



Michigan Department of Health and Human Services (MDHHS)
Bureau of Epidemiology and Population Health (BEPH)

ARBOVIRUS PREPARDNESS AND RESPONSE PLAN (APRP)
ANNEX 15 - MDHHS EMERGENCY OPERATIONS PLAN (EOP)

Not for Dissemination

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Plan Distribution List

Plan Holders
MDHHS Director
Michigan Department of Agriculture and Rural Development (MDARD) Director
Michigan Department of Environmental, Great Lakes, and Energy (EGLE) Director
Michigan Department Natural Resources (MDNR) Director
Michigan State Police (MSP) Emergency Management and Homeland Security Division (EMHSD) Director
Michigan State Emergency Operations Center (SEOC)
MDHHS Emergency Management Coordinators (EMC)
MDARD EMC
EGLE EMC
MDNR EMC
MDHHS Tribal Communications Liaison
<i>Electronic version is maintained on the Michigan Health Alert Network within the MDHHS Emergency Operations Plan (EOP)</i>

Plan Organization

The Michigan Arbovirus Preparedness and Response Plan (APRP) follows the emergency management guidelines and responsibilities set forth in the existing Michigan Emergency Management Plan (MEMP) and chain of command structure. The APRP is an Annex to the Michigan Department of Health and Human Services (MDHHS) Emergency Operations Plan (EOP). The APRP contains an introduction, description of the phased response approach, concept of operations sections, addressing the key components of operational planning associated with each component. The plan also includes a listing of available links to resources to assist in the implementation of this plan.

Plan Maintenance

The APRP has been developed in coordination with local, state, regional, and federal partners and is continually updated and revised as situations change and new information and resources become available. The APRP is, at a minimum, to be reviewed and updated annually. The review and update of the plan incorporates any changes reflective of existing guidance, lessons learned from real world incidents or exercises, and changes in policies and procedures at the federal, regional, state, or local level.

All plan holders receive revisions and updates as they are published and are given the opportunity to review and provide comments. Authority for review and acceptance of this plan rests with the MDHHS, Bureau of Epidemiology and Population Health, although input from other agencies is expected.

Introduction

Purpose

The APRP is part of a flexible framework of policies, plans and procedures used by the State of Michigan and its response partners to address concerns about arboviruses and their wide range of implications for Michigan residents. It includes information surrounding complex arboviruses, the subsequent public health and safety threats, and provides direction for how to effectively monitor and respond to arbovirus disease outbreaks. This plan is based on a national model developed for Zika Virus Disease (ZVD) response planning by the Centers for Disease Control and Prevention (CDC).

The APRP outlines roles and responsibilities of local, state, and federal governmental agencies to prepare, control and mitigate impacts of an arbovirus outbreak. It fits within the existing *Michigan Emergency Management Plan* and is designed to complement other agencies to form a multi-agency response to an arbovirus emergency. Specifically, this document will:

- Identify procedures for command and coordination of complex, multi-jurisdiction responses and events consistent with the principles of the National Incident Management System (NIMS).
- Specify state and local agency duties and responsibilities to monitor and respond to arbovirus disease outbreaks (i.e., two or more cases that have been linked to each other).
- Delineate methods for timely, consistent, and accurate communications between state departments, healthcare providers and the public.

The structure and content of the APRP will follow a phased action plan and is meant to accomplish these items while simultaneously allowing flexibility in order to address a diverse range of complexities.

Scope

The APRP encompasses the State of Michigan residents at risk from an arbovirus disease outbreak. Furthermore, this plan applies to all relevant state and local jurisdictions responsible for public health, disease management, public safety, animal safety, natural resources, and environmental quality.

