

# **A SUPPORT AND RESPONSE PLAN FOR MOSQUITO-BORNE DISEASES ALONG THE U.S.-MEXICO BORDER REGION OF TEXAS**

January 2023



**TEXAS**  
Health and Human  
Services

Texas Department of State  
Health Services



**The first edition of this plan was completed in January 2023.**

The Texas Department of State Health Services Office of Border Public Health (OBPH) would like to thank Paul Grunewald, DVM, MS, DACVPM, for creating this plan. Dr. Grunewald conducted extensive research and interviews to understand the potential roles and responsibilities of the components of the public health system in the U.S.-Mexico border region of Texas.

OBPH would also like to acknowledge the contributions of staff from the Center for Health and Emergency Preparedness and Response; Laboratory and Infectious Disease Services; Public Health Regions 8, 9/10, and 11; local border public health entities; and other state partners and affiliates. This plan will be updated every four years by OBPH.

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## Introduction

In 2019, the 86th Texas Legislature enacted **Senate Bill 1312** to create **Health and Safety Code, Chapter 12, Section 12.072**. The statute directs the Texas Department of State Health Services (DSHS) to address vector-borne and zoonotic diseases and standardize practices in counties located along the international border with Mexico. DSHS is required to develop rapid local and regional response and support plans for (A) ongoing vector-borne and zoonotic disease control activities; and (B) disasters, including flooding, hurricanes, and outbreaks of vector-borne diseases.

This plan describes the DSHS response to mosquito abatement, triggered by two incidents: mosquito-borne illnesses, or a disaster or flooding event resulting in the propagation of nuisance floodwater mosquitoes that impede response and recovery operations.

All responses are initially local events with local responsibility unless a response exceeds the local jurisdiction's capabilities or capacity. If so, local authorities may request regional resources to assist, and if necessary, state-wide assets through the submission of a State of Texas Assistance Request (STAR).

**Each local, regional, and state response is dependent on the assets and personnel available at the time. The roles and responsibilities identified in this document do not commit the entities named in this document to fulfill those roles if they do not have the capability or capacity at the time of the event.**

## Additional Entities Involved in Response Activities

Some incidents may involve other institutions and agencies, depending on different factors. Below is a list of entities, with their corresponding response activities, that may collaborate with DSHS and Local Public Health Entities (LPHEs) as part of a response. LPHEs may include city or countywide Local Health Departments (LHDs) or Public Health Units (PHUs) that provide limited services.

### Academic Institutions

Academic institutions that may be involved in a mosquito-borne disease response include Texas A&M University, University of Texas El Paso, University of Texas Medical Branch, and University of Texas Rio Grande Valley.

- Conduct vector surveillance and virus testing
- Coordinate with DSHS on testing for insecticide resistance in *Aedes* mosquitoes
- Communicate surveillance and testing results to the LHD
- Provide training for response, surveillance, vector control, and pesticide application

- Provide educational material and work with local jurisdictions on messaging on mosquito control
- Provide arboviral research and control support, including for novel viruses
- Evaluate different forms of vector control

#### **Texas Department of Agriculture**

- Work with Texas A&M AgriLife Extension Service to provide training, testing, and licensure for non-commercial pesticide applicators in the border counties
- Coordinate with the local jurisdictions to respond to disasters while ensuring compliance with the state pesticide applicator laws using direct supervision affidavits

#### **Texas Parks and Wildlife Department**

- Coordinate vector surveillance and control efforts in the State parks and managed land areas
- Investigate mortality events in wildlife

#### **Texas Commission on Environmental Quality**

- Coordinate with DSHS, LHDs, and other entities regarding environmental concerns that are synonymous with public health
- Coordinate with the DSHS Office of Border Public Health (OBPH) regarding issues of binational concern

## Background

The Texas portion of the US-Mexico border is defined as the area 100 kilometers (62.5 miles) north and south of the international boundary defined by the **1983 La Paz Agreement**. It stretches 1,254 miles.

The Texas border encompasses 32 counties, which are part of Public Health Regions (PHRs) 8, 9/10, and 11. Local jurisdictions include two county health departments, five city health departments, and one public health unit providing limited services: Cameron County, Hidalgo County, City of South Padre Island, City of Brownsville, City of McAllen, City of Harlingen, City of Laredo, and City of El Paso.

In 2022, the Texas border had a population of approximately 2.8 million residents. Most border residents are Latino/Hispanic (87.3%), compared to only 34.7% of non-border residents.<sup>1</sup> Approximately 24.7% of the border population live below the poverty level compared to 13.1% of Texas non-border residents.<sup>2</sup>

Arboviruses are a yearly concern for the border region. Human cases of West Nile virus infections have been reported throughout Texas, and the South Texas Region has had locally acquired cases of dengue and Zika. A significant concern for the area is that cases may be under-reported because there is a lack of health care infrastructure, and sick people may not get tested for these diseases.

In addition, several counties from the border region regularly collect and submit mosquitoes to the DSHS Public Health Laboratory for arbovirus testing. Routine surveillance has its limitations and certain arboviruses are not often found. However, since 2011, mosquito pools from the border region have tested positive for the presence of West Nile virus and St. Louis encephalitis.

Flooding is not uncommon in this area, and there have been numerous significant flood events including Hurricane Dolly in July 2008, the Presidio Flood in September 1978, and again in 2008, and flooding in El Paso in August 2021.

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<sup>1</sup> Population size and percent of Hispanic ethnicity from Texas Population Projections Program, July 2018 projections for 2022; (most recent county-level projections available as of November 30, 2022; more recent total population projections exist but do not include race and ethnicity figures) [Source: <https://demographics.texas.gov/Data/TPEPP/Projections.>]

<sup>2</sup> U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates. Percentages computed from files S1701 Poverty Status in the Past 12 Months. Most recent 5-year estimates available as of November 30, 2022. <https://data.census.gov/cedsci/>

## General Roles and Responsibilities

In some cases, local roles and responsibilities may defer to the Public Health Regions (PHRs) depending on local and regional capacity

### Responsibilities Coordinated by the DSHS Central Office

#### **Zoonosis Control Branch (ZCB), Laboratory and Infectious Disease Services (LIDS) Division**

- Provide technical assistance to locals, PHRs, and mosquito control agencies through State of Texas Assistance Requests (STARs), guidance document review
- Provide notification of positive cases and mosquito pools
- Maintain situational awareness of flooding events and arboviral cases
- Coordinate response efforts, team deployment, and contract services
- Coordinate with academic partners, as needed
- Review and verify the accurate diagnosis of human and animal cases of disease
- Quantify and describe the scope of the outbreak
- Facilitate public health testing
- Provide updates on case and outbreak information
- Provide information for the Communications Offices

#### **Regional and Local Health Operations (RLHO) Division**

- Serve as liaison between PHRs and the State Medical Operations Center (SMOC)
- Triage regional needs to the SMOC, depending on incident and sections available
- Provide situational awareness for regional leadership

#### **Center for Health Emergency Preparedness and Response (CHEPR), RLHO**

- Gather all data and information for response and operate the SMOC
- Consult with Subject Matter Experts for coordination of response activities
- Manage **Emergency Support Function 8** (ESF-8) STARs to include those requesting vector and zoonosis resources and capabilities
- Set up coordination calls with Central Office, PHRs, locals, and responders
- Coordinate information and resources with state and federal partners
- Oversee and manage state mosquito surveillance and abatement contracts
- Provide situational awareness for executive leadership

#### **Office of Border Public Health (OBPH), RLHO**

- Coordinate communications with PHRs, Central Office, and Mexican state colleagues
- Monitor Mexico for levels of transmission and evaluate surveillance data



- Coordinate as needed to assist with border-specific communication needs, such as outreach to Spanish-speaking residents and training for deployment teams.

### **Laboratory (Lab), LIDS**

- Conduct routine services as an arboviral laboratory
- Provide mosquito species identification and arbovirus testing
- Conduct insecticide resistance testing
- Consult regarding surveillance and trapping
- Assist local laboratories with training and testing

### **Center for External Relations (CER), Chief of Staff**

- Provide media interviews in the support of the mosquito and disease control messaging
- Coordinate with the local media outlets and local health departments on messaging
- Maintain the DSHS website
- Coordinate social media outreach
- Develop any advertising campaigns

## **Responsibilities Coordinated by PHRs 8, 9/10, and 11**

### **ZCB Programs in the Border PHRs**

- Provide technical assistance to locals, and mosquito control agencies through STARS and guidance document review
- Submit notification of positive cases and mosquito pools
- Coordinate with academic partners, as needed
- Investigate and report arboviral cases and suspects
- Review and verify accurate diagnosis of human or animal cases of disease
- Quantify and describe the scope of the outbreak for ZCB in LIDS, LHDs, and the Local Health Authorities
- Facilitate public health testing
- Provide updates on case and outbreak information
- Provide training to local jurisdictions on mosquito trapping and submission
- Provide health alert information for local health care providers

### **Preparedness Programs in the Border PHRs**

Preparedness programs in the PHRs are called Public Health Emergency Preparedness (PHEP) or Preparedness and Response (PaR).

- Coordinate response efforts, team deployment, and contract services

- Coordinate information for communications officers
- Provide assessments and maintain situational awareness of the impacted areas
- Provide liaisons for the disaster district committees, local emergency operations centers, and/or regional command centers
- Coordinate with social services providers as needed

### **Epidemiologists in the Border PHRs**

- Coordinate with the binational partners
- Develop materials for communication education and outreach
- Assist regional Zoonosis Control programs as needed

### **Responsibilities Coordinated by Local Public Health Entities (LPHEs)**

The following activities may be conducted by the following LPHEs: El Paso City Environmental Health, City of Brownsville, City of McAllen, City of Harlingen, and City of South Padre Island.

- Monitor for arboviral diseases
- Investigate arboviral cases and suspects
- Provide education to community members on mosquito control and bite prevention
- Coordinate with testing agencies for mosquito surveillance
- Provide education to medical providers to identify cases of arboviral disease
- Conduct environmental assessments and provide recommendations on mosquito mitigation
- Conduct mosquito control activities including larviciding, source reduction, and landing rate counts
- Coordinate with other local agencies for training and mosquito control activities
- Coordinate with the region on routine surveillance
- Provide situational awareness for local government officials and stakeholders
- Coordinate collection of human samples during outbreaks for testing
- Coordinate public health response with local jurisdictions
- Work with the public on used tire disposal and recycling
- Conduct mosquito control activities such as surveillance, education, and spraying activities required in the border region on an ongoing basis

## Post Flooding Response Mosquito Control Activities

In some cases, roles and responsibilities may defer to the public health regions depending on local and regional capacity. Jurisdictions should reference the *Technical Guidance Document for Mosquito Abatement* in the **References and Resources** section.

### Participation in Post Flooding Response Mosquito Control Activities

Entities involved	Phase 1 Pre-deployment	Phase 2 Activation	Phase 3 Deployment	Phase 4 Demobilization
ZCB	Review plans	Technical aid, SMOC	Technical aid, STARs, SMOC	Document assets, event assessment
CHEPR	Plan, train, maintain vendor contracts	Review STARs, Coordinate resources, situation reports (SITREPs)	Review STARs, Coordinate resources, vendor communication, SITREPs	Document reimbursement assets, event assessment, SITREPs
PHRs	Plan, train, maintain teams, equipment, response exercise	Credential rosters, plan, train, response exercise	SITREPs, train, post-flood education, larviciding, distribute supplies	SITREPs, asset inventory, community recovery
LPHE	Prevent, plan, train, maintain teams, equipment, mosquito surveillance	Staff licensure, technical aid, larviciding, tire disposal/recycling	Technical aid, STARs, response clean-up, mosquito surveillance, train CHWs, press/social media	SITREPs, asset inventory, community recovery, debris management
Lab		Receive samples, trapping, surveillance	Receive samples, trapping, arboviral testing, surveillance	Receive samples, trapping, arboviral testing, surveillance
CER		Website, social media messaging	Website, social media messaging	
OBPH			Language coordination	

### Phase 1—Pre-deployment

#### ZCB

- Review response plans, identify deficiencies or gaps
- Work with stakeholders to identify areas that should be avoided during mosquito control activities

#### CHEPR

- Ensure response contracts are in place and ready for activation
- Verify vendors and contractors can respond
- Maintain state *Technical Guidance: Mosquito Abatement Post Weather Incident*

- Maintain planning, training, and exercise for response

## **PHR**

This list differs based on regional and local assets.

- Identify, credential and roster teams
- Provide training on topics such as cultural sensitivity and border populations
- Conduct inventory and maintenance on response equipment
- Work with the locals training on landing rate counts, mosquito trapping, and submission
- Maintain planning, training, and exercise for response

## **LPHE**

This list differs by LPHE based on their regional and local assets. Before requesting regional or state resources, local jurisdictions must show evidence of local mosquito recovery effort hindrance/failure(s).

- Provide training and ensure staff is up to date on their licenses
- Conduct inventory and maintenance on response equipment
- Conduct routine mosquito surveillance activities
- Monitor nuisance mosquito calls for baseline data
- Provide education and situational awareness
- Work with municipalities to ensure they have licensed staff and inventory to respond
- Review plan and data needed to request assistance
- Work with the public on used tire disposal and recycling

## **Phase 2—Activation**

### **ZCB**

- Provide technical assistance to the PHRs, maintain situational awareness and communication with agency stakeholders (CHEPR, Laboratory)
- Assist in the SMOC, as requested

### **Laboratory**

- Prepare to receive samples and increased volume for the assistance requests
- Consult on possible trapping and surveillance

### **CHEPR**

- Consult on, receive, and review STARs for mosquito control assets

- Coordinate with all stakeholders for required jurisdictional documents required to support STARS
- Consult with state partners on response
- Coordinate with ZCB and agency leadership on level of resources needed and whether contracts should be activated
- Develop situational reports for agency leadership

## **CER**

- Coordinate with the locals on messaging
- Maintain information on the DSHS website and social media

## **PHR**

This list applies differentially based on regional and local assets.

- Draft notification/order
- Finalize logistics of deployment (team, people, location, point of contact, dates, duration of deployment)
- Maintain situational awareness of impacted areas
- Develop potential teams for initial field assessments
- Communicate with local authorities on potential response activities
- Provide technical assistance and initial response activities

## **LPHE**

This list differs by PHR based on regional and local assets. Before requesting regional or state resources, local jurisdictions must show evidence of local mosquito recovery effort hindrance/failure(s).

- Maintain situational awareness of impacted areas
- Communicate with local authorities on potential response activities
- Provide technical assistance and initial response activities
- Investigate complaints on general sanitation with focus on mosquito breeding sites
- Monitor nuisance mosquito calls for baseline data
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Work with the public on used tire disposal and recycling

## Phase 3—Deployment

### ZCB

- Provide technical assistance to the PHRs, maintain situational awareness and communication with agency stakeholders (CHEPR, Laboratory)
- Consult on potential STARs for mosquito control assets
- Review all STAR requester/jurisdiction submitted data required from Technical Guidance documents
- Coordinate multi-jurisdictional responses
- Assist in the SMOC, as requested

### Laboratory

- Receive samples, identify species and mosquito counts, and conduct arboviral testing, if appropriate
- Consult on possible trapping and surveillance

### CHEPR

- Consult on, receive, and review STARs for mosquito control assets
- Consult with State partners on response
- Discuss submitted jurisdictional data required from Technical Guidance documents required to support STARs with ZCB and leadership; determine whether data meets requirements for level of resources needed and whether contracts should be activated
- Coordinate response and resources, including local, regional, state, and federal partners
- Communicate with vendors
- Develop situational reports for agency leadership

### OBPH

- Coordinate documents for distribution in English and Spanish

### CER

- Coordinate with the locals on messaging
- Maintain information on the agency website and social media
- Facilitate any needed translations of documents in accordance with Texas Health and Human Services and DSHS policy

### PHR

This list differs by PHR depending on regional and local assets.

- Complete situational reports and documentation
- Assist and train local jurisdictions in mosquito surveillance activities and landing rate counts
- Conduct training on mosquito surveillance activities and landing rate counts for local stakeholders
- Distribute bilingual community education materials and mosquito prevention kits
- Training on proper use and administration of insect repellants
- Educate residents on methods to reduce vector breeding and transmission sites
- Provide GIS mapping to identify high risk zones
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Coordinate response and communications with the local authorities
- Coordinate response and communications with the SMOC and the Texas Division of Emergency Management (TDEM) Disaster District Emergency Operations Centers
- Coordinate distribution of supplies and chemicals
- Provide education on cleaning up after a flood
- Train community health workers on mosquito prevention, use of repellents, and cleaning up after a flood

## **LPHE**

This list may differ for each LPHE, based on their regional and local assets.

- Maintain situational awareness of impacted areas
- Communicate with local authorities on response activities
- Provide technical assistance on response activities and requesting assistance through the STAR process
- Coordinate distribution of supplies and chemicals
- Assist and train local jurisdictions in mosquito surveillance activities and landing rate counts
- Conduct training on mosquito surveillance activities and landing rate counts for local stakeholders
- Provide education on cleaning up after a flood, mosquito breeding, mosquito prevention, and mosquito-borne diseases
- Train community health workers on mosquito prevention, use of repellents, and cleaning up after a flood
- Prepare press releases and social media posts on flood dangers, cleaning up, and mosquito prevention

- Monitor nuisance mosquito calls for response
- Work with the public on used tire disposal and recycling

## **Phase 4—Demobilization**

### **ZCB**

- Account for deployed assets and provide documentation for reimbursement, conduct after action assessments
- Work with regions and locals on additional grants and documentation

### **Laboratory**

- Receive samples, identify species, and conduct arboviral testing, if appropriate
- Consult on possible trapping and surveillance

### **CHEPR**

- Account for deployed assets and provide documentation for reimbursement
- Conduct after-action assessments
- Determine what is needed for documentation and return to steady state
- Develop situational reports for agency leadership

### **PHR**

This list may differ by PHR, depending on regional and local assets.

- Establish on-going two-way communication to wind down the workload in a prioritized manner
- Develop situational reports for divisional, regional, and local leadership
- Retrieve and conduct inventory on deployed assets
- Link with social services for community assistance and recovery

### **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Establish on-going two-way communication to wind down the workload in a prioritized manner
- Develop situational reports for local leadership
- Retrieve and conduct inventory on deployed assets including chemicals and staff time
- Link with social services for community assistance and recovery
- Work with county officials on debris management and clean up



## Zoonotic Disease Response for *Aedes* Mosquitoes

The zoonotic diseases most related to the *Aedes* mosquito species are dengue, chikungunya, and Zika virus.

Roles and responsibilities may differ for LHPEs and PHRs, depending on local and regional capacity.

### Participation in Zoonotic Disease Response for *Aedes* Mosquitoes

<i>Entities involved</i>	<b>Risk Level 1</b> Low	<b>Risk Level 2</b> Moderate	<b>Risk Level 3</b> High	<b>Risk Level 4</b> Confirmed
ZCB	Epidemiological technical aid, case counts	Epidemiological technical aid, case counts, coordinate vector control waivers	Epidemiological technical aid, case counts, augment assets	Epidemiological technical aid, case counts, augment assets, monitor lab results, leadership updates, vector control waivers
CHEPR	Activate contracts, response plans, prep activities, support teams	Activate contracts, prep activities, vector control activities, provide resources	Activate contracts, prep activities, vector control activities, provide resources, deploy teams	Support lab/epi staff, state/federal partnerships, vector control ops, update leadership on resource needs, deploy teams
PHRs	Surveillance, prep/vector control activities, info, response exercise	Surveillance; prep/vector control activities; info, response exercise, inform public/media & binational partners	Surveillance, prep/vector control activities, info, exercise response, alert public/media & binational partners, control measures	Surveillance, prep/vector control activities, info, response exercise, alert public/media & binational partners, control measures
LPHE	Investigate cases, larviciding activities, surveillance training	Investigate cases, larviciding activities, surveillance training, inform staff/media & binational partners, tire disposal/recycling	Investigate cases, citations/violations, surveillance training, inform staff/media & binational partners, tire disposal/recycling	Investigate cases, citations/violations, surveillance training, inform staff/media, response activity maps, binational partners, tire disposal/recycling
Lab	Identify species/counts, culture/clinical testing	Identify species/counts, culture/clinical testing, coordinate with CDC	Identify species/counts, culture/clinical	Adjust testing schedules, identify species/counts, culture/clinical
CER	Messaging, web/social media updates	Messaging, web/social media updates	Messaging, web/social media updates	Messaging, web/social media updates, support local messaging

## **Risk Level 1—Low Probability of Local Transmission**

### **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology
- Provide weekly updates on case counts and situational awareness
- Prepare for increased activity during mosquito season

### **Laboratory**

- Provide species identification and counts on mosquito submissions
- Provide limited cell culture testing for arboviruses
- Provide clinical testing, such as Reverse Transcription Polymerase Chain Reaction (RT-PCR) and Immunoglobulin (IgM) serology, as requested for persons with suspect arboviral infections

### **CHEPR**

- Ensure response contracts are in place and ready for activation, and vendors can respond
- Develop state-level health and medical preparedness and response plans and procedural documents
- Train and exercise preparedness and response plan and procedural documents
- Coordinate preparedness activities with contractor, local, and regional partners, as needed
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies, as needed
- Ensure the provision of information on and access to disaster behavioral health resources from Texas Health and Human Services Commission (HHSC)
- Coordinate the development of specialty support teams and protocols

### **CER**

- Provide general messaging on disease and mosquito prevention
- Update DSHS website and social media campaigns

### **PHR**

This list may differ by PHR, depending on regional and local assets and needs.

### *Surveillance*

- Investigate suspected cases and advise LPHEs, local governments, and medical providers on testing requirements for confirmation
- Conduct and facilitate training on mosquito surveillance techniques, as needed
- Coordinate preparedness activities with contractor, local, and regional partners
- Coordinate and support surveys of local vector control capacity, equipment, and supplies

### *Information/Education*

- Train and exercise preparedness and response plan and procedural documents
- Publicize methods for mosquito reduction and personal protection
- Develop and update educational materials, and present educational seminars on mosquito biology, disease risks, and the importance of source reduction
- Assist with data-informed and science-based decision making on testing, treatment, and mitigation

### **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Investigate suspected cases and advise local health authority and medical providers on testing requirements for confirmation
- Publicize methods for mosquito reduction and personal protection
- Investigate complaints on general sanitation with a focus on mosquito breeding sites
- Issue citations and violation notices for properties that need to be cleaned up
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Conduct and provide training on mosquito surveillance techniques
- Work with the public on used tire disposal and recycling

### **Risk Level 2—Moderate Probability of Local Transmission**

There may be cases or outbreaks on the Mexican side of the border.

### **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology
- Consult with DSHS Media Relations and serve as subject matter experts, as requested
- Provide weekly updates on case counts and situational awareness

- Coordinate with any waivers for possible spraying and vector control operations with Texas Department of Agriculture, Texas A&M AgriLife Extension Service, and U.S. Department of Agriculture

### **Laboratory**

- Provide species identification and counts on mosquito submissions
- Provide limited cell culture testing for arboviruses
- Provide clinical testing (RT-PCR, IgM serology), as requested for persons with suspect arboviral infections
- Coordinate Plaque Reduction Neutralization Tests (PRNT) with the Centers for Disease Control and Prevention (CDC) for positive serology samples

### **CHEPR**

- Ensure response contracts are in place and ready for activation, and vendors can respond
- Coordinate preparedness activities with contractor, local, and regional partners
- Coordinate and/or support surveys of local jurisdiction vector control capacity, equipment, and supplies, as needed
- Ensure the provision of information on and access to disaster behavioral health resources from Health and Human Services

### **CER**

- Support local and regional messaging on mosquito control and bite prevention
- Update DSHS website and social media as needed

### **PHR**

This list may differ by PHR, depending on regional and local assets and needs.

### *Surveillance*

- Investigate suspected cases and advise LPHEs, local governments, and medical providers on testing requirements for confirmation
- Maintain arboviral case line lists
- Alert medical personnel and infection control staff of hospitals in adjacent border counties to specify testing for patients showing clinical signs of disease.
- Coordinate preparedness activities with local and regional partners
- Coordinate and/or support surveys of local jurisdiction vector control capacity, equipment, and supplies

### *Information/Education*

- Alert PHRs, LPHEs, local health authorities, and other agencies
- Inform local medical professionals of clinical signs and symptoms, testing, differential diagnoses, ecology, and disease control measures
- Inform the public, emphasizing source reduction, personal protection, and disease symptoms
- Utilize mass media
- Communicate with neighboring health jurisdictions in Mexico to evaluate risks and control measures

### **LPHE**

This list applies differentially based on regional and local assets.

- Investigate suspected cases and advise local health authority and medical providers on testing requirements for confirmation
- Publicize methods for mosquito reduction and personal protection
- Investigate complaints on general sanitation with focus on mosquito breeding sites
- Issue citations and violation notices for properties that need to be cleaned up
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Conduct and/or provide training on mosquito surveillance techniques and response
- Coordinate surveillance and response activities with local mosquito control jurisdictions
- Inform local medical professionals and infection control staff of cases, clinical signs and symptoms, testing, differential diagnoses, ecology, and disease control measures
- Liaise with federal immigration agencies on case detection and testing
- Inform the public, emphasizing source reduction, personal protection, and disease symptoms.
- Communicate with neighboring health jurisdictions in Mexico
- Work with the public on used tire disposal and recycling

### **Risk Level 3—High Probability of Local Transmission**

Travel related cases are present on the U.S. side of the border.

### **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology, surveillance, and vector control
- Consult with press office and serve as subject matter expert, as requested

- Assist with deployment of staff to augment local and regional assets
- Provide weekly updates on case counts and situational awareness

### **Laboratory**

- Provide species identification and counts on mosquito submissions
- Provide limited cell culture testing for arboviruses
- Provide multi-plex testing for mosquitoes for targeted trapping around case residence
- Provide clinical testing (RT-PCR, IgM serology), as requested for persons with suspect arboviral infections
- Coordinate PRNT testing with CDC for positive serology samples

### **CHEPR**

- Ensure response contracts are in place and ready for activation, and vendors can respond
- Coordinate preparedness activities with local and regional partners
- Coordinate and/or support surveys of local jurisdiction vector control capacity, equipment, and supplies
- Ensure the provision of information on and access to disaster behavioral health resources from Health and Human Services
- Coordinate with ZCB on any waivers for possible spraying and vector control operations with Texas Department of Agriculture, AgriLife, and US Department of Agriculture
- Upon request, deploy a specialty support team to affected PHRs

### **CER**

- Support local and regional messaging on mosquito control and bite prevention
- Update DSHS website and social media

### **PHR**

This list applies differentially based on regional and local assets and needs.

### *Surveillance*

- Investigate suspected cases and advise LPHEs and medical providers of testing requirements for confirmation
- Maintain arboviral case line lists
- Coordinate preparedness activities with local and regional partners
- Coordinate and/or support surveys of local jurisdiction vector control capacity, equipment, and supplies

### *Information/Education*

- Alert PHRs, LPHEs, local health authorities, and other agencies
- Alert local medical professionals of the probability of disease, and clinical presentation, and provide instructions for submitting specimens from suspect human cases
- Communicate with neighboring health jurisdictions in Mexico to evaluate risks and control measures
- Warn the public through the news media with emphasis on source reduction, personal protection, and disease symptoms
- Publicize vector control measures within the target communities
- Intensify community education

### *Control Measures*

- Advise LPHEs on source reduction efforts in the entire jurisdiction

### **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Investigate suspected cases and advise local health authority and medical providers on testing requirements for confirmation
- Investigate complaints on general sanitation with focus on mosquito breeding sites
- Issue citations and violation notices for properties that need to be cleaned up
- Conduct and provide training on mosquito surveillance techniques and response
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Coordinate surveillance and response activities with local mosquito control jurisdictions
- Inform local medical professionals and infection control staff of clinical signs and symptoms, testing, differential diagnoses, ecology, and disease control measures
- Liaise with federal immigration agencies on case detection and testing
- Inform the public, emphasizing source reduction, personal protection, and disease symptoms
- Communicate with neighboring health jurisdictions in Mexico
- Coordinate with epidemiology on an appropriate public health response targeting the area where the cases live
- Work with the public on used tire disposal and recycling

## **Risk Level 4—Confirmed Local Transmission**

### **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology, surveillance, and vector control
- Consult with press office and serve as subject matter expert, as requested
- Assist with deployment of staff and/or contractors to augment local and regional assets
- Communicate with contractors to monitor efficacy of efforts
- Provide weekly updates on case counts and situational awareness
- Monitor lab results prior to completed investigations and coordinate with regions and locals on additional testing and case investigations
- Provide leadership updates on the status of locally acquired cases
- Coordinate with any waivers for possible spraying and vector control operations with Texas Department of Agriculture, AgriLife, and U.S. Department of Agriculture

### **Laboratory**

- Adjust normal testing schedule to accommodate for year-round sample submission
- Provide species identification and counts on mosquito submissions
- Provide limited cell culture testing for arboviruses
- Provide multi-plex testing for mosquitoes for targeted trapping around case residence
- Provide clinical testing (RT-PCR, IgM serology), as requested for persons with suspect arboviral infections
- Coordinate with other labs for additional overflow/support testing
- Coordinate PRNT testing with CDC for positive serology samples

### **CHEPR**

- Support the augmentation of existing laboratory and epidemiology staff, and capacity
- Communicate and coordinate with federal partners, Texas Division of Emergency Management, and other agencies as needed
- Coordinate with DSHS CER and other Executive Leadership on any projected resource needs or requests from the Office of the Governor
- Upon request, deploy specialty support teams to affected PHRs
- Oversee state response contracts for surveillance and mosquito abatement activities
- Coordinate preparedness activities with contractors, local, and regional partners
- Coordinate and/or support surveys of local jurisdiction vector control capacity, equipment, and supplies, as needed



- Ensure the provision of information on and access to disaster behavioral health resources from Health and Human Services
- Coordinate with ZCB on any waivers for possible spraying and vector control operations with Texas Department of Agriculture, AgriLife, and U.S. Department of Agriculture
- Upon request, deploy a specialty support team to affected PHRs

## **CER**

- Post information on the DSHS website
- Facilitate contact with federal partners on messaging
- Support locals and regions on messaging about mosquito control and bite prevention
- Provide messaging on social media

## **PHR**

This list applies differentially based on regional and local assets and needs.

### *Surveillance*

- Investigate suspected cases and advise LPHEs and medical providers of testing requirements for confirmation
- Maintain arboviral line lists
- In conjunction with LPHEs, upon request, implement active surveillance for hospital(s) serving area where human case resides
- Coordinate preparedness activities with local and regional partners
- Coordinate and support surveys of local vector control capacity, equipment, and supplies

### *Information/Education*

- Alert health professional organizations, area hospitals, clinics, and individual healthcare providers about the outbreak, signs and symptoms of disease, diagnosis, instructions for submitting specimens from suspect cases, treatment, prevention, and vaccinations
- Inform the public through the news media with emphasis on source reduction, personal protection, and disease symptoms
- Publicize vector control measures within the targeted communities
- Intensify community education
- Communicate with neighboring health jurisdictions in Mexico to evaluate risks and control measures

## *Control Measures*

- Advise locals on source reduction efforts with special emphasis on source reduction within a 100-yard radius around the residence of the human case

## **LPHE**

This list applies differentially based on regional and local assets.

- Investigate suspected cases and advise local health authority and medical providers on testing requirements for confirmation
- Investigate complaints on general sanitation with a focus on mosquito breeding sites
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Issue citations and violation notices for properties that need to be cleaned up
- Conduct and/or provide training on mosquito surveillance techniques and response
- Coordinate surveillance and response activities with local mosquito control jurisdictions
- Inform local medical professionals and infection control staff of cases, clinical signs and symptoms, testing, differential diagnoses, ecology, and disease control measures
- Liaise with federal immigration agencies on case detection and testing
- Inform the public, emphasizing source reduction, personal protection, and disease symptoms.
- Communicate with neighboring health jurisdictions in Mexico
- Coordinate with epidemiology on an appropriate public health response targeting the area where the cases live
- Develop maps for targeted response activities
- Coordination collection of random samples of human blood and urine for infection surveillance
- Work with the public on used tire disposal and recycling

## Zoonotic Disease Response for *Culex* Mosquitoes

The zoonotic diseases related the *Culex* mosquito species are West Nile virus and St. Louis encephalitis.

Roles and responsibilities may differ for LPHEs and PHRs, depending on local and regional capacity.

### Participation in Zoonotic Disease Response for *Culex* Mosquitoes

<i>Entities involved</i>	<b>Risk Level 1</b> Low Probability of Human Cases	<b>Risk Level 2</b> Low Probability of a Human Outbreak	<b>Risk Level 3</b> High probability of a Human Outbreak	<b>Risk Level 4</b> Human Outbreak in Progress
ZCB	Develop response plan, weekly reports, report positive pools, review contracts, identify areas to avoid	Technical aid, weekly reports, test suspected cases, identify areas to avoid	Technical aid, weekly reports, test suspected cases	Technical aid, weekly reports, test suspected cases, deploy staff, monitor investigations, update leadership
CHEPR	Response contracts, procedures, prep/response training, coordinate protocols	Response contracts, prep/response activities, vector control	Response contracts, prep/response activities, vector control	Support lab/epi staff, state/federal partnerships, response contracts, prep/response activities, vector control
PHRs	Surveillance resources, outreach, binational awareness, prep activities, vector control	Technical aid, surveillance, control, outreach, coordinate with locals, binational awareness, prep activities, vector control	Technical aid, surveillance, control, outreach, coordinate with locals, binational awareness, prep activities, vector control	Technical aid, surveillance, control, outreach, bite prevention messaging, vector control activities, pre/post reduction surveillance, coordinate with locals, binational awareness, prep
LPHE	Educate public, surveillance resources, education, citations/violations, tire disposal	Education outreach, surveillance, monitor, treatment, citations/ violations, tire disposal	Education outreach, surveillance, monitor, treatment, larviciding, citations/ violations, tire disposal	Education outreach, surveillance, monitor, treatment, SITREPs, treatment/surveillance, larviciding, citations/ violations, tire disposal
Lab		Identify species/counts, PCR/clinical testing	Trap/test, identify species, counts, PCR/clinical testing	Trap/test, identify species, counts, PCR/clinical testing, support overflow testing
CER				Website/social media updates; local, state, federal messaging

## **Risk Level 1—Low Probability of Human Cases**

Low mosquito activity corresponds to low probability of human cases.

### **ZCB**

- Develop and review West Nile virus response plan
- Maintain communication with border public health regions to assess vector risks and discuss mitigation actions
- Provide weekly reports on West Nile virus cases and situational awareness
- Send notice to regions to remind LPHEs and stakeholders of reporting arbovirus positive pools to DSHS
- Review contracts and provide feedback on statement of work
- Work with stakeholders to identify areas that should be avoided during vector control activities

### **CHEPR**

- Ensure response contracts are in place and ready for activation, and vendors can respond
- Develop procedural documents
- Train and exercise preparedness and response plan and procedural documents
- Coordinate preparedness activities with contractor, local, and regional partners, as needed
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies, as needed
- Ensure the provision of information on and access to Disaster Behavioral Health resources by HHSC
- Coordinate the development of Specialty Support Teams and protocols

### **PHR**

This list may differ by PHR, depending on regional and local assets and needs.

- Review surveillance and control resources necessary for emergency response
- Review and update community outreach and public education programs
- Maintain situational awareness of mosquito testing and results regionally, locally, and across the border
- Publicize methods for mosquito reduction and personal protection
- Prepare and update educational materials, and present educational seminars on mosquito biology and the importance of source reduction

- Coordinate preparedness activities with local and regional partners
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies

## **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Provide education to the public and providers on mosquito control and information on West Nile virus
- Review surveillance and control resources necessary for emergency response
- Review and update community outreach and public education programs
- Maintain situational awareness of mosquito testing and results locally, and across the border
- Prepare and update educational materials, and present educational seminars on mosquito biology and the importance of source reduction
- Investigate complaints on general sanitation with a focus on mosquito breeding sites
- Issue citations and violation notices for properties that need to be cleaned up
- Conduct and provide training on mosquito surveillance techniques
- Work with the public on used tire disposal and recycling

## **Risk Level 2—Low Probability of a Human Outbreak**

A low probability of an outbreak among humans corresponds with host mosquitoes being active and a positive pool identified.

## **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology, surveillance, and vector control
- Consult with DSHS Media Relations and serve as subject matter expert, as requested
- Provide weekly reports on West Nile virus cases and situational awareness
- Coordinate on additional public health testing for suspected cases
- Send notice to regions to remind LPHEs and stakeholders of reporting arbovirus-positive pools to DSHS

## **Laboratory**

- Provide species identification and counts on mosquito submissions
- Provide RT-PCR testing and limited cell culture testing for arboviruses

- Provide clinical testing (IgM serology), as requested for persons with suspected arboviral infections

## **CHEPR**

- Ensure response contracts are in place and ready for activation, and vendors can respond
- Coordinate preparedness activities with local and regional partners
- Coordinate and support surveys of local vector control capacity, equipment, and supplies

## **PHR**

This list may differ, depending on regional and local assets and needs.

- Provide technical assistance to the locals on human epidemiology and vector ecology, surveillance, and vector control
- Communicate with local entities on laboratory results and coordinate response
- Help coordinate community outreach and public education program for source reduction and bite prevention
- Coordinate with the locals on case investigation, confirmation testing, and reporting
- Communicate with neighboring health jurisdictions in Mexico to evaluate risks and control measures
- Coordinate preparedness activities with local and regional partners
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies

## **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Increase educational outreach on mosquitos, bite prevention and information on West Nile virus
- Investigate and report on arboviral cases and suspects
- Work with Environmental Health on mosquito treatment, spraying, and surveillance
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Maintain situational awareness of mosquito testing and results locally
- Publicize methods for mosquito reduction and personal protection
- Work with local health authority for television and social media communication on mosquito and bite prevention

- Investigate complaints on general sanitation with a focus on mosquito breeding sites
- Issue citations and violation notices for properties that need to be cleaned up
- Conduct and provide training on mosquito surveillance techniques
- Coordinate with the regional office on response and case prevention
- Work with the public on used tire disposal and recycling

### **Risk Level 3 – High probability of a Human Outbreak**

A high probability of an outbreak among humans corresponds with multiple positive mosquito pools identified and sporadic human cases.

#### **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology, surveillance, and vector control
- Coordinate with CER on messaging related to the first human West Nile virus case of the outbreak
- Consult with DSHS Media Relations and serve as subject matter expert, as requested
- Provide weekly reports on West Nile virus cases and situational awareness
- Coordinate on additional public health testing for suspected cases

#### **Laboratory**

- Accommodate for additional trapping and testing submissions
- Provide species identification and counts on mosquito submissions
- Provide RT-PCR testing and limited cell culture testing for arboviruses
- Providing clinical testing (IgM serology), as requested for persons with suspect arboviral infections

#### **CHEPR**

- Ensure response contracts are in place and ready for activation, and vendors can respond
- Coordinate preparedness activities with contractors, local, and regional partners, as needed
- Coordinate and support surveys of local vector control capacity, equipment, and supplies, as needed

#### **PHR**

This list may differ by PHR, depending on regional and local assets and needs.

- Provide technical assistance to the locals on human epidemiology and vector ecology, surveillance, and vector control
- Alert health professional organizations and area hospitals, clinics, and individual health care providers about the outbreak, signs and symptoms of disease, diagnosis, instructions for submitting specimens from suspect cases, and treatment.
- Coordinate with the locals on case investigation, confirmation testing, and reporting
- Maintain arboviral case line lists
- Increase public outreach and education for source reduction and bite prevention, as needed
- Provide veterinary information on West Nile virus in animals
- Issue a health alert to medical providers on the first diagnosed case, as needed
- Communicate with neighboring health jurisdictions in Mexico to evaluate risks and control measures
- Coordinate preparedness activities with local and regional partners
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies

## **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Increase educational outreach on mosquitos, bite prevention, and information on West Nile virus
- Work with local health authority for television and social media communication on mosquito and bite prevention
- Investigate and report on arboviral cases and suspects
- Work with epidemiology and environmental health on mosquito treatment, spraying, and surveillance
- Maintain situational awareness of mosquito testing and results locally
- Publicize methods for mosquito reduction and personal protection
- Investigate complaints on general sanitation with focus on mosquito breeding sites
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Issue citations and violation notices for properties that need to be cleaned up
- Provide training on mosquito surveillance techniques
- Coordinate with the PHR on response and case prevention
- Work with the public on used tire disposal and recycling



## **Risk Level 4—Human Outbreak in Progress**

### **ZCB**

- Provide technical assistance to the regions and locals on human epidemiology and vector ecology, surveillance, and vector control
- Consult with DSHS Media Relations and serve as subject matter expert, as requested
- Assist with the deployment of staff, and contracts to augment local and regional assets
- Communicating with contractors to monitor the efficacy of activities.
- Provide weekly reports on West Nile virus cases and situational awareness
- Monitor lab results prior to completed investigations and coordinate with regions and locals on additional testing and case investigations
- Provide leadership updates on the status of locally acquired cases

### **Laboratory**

- Accommodate for additional trapping and testing submissions
- Provide species identification and counts on mosquito submissions
- Provide RT-PCR testing and limited cell culture testing for arboviruses
- Provide clinical testing (IgM serology), as requested for persons with suspect arboviral infections
- Coordinate with other labs for additional overflow and support testing

### **CHEPR**

- Support the augmentation of existing laboratory and epidemiology staff, and capacity
- Communicate and coordinate with federal partners and TDEM for projected resource needs
- Upon request, deploy Specialty Support Teams to affected PHRs, if appropriate
- Oversee state response contracts for surveillance and mosquito abatement activities
- Coordinate preparedness activities with contractor, local, and regional partners
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies, as needed
- Ensure the provision of information on and access to Disaster Behavioral Health resources by HHSC

### **CER**

- Post information on the DSHS website
- Facilitate contact with federal partners on messaging
- Support locals and regions on messaging around mosquito control and bite prevention

- Update social media

## **PHR**

This list may differ by PHR, depending on regional and local assets and needs.

- Provide technical assistance and training to the locals on human epidemiology and vector ecology, surveillance, and vector control
- Alert health professional organizations and area hospitals, clinics, and individual health care providers about the outbreak, signs and symptoms of disease, diagnosis, instructions for submitting specimens from suspect cases, and treatment
- Maintain arboviral case line lists
- Coordinate with the locals on case investigation, confirmation testing, and reporting
- Work with community leaders and media to spread messages on source reduction and bite prevention, as needed
- Provide veterinary information on West Nile virus in animals
- Coordinate with Central Office and jurisdictional partners on any possible vector control activities, and pre- and post- reduction surveillance
- Communicate with neighboring health jurisdictions in Mexico to evaluate risks and control measures.
- Coordinate preparedness activities with local and regional partners
- Coordinate and support surveys of local jurisdiction vector control capacity, equipment, and supplies

## **LPHE**

This list may differ by LPHE, based on their regional and local assets.

- Investigate and report on arboviral cases and suspects
- Work on press releases on mosquito prevention
- Increase educational outreach on mosquitos, bite prevention and information on West Nile virus
- Work with local health authority for television and social media communication on mosquito and bite prevention
- Coordinate communication and situational reports with local and county officials
- Work with epidemiology and environmental health on mosquito treatment, spraying, and surveillance
- Monitor community locations where mosquitos are typically present and perform larviciding activities
- Maintain situational awareness of mosquito testing and results locally

- Publicize methods for mosquito reduction and personal protection
- Investigate complaints on general sanitation with focus on mosquito breeding sites
- Issue citations and violation notices for properties that need to be cleaned up
- Provide training on mosquito surveillance techniques
- Coordinate with the regional and state offices on response and case prevention
- Work with the public on used tire disposal and recycling

## The Office of Border Public Health

In 1991, the 72nd Texas Legislature enacted **Health and Safety Code, Chapter 12, §12.071**. That mandate stipulates that *“The department shall establish and maintain an office in the department to coordinate and promote health and environmental issues between this state and Mexico.”*

Our mission is to improve the health and well-being of the people living within the U.S.-Mexico border region by collaborating with partners and leveraging resources within and outside of Texas. We monitor public health issues and data, support binational public health coalitions, conduct community-based initiatives, and operate a Community Health Worker Training Center.

### Contact Information

**Office of Border Public Health**

Texas Department of State Health Services  
1100 West 49<sup>th</sup> Street  
Mail Code 1962  
Austin, Texas 78756

[obph@dshs.texas.gov](mailto:obph@dshs.texas.gov)

*Office of Border Health (texas.gov)*



**TEXAS**

**Health and Human Services**

**Texas Department of State  
Health Services**

## List of Acronyms

<b>CDC</b>	Centers for Disease Control and Prevention
<b>CER</b>	Center for External Relations
<b>CHEPR</b>	Center for Health Emergency Preparedness and Response
<b>DSHS</b>	Department of State Health Services
<b>ESF</b>	Emergency Support Function
<b>HHSC</b>	Health and Human Services Commission
<b>IgM</b>	Immunoglobulin
<b>LHD</b>	Local Health Department
<b>LIDS</b>	Laboratory and Infectious Disease Services
<b>LPHE</b>	Local Public Health Entities
<b>OBPH</b>	Office of Border Public Health
<b>PCR</b>	Polymerase Chain Reaction
<b>PaR</b>	Preparedness and Response
<b>PHEP</b>	Public Health Emergency Preparedness
<b>PHR</b>	Public Health Region
<b>PHU</b>	Public Health Unit
<b>PRNT</b>	Plaque Reduction Neutralization Tests
<b>RLHO</b>	Regional and Local Health Operations
<b>RT</b>	Reverse Transcription
<b>SITREP</b>	Situation Report
<b>SMOC</b>	State Medical Operations Center
<b>STAR</b>	State of Texas Assistance Request
<b>TDEM</b>	Texas Division of Emergency Management
<b>ZCB</b>	Zoonosis Control Branch

## References and Resources

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Office of Border Public Health

***[dshs.texas.gov/borderhealth](https://dshs.texas.gov/borderhealth)***