 2023, Texas and Mexican public health officials responded to a **fungal meningitis outbreak** in Matamoros, Mexico, and coordinated control strategies. The outbreak was identified when patients with suspected meningitis and recent history of cosmetic procedures in Matamoros, Mexico, presented to a local hospital in Texas. Following these reports, Texas, CDC, and Mexican public health officials initiated binational communication and coordination at the local, state, and federal levels. The BIDS epidemiologist was integral in this outbreak as one of the key liaisons between Texas Public Health Region (PHR) 11 and local and state public health authorities in Mexico.

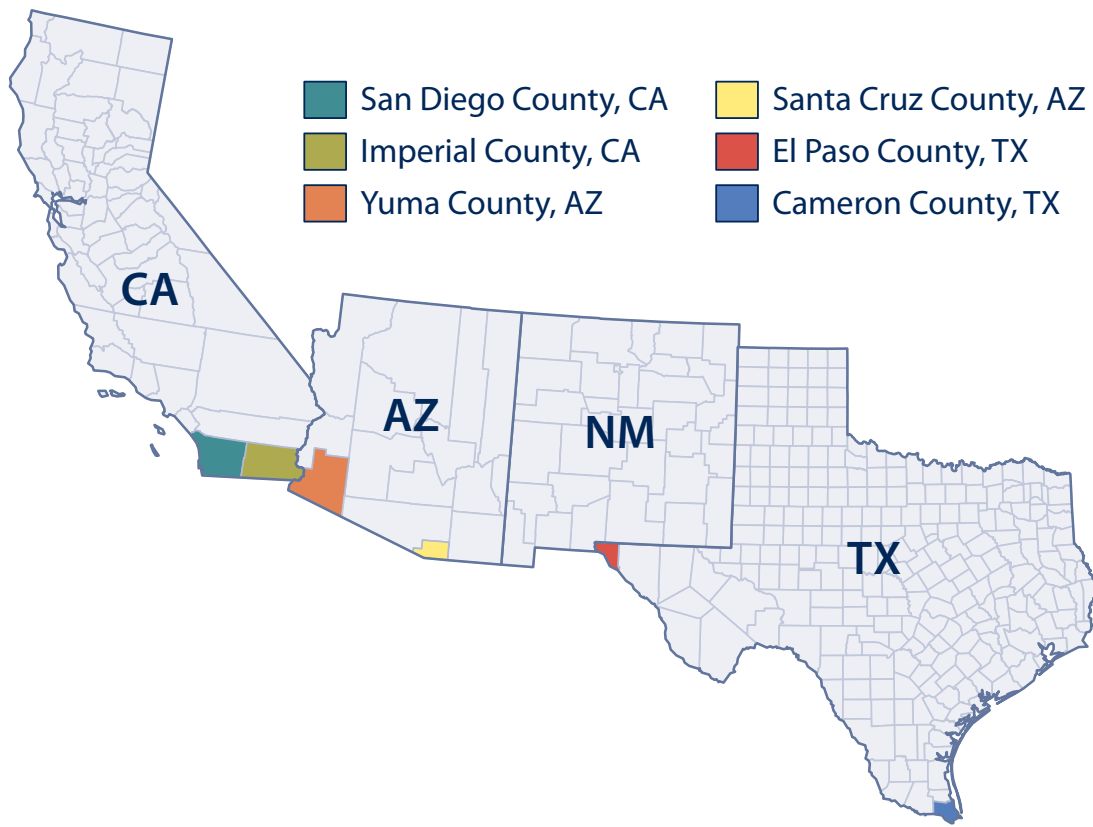
Assessments of Border Region Populations

Surveys that characterize mobile and border communities along the U.S.-Mexico border help identify opportunities and strategies to prevent or reduce disease transmission among populations such as frequent border crossers, farmworkers, Hispanics or Latinos with limited English proficiency, migrants transiting through or living in the border region, among others.

BIDS BORDER SURVEY

California BIDS analyzed data from a 2021–2022 representative⁵ survey of north-bound (i.e., entering the United States) border crossers related to COVID-19 disease and vaccine knowledge, attitude, practices. The survey was conducted from June 2021 to January 2022 at six ports of entry across California, Arizona, and Texas. In 2022, California BIDS developed a follow-up survey to further characterize the mobility, and health care utilization patterns of north-bound border crossers which will be implemented in the spring of 2024.

Figure 3 — BIDS Border Survey Locations, by Border County



NEW MEXICO

New Mexico BIDS implemented a complementary representative⁵ survey of north-bound border crossers at the Santa Teresa and Columbus, New Mexico, ports of entry. A total of 3,725 individuals were interviewed in June 2022 and March 2023. The results will be analyzed together with the initial California survey to allow characterization of border crossers in all border states.

TEXAS

Texas BIDS sites in PHR 8, 9/10, and 11, continued FY2021 and FY2022 activities to implement 8,789 surveys on border communities' travel characteristics, health care access, information preferences and vaccine attitudes. The Texas BIDS teams are preparing a final report of key findings.

The BIDS team also implemented a survey to characterize rural providers' reporting practices for binational TB cases in PHR 9/10 and identify potential reporting gaps and needs. PHR 9/10 plans to use the findings to develop TB trainings, improve TB reporting protocols, and promote appropriate public health strategies.

Texas PHR 8 and 11 are currently conducting surveys to characterize mobility and healthcare utilization patterns in their respective border regions. Survey implementation was delayed since 2021 due to initial administrative challenges. PHR 8's focus is on binational workers and the team is working closely with local employers to conduct surveys and focus groups. As of November 2023, PHR 11 has conducted over 137 surveys among people accessing services at three Mexican Consulates in the Texas cities of McAllen, Brownsville, Laredo.

Migrant, Asylum Seeker, and Farmworker Mobility

ARIZONA

Arizona BIDS interviewed DHS U.S. Customs and Border Protection (CBP)-Border Patrol agents and workers at local community health centers and nongovernmental organization-run migrant shelters to assess the intake processes and mobility flows of migrants and asylum seekers entering Arizona and to identify: 1) current medical contractors, 2) existing outbreak response protocols, 3) disease management protocols and 4) hospital and community discharge processes. As a result, the ADHS has enhanced communication pathways with key partners to ensure timely public health action and rapid delivery of services to the appropriate agencies or organizations. ADHS plans to conduct annual visits with local CBP facilities and migrant shelters to continue to strengthen collaboration and update communication procedures.

Figure 4 — Medical professional interviewing a woman and child. (*hironosov via Getty Images*)



CALIFORNIA

The California BIDS Program, in collaboration with the National Center of Farmworker Health (NCFH), completed a rapid community assessment among farmworkers in Fresno, CA to assess COVID-19 related knowledge, perceptions, vaccination status, and health care utilization. The farmworker population included migrant farmworkers traveling from U.S. border counties and states throughout Mexico. California BIDS will conduct two additional assessments of Imperial and San Diego County farmworker communities. This project will allow CDPH to identify critical disparities related to COVID-19 vaccination rates, and access to health care services among subpopulations of farmworkers based on age, indigenous identity, subindustry, location, or other factors.

⁵ Survey used a stratified, two-stage cluster sampling method that considered port of entry, method of crossing, day of week and time of day.

COVID-19 Vaccination and Testing for Hard-to-reach Populations

NEW MEXICO

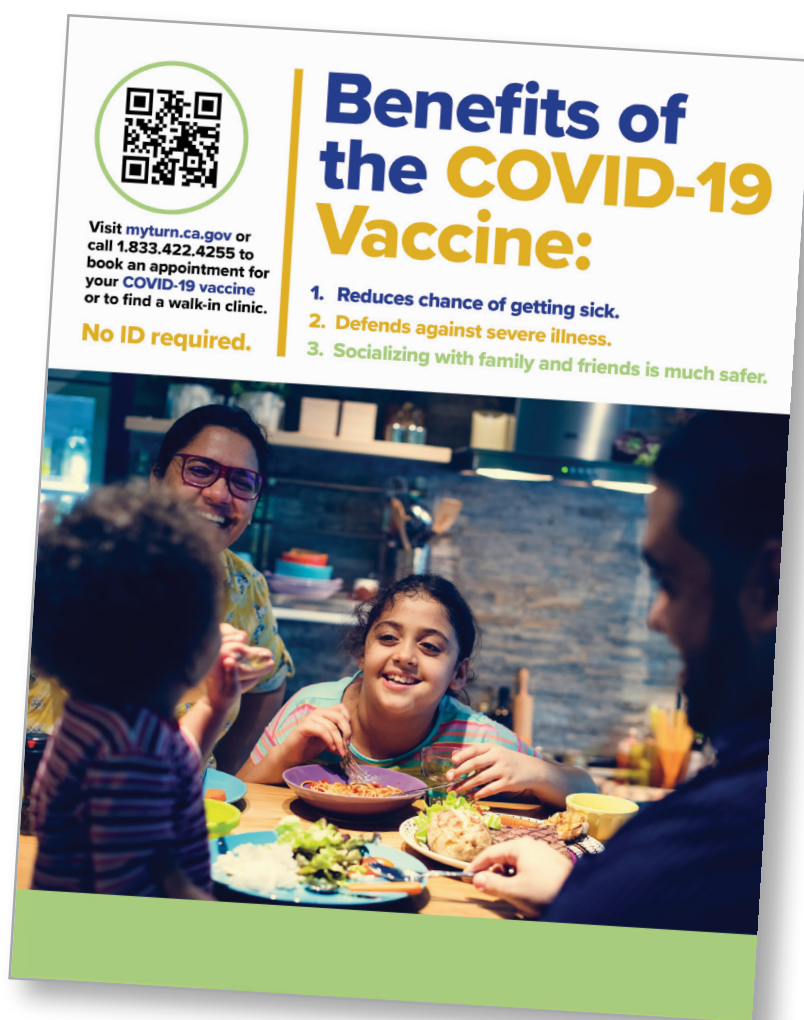
In addition to the 19 mobile vaccination and testing events serving 3,312 individuals during the first half of 2022 (highlighted in the last BIDS report), the New Mexico BIDS program continued collaborating with La Clinica de La Familia, a federally qualified health center, to vaccinate another 80 binational truck drivers and meat processing plant workers for influenza or COVID-19. Of note, in coordination with BIDS, La Clinica de La Familia has leveraged internal resources to continue to provide mobile vaccination services for truck drivers and other binational workers in 2023.

CALIFORNIA

California BIDS completed a comprehensive vaccination gap assessment and identified geographic regions in San Diego and Imperial Counties with a need for expanded COVID-19 vaccination and testing outreach efforts. CDPH used the data to inform vaccination strategies and increase vaccination among BIDS' priority populations. From May 2022 to July 2023, CDPH and their partners offered 30 vaccination events, vaccinating 842 individuals for COVID-19.

California also conducted an environmental scan of COVID-19 vaccine uptake and perceptions among migrants and farmworkers in Imperial County, interviewing local and state public health representatives, community-based organizations, and farmworkers leaders. In 2023, CDPH and Imperial County Public Health Department used the findings to design three COVID-19 booster vaccine promotional campaigns for migrant and farmworker populations, including posters, social media messages, newspaper and radio advertisements, and billboards. Through these vaccination efforts, CDPH has also created or reinforced partnerships with multiple governmental and community-based organizations.

Figure 5 — Migrants and farmworkers' preference for family and community appeals informed California's COVID-19 booster vaccine promotional campaign.



Enhanced Surveillance

Febrile Respiratory Illness (FRI) Surveillance

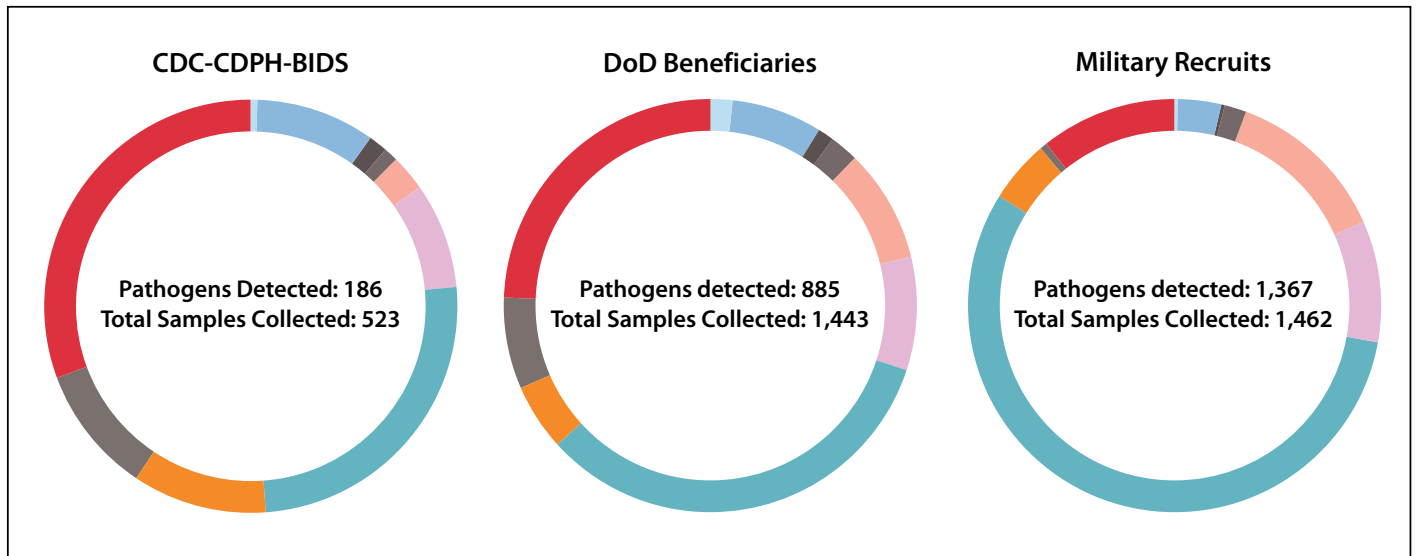
California, Texas, and New Mexico BIDS programs continued or resumed enhanced respiratory surveillance activities along the border in the 2022–2023 influenza season.

Border region surveillance among mobile populations provides a binational perspective on circulating respiratory pathogens and serves as an early warning mechanism for the introduction of novel pathogens.

CALIFORNIA

In 2022 and 2023, California BIDS staff continued sentinel surveillance for influenza-like illness (ILI) and COVID-19-like illness (CLI) at four sites in Imperial County and for severe acute respiratory infection (SARI) at two sites in Imperial County. These results enhance statewide surveillance among mobile populations at sites close to the border. The Naval Health Research Center (NHRC), located in San Diego, CA, tested a total of 523 BIDS specimens for a panel of respiratory pathogens, as shown in Figure 6. A total of 186 pathogens were detected during the 2022–2023 influenza season from October 2, 2022, to September 9, 2023. In addition to providing detailed respiratory pathogen information for the California border region, BIDS specimens contributed to the NHRC’s febrile respiratory illness (FRI) surveillance, which also includes Department of Defense (DoD) beneficiaries and military recruits.

Figure 6 — Laboratory test results of febrile respiratory illness pathogen surveillance within the CDC-CDPH-BIDS, Department of Defense beneficiaries, and military recruit populations from October 2, 2022*–September 9, 2023



FRI Pathogens

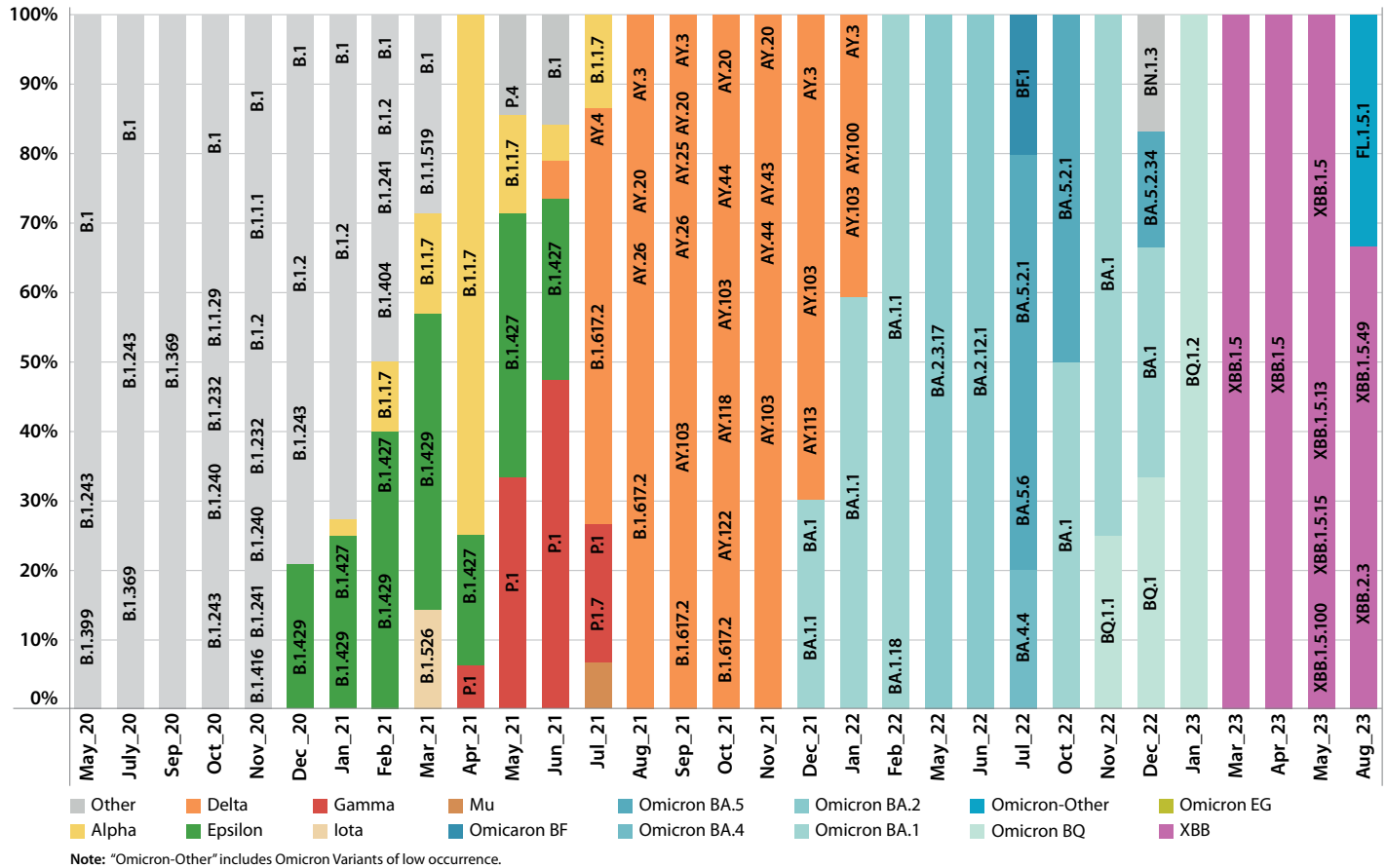
- | | | |
|---|---|--|
| ■ Influenza A H1 | ■ Adenovirus (HAdV) | ■ Respiratory syncytial virus (RSV) |
| ■ Influenza A H3 | ■ Coronavirus (CoV) | ■ Chlamydia pneumoniae |
| ■ Influenza B Victoria | ■ Parainfluenza virus | ■ Mycoplasma pneumoniae |
| ■ Influenza B Yamagata | ■ Rhinovirus/Enterovirus (RV/EV) | ■ Sars-CoV-2 |
| ■ Bocavirus (HBoV) | ■ Metapneumovirus (hMPV) | |

* Based on collection date

** CDC-CDPH-BIDS sites: Inncare-Brawley, Inncare-Calexico, Inncare-El Centro, Pioneers Memorial Healthcare, El Centro Regional Medical Center

In addition to FRI pathogen surveillance, the NHRC also implemented genomic sequencing of BIDS SARS-CoV-2 specimens from ILI and SARI surveillance in 2022 and 2023. This sequencing enhances surveillance for SARS-CoV-2 variants in the border region. Figure 7 shows the genetic characterization of specimens.

Figure 7— Characterization by lineages of specimens positive for SARS-CoV-2 from BIDS sites submitting to the Naval Health Research Center for febrile respiratory illness surveillance.



Tuberculosis

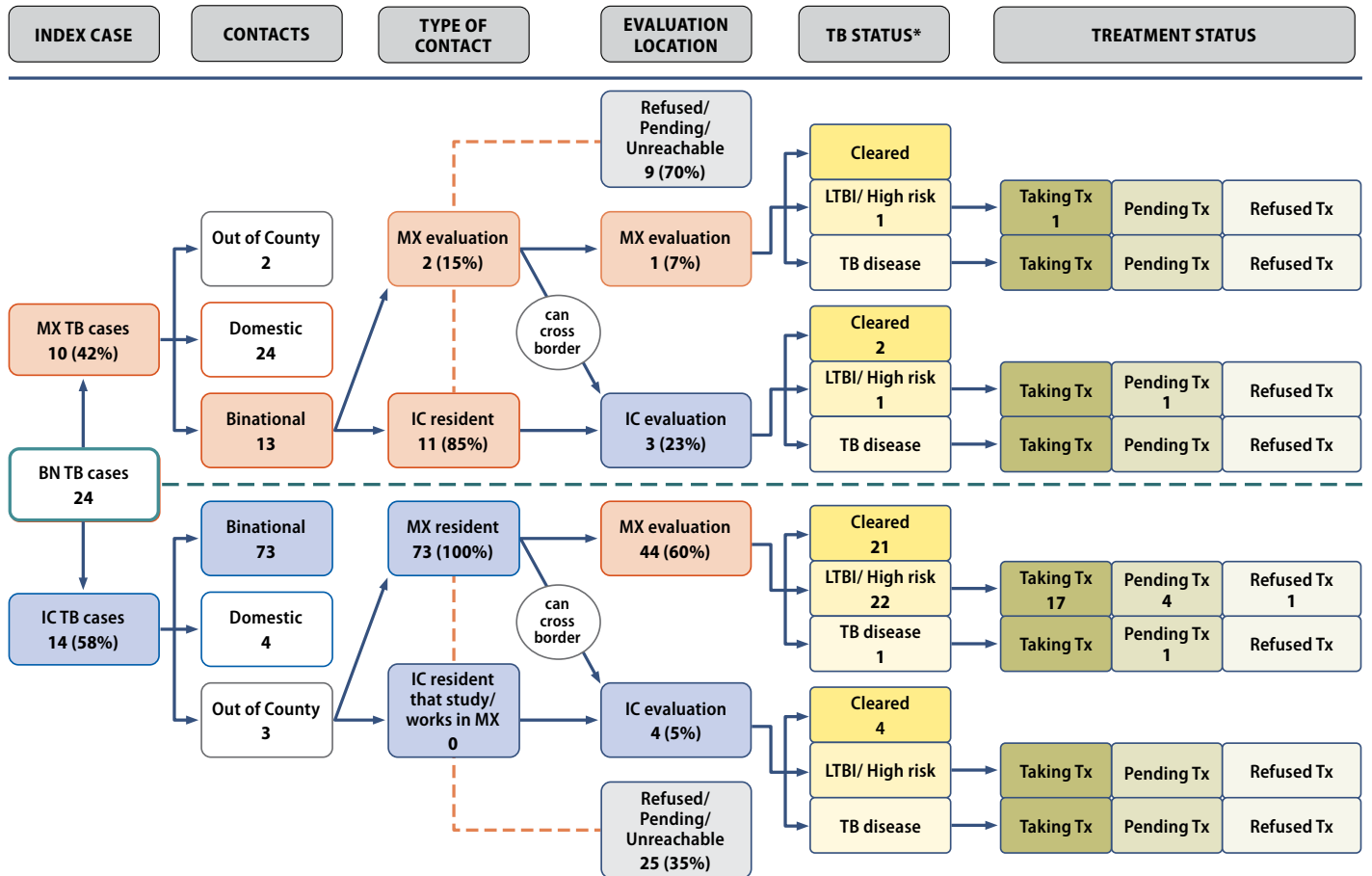
CALIFORNIA

The BIDS binational TB surveillance and contact investigation project continues to facilitate laboratory testing, treatment for TB disease and infection, and information sharing across Imperial County, California, and the Mexicali, Baja California, health jurisdiction in Mexico. From January to December 2022, this project identified 119 contacts to 24 binational cases of TB disease. One of these contacts was diagnosed with TB disease and 24 with latent TB infection (LTBI). As of November 2023, 18 (75%) contacts with LTBI had initiated treatment and the treatment for the individual with TB disease was pending as they had relocated without notice. Binational contacts had the option to access evaluation services in either Mexicali or Imperial County as best fit their schedule. Figure 8 shows more detailed project results to date, by jurisdiction.

The BIDS binational TB surveillance and contact investigation program identifies LTBI in binational contacts and facilitates their treatment completion by closely coordinating and sharing information and resources across the border. These key outcomes can reduce border region TB transmission.

Figure 8 — Outcomes of binational tuberculosis contact investigations in Imperial County, California, USA and Mexicali, Baja California, Mexico, 2022⁶

Imperial County (Ic)–Mexicali (Mx) Tuberculosis Binational Contact Investigation Report—January 2022–December 2022



*LTBI/high risk indicates an asymptomatic non-infectious person with positive IGRA test or positive PPD skin test and with normal chest X-ray and no signs of TB disease, or that they were negative for TB tests but are at risk of developing active TB disease due to being immunosuppressed (e.g., having diabetes, cancer, or HIV/AIDS) and having been in contact with a person with active TB. TB disease indicates the person has active TB disease (positive IGRA or positive PPD skin test, with suggestive TB symptoms, and/or abnormal chest X-ray) and is infectious. Cleared indicates the person is confirmed not to have TB.

Rickettsia

TEXAS

PHR 11 initiated a review of typhus cases in the region to identify binational characteristics and summarize potential exposure sources. The findings will be used to: 1) inform community education about flea bite prevention, 2) raise physician awareness for prevention education, treatment, and flea-borne typhus reporting, and 3) improve information-sharing methods with binational partners.

Combating Antibiotic-Resistant Bacteria Activities

California and Texas BIDS programs work domestically and with Mexican authorities to improve capacity for antimicrobial-resistance surveillance, prevention, and control.

Consistent with the U.S. National Action Plan for Combating Antibiotic-Resistant Bacteria, several projects were initiated at BIDS sites in 2022.

- Texas PHR 8 BIDS developed a survey to understand antibiotic knowledge and use practices in border communities. PHR 8 plans to implement this survey from November 2023 to April 2024. Findings will allow the BIDS team to better understand antibiotic use, and possible misuse, to inform public health interventions for preventing the development of antibiotic-resistant bacteria.
- California BIDS is working with the Baja California Health Secretariat to initiate a gonorrhea antibiotic resistance surveillance project at an outpatient clinic in Mexicali, Baja California, and to facilitate binational case and contact investigations.
- California and Baja California collaborated on a binational symposium, titled “Healthcare Associated Infections and Multidrug-Resistant Microbes.” The event was attended by almost 300 people from both states. Participants were provided a meeting platform to exchange information on antimicrobial resistance surveillance and control and the use of antimicrobial stewardship programs for preventing healthcare-associated infections.

ACCESSIBLE DESCRIPTIONS FOR COMPLEX FIGURES

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Figure 6—Laboratory test results of febrile respiratory illness pathogen surveillance within the CDC-CDPH-BIDS, Department of Defense beneficiaries, and military recruit populations from October 2, 2022*–September 9, 2023

Three pie charts showing percent of febrile respiratory illnesses (FRI) among the Centers for Disease Control and Prevention/California Department of Public Health/BIDS (CDC-CDPH-BIDS), Department of Defense (DoD) beneficiary, and military recruit populations from October 2, 2022, to September 9, 2023, and collected by the Naval Research Center. Of the 523 samples collected from CDC-CDPH-BIDS populations, 186 pathogens were detected. Over a quarter of the FRI pathogens detected were SARS-CoV-2, about 20% were rhinovirus/enterovirus. Influenza A H3, parainfluenza virus, metapneumovirus, and respiratory syncytial virus each accounted for about 5% of the pathogens and the remaining, in smaller proportions, were influenza A H1, bocavirus, adenovirus, and coronavirus. In DoD beneficiaries, 885 pathogens were detected in the 1443 samples collected. About 30% were SARS-CoV-2 and about 35% were rhinovirus/enterovirus. Coronavirus and parainfluenza virus each made up about 5% of the pathogens and influenza A H1, influenza A H3, bocavirus, adenovirus, respiratory syncytial virus, and metapneumovirus were detected in the remainder of the pathogens. Over half of the 1367 pathogens detected in military recruits, from 1,462 samples collected, were Rhinovirus/Enterovirus. About 15% of pathogens were coronavirus, and about a tenth, parainfluenza virus. Other pathogens detected were metapneumovirus, bocavirus, SARS-CoV-2, respiratory syncytial virus, influenza A H3, and adenovirus.

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Figure 7—Characterization by lineages of specimens positive for SARS-CoV-2 from BIDS sites submitting to the Naval Health Research Center for febrile respiratory illness surveillance

Stacked bar chart showing characterization by lineages of specimens positive for SARS-CoV-2 from El Centro Regional Medical Center and Pioneers Memorial Hospital in California by month. Between May 2020 and February 2021, the dominant variant was “other.” Specimens from January to July 2021 were a combination of “other,” epsilon, gamma, iota, delta, mu, and alpha, with alpha being the most dominant in April and delta in July. Delta was the only variant identified August 2021 to November 2021 and was dominant in December 2021 to January 2022. Omicron BA.1 was found from December 2021 to February 2022 and in October to December 2022. July 2022 was a mix of Omicron BF, BA.4, and BA.5. Omicron BQ was present in November 2022 to January 2023 specimens. Variant XBB was the only or prominent variant between March and August 2023.

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Figure 8—Outcomes of binational tuberculosis contact investigations in Imperial County, California, USA and Mexicali, Baja California, Mexico, 2022

Flow chart of 24 binational tuberculosis cases identified in Mexicali, Baja California, Mexico and in Imperial County, California, USA, and their subsequent evaluation results from January 2022 to December 2022. Ten of the cases identified in Mexicali were resulted in 2 out of country contacts, 24 domestic contacts, and 13 binational contacts. Of the 13 binational contacts, two were Mexicali residents that study or work in Imperial County. 11 were Imperial County residents. Of the Mexicali residents, one was evaluated in Mexico and was found to have had latent TB infection (LTBI) or had LTBI and was at a high risk (of developing active disease due to being immunosuppressed [e.g., having diabetes, cancer, or HIV/AIDS]) and is receiving TB treatment. Of the other Mexicali resident that worked or studied in Imperial County and the 11 other Mexicali residents, three were evaluated in Imperial County and nine either refused, are pending evaluation, or were unreachable. Of the three, one had LTBI or were at a high risk and is pending treatment. Fourteen index cases of TB in Imperial County that resulted in three contacts from out of the country, four domestic contacts, and 73 binational contacts. All 73 binational contacts were Mexicali residents. Twenty-five of them either refused, are pending evaluation, or were unreachable. Four were evaluated in Imperial County and were cleared or having for TB. Forty-four contacts were evaluated in Mexico where 21 were cleared for infection, one had TB disease and is pending treatment, and 22 had LTBI or was at high risk for the disease. Of the 22, 17 are taking treatment, four are pending treatment, and one refused treatment.

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