Roles and Responsibilities

- Federal Level Responsibilities

- The US Department of Health and Human Services (DHHS) will provide funding and technical assistance for state and local public health and hospitals.
- DHHS will determine travel monitoring protocols.
- DHHS will provide science-based evidence to promote effective health practices.
- United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) will provide investigatory and diagnostic services for certain foreign animal arboviral diseases such as Rift Valley Fever and Venezuelan Equine Encephalitis.
- State Level Responsibilities
 - MDHHS is the lead state agency for epidemiologic and human health issues. These activities include, but are not limited to:
 - Notify and/or coordinate activities and communications with appropriate local, state, and federal agencies as related to program responsibilities.
 - Conduct field investigations of potential human arboviral illness outbreaks, in cooperation with local health departments and state academic partners.
 - Ensure laboratory analysis of clinical specimens associated with an outbreak of human illnesses.
 - Inform the public of significant arbovirus threats.
 - Coordinate and support field investigations of potential arbovirus vectors.
 - Participate in local and regional mosquito control technical advisory groups.
 - Coordinate communication of arbovirus information with the Michigan Mosquito Control Association (MMCA), university experts, animal health professionals, and others.
 - Outreach to tribal communities through MDHHS tribal liaison.
 - MDARD is the lead state agency for domestic animal health and pesticide use regulations. These activities include, but are not limited to:
 - Notify and/or coordinate activities and communications with appropriate local, state, and federal agencies as related to program responsibilities.
 - Create and maintain a list of animal reportable diseases that includes arboviral diseases of concern in domestic and non-native exotic animals.
 - Investigate suspect cases of arboviral disease in these species.
 - Facilitate laboratory analysis of samples from animals suspected with arboviral disease.
 - Inform the public of significant arbovirus threats in animals.
 - Certify pesticide applicators in the State of Michigan.
 - Review pesticide use activities to ensure compliance with state laws.

- Coordinate communication of arbovirus information with the Michigan Mosquito Control Association, pesticide applicators, university experts, animal health professionals, and others.
 - Ensure that the application contractor has a spokesperson who can speak on behalf of their company, discussing their product and instances of safety and positive results (to include efficacy of products, etc.).
- EGLE is the lead state agency for authorizing discharges of pesticides to waters of the state, and for evaluating compliance with water resource protection statutes. These activities include, but are not limited to:
 - Review proposed National Pollutant Discharge Elimination System (NPDES) applications to waters of the state to ensure compliance with state and federal regulations.
 - Provide compliance oversight for NPDES pesticide permit requirements.
 - Liaison for constituent communications within EGLE.
- MDNR is the lead agency for wildlife health and management in the state. These activities include, but are not limited to:
 - Notify and/or coordinate activities with appropriate local, state, and federal agencies as related to program responsibilities.
 - Conduct field and laboratory investigations, including necropsies when necessary, of potential wildlife arboviral outbreaks in cooperation with MDHHS and MDARD partners.
 - Coordinate with the U.S. Fish and Wildlife Service on the conservation and protection of species listed as threatened or endangered.
 - Inform the public of significant arbovirus threats in wildlife with MDHHS and MDARD partners.
 - Coordinate communication of arbovirus information with the Michigan Mosquito Control Association, pesticide applicators, university experts, human health professionals, animal health professionals, and others.
- Local Level Responsibilities
 - Conduct mosquito surveillance and analysis.
 - Coordinate and support field investigations of potential arbovirus vectors.
 - Conduct case investigations of suspect human cases of arboviral disease.
 - Conduct field investigations of potential human arboviral illness outbreaks, in cooperation with state health department.
 - Notify and/or coordinate activities and communications with appropriate local, state, and federal agencies as related to program responsibilities.
 - Inform the public of significant arbovirus threats.

- Notify the healthcare provider community about arbovirus risk and how to test people for human infection, if applicable.
- Respond to community inquiries and concerns.
- Plan for vector control methods to be utilized in response to an arboviral disease.

Planning Assumptions

- It is anticipated that local summer transmission of arboviruses including West Nile Virus, Eastern Equine Encephalitis, California group arboviruses and St. Louis Encephalitis virus may occur in limited areas of Michigan, where competent mosquito vectors exist.
- Isolated occurrences of *Aedes aegypti* and *Aedes albopictus* (vectors of Zika, Dengue, and Chikungunya viruses) have been documented in Michigan. These populations are suspected to be transient and not widespread.
- Travel-associated cases of non-endemic arboviruses will occur and may represent a risk to Michigan residents.
- Sexual and maternal-fetal transmission of Zika virus pose a continued risk to Michigan residents.
- During arbovirus outbreak resulting in human cases, the MDHHS is the lead agency for response efforts/coordination with cooperation from Michigan's regional healthcare coalitions, Local Health Departments (LHD), and other state agencies.
- Local, state, and federal responses will be integrated into response activities as appropriate in accordance with agency jurisdiction and availability of resources.
- LHDs maintain jurisdiction over public health in their communities.
- MDHHS Bureau of Laboratories (BOL) has the capacity to detect arbovirus infections in human specimens.
- Hospitals and private testing laboratories may test suspected arbovirus cases. Positive results are to be reported to LHD, and additional patient specimens for confirmatory testing may be requested.
- Testing of mosquito samples for arboviruses may be conducted by Michigan State University (MSU), LHDs, and mosquito abatement districts.
- The most effective mechanism to minimize the risk of human transmission is to reduce the mosquito population.
- The efficacy of vector control in reducing mosquito-borne infection risks may be limited, depending on vector species and habitat.
- To minimize the risk of human transmission further, people should use personal protective measures to prevent mosquito bites and reduce mosquito breeding sites around the home.

Pesticide Information

MDARD is the state agency responsible for regulating pesticide use in the state of Michigan. Any pesticide used in Michigan must be registered by MDARD. Additionally, any person that applies pesticides as part of their employment must be certified by MDARD, and any person or business that applies pesticides for compensation must be licensed by MDARD. MDARD also has the authority under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) to request an emergency exemption from the US EPA for the off-label use of a pesticide.

In the event that pesticide applications need to occur in response to an arbovirus emergency, MDARD can provide a list of licensed pesticide application businesses, verify whether or not specific applications require individuals to be certified, and verify that the pesticides intended to be used are properly registered. Additionally, MDARD can provide field staff resources to ensure applications are performed properly and in compliance with state and federal laws and regulations.

The EGLE is the state agency responsible for authorizing the discharge of pesticides to waters of the state that may occur from the use of pesticides to control flying insect pests (e.g., mosquitoes and blackflies) that develop, or are present during a portion of their life cycle, in or above, standing, or flowing water. Permitting is authorized under the NPDES General Permit No. MIG030000, Mosquito and Other Flying Insect Pest Control, and can be found at the following website: <https://www.michigan.gov/egle/>. Click on Water/Surface Water/NPDES Permits/General NPDES Permits/MIG030000 Mosquito and Other Flying Insect Pest Control in the table.

Essential Elements of Information (EEI)

The essential elements of information that must be reported to appropriate state agencies in order to facilitate a timely and proper response, include:

- All individuals identified as at risk for having increased exposure to reportable arboviruses.
- All individuals suspected or confirmed to be infected with an arbovirus.
- The death of any person suspected or confirmed to have been infected with an arbovirus.
- Incidents with known or suspected exposure to a person with an arbovirus.
- Shortages in mosquito control measures that could affect worker safety.
- Medical supply shortages that could affect patient management.
- Animals suspected or confirmed to have a reportable or emerging arbovirus-related disease.

- Known distribution and seasonal occurrence of the vector mosquitos in Michigan.

Activation of the Response Plan

The APRP will be activated when the following indicators for arboviral disease outbreak risks are present:

- Increase in cases of arboviral disease regionally, both inter- and intra-state.
- Increase in cases of confirmed arboviral infection in animals (wild or domestic).
- Expansion of the range of vector species into and within Michigan.
- Weather or climate data that favor increased arbovirus activity.
 - *Example:* For West Nile Virus - above average temperatures and below average precipitation.

Emergency Coordination

The Community Health Emergency Coordination Center (CHECC) provides support during emergencies involving public health, medical, and/or mass care incidents. CHECC activities include, but aren't limited to, real-time public health information coordination with MDHHS PIO, lending subject matter expertise to inform decision-making, and orchestrating the mobilization of health resources. In doing so, the CHECC interacts with public health and healthcare partners to render support and assistance, such as mutual aid, equipment, supplies, and risk communication information. The CHECC is staffed primarily by MDHHS personnel with appropriate Subject Matter Expert (SME) augmentation and operates in full compliance with the NIMS by supporting statewide response efforts. All state agencies are encouraged in the MEMP to staff agency specific Emergency Coordination Centers (ECC) in support of statewide activities. Both MDARD, MDNR, and EGLE also have ECCs in place and may become operational, should the need arise.

Public Information Coordination

In the event of a public health or medical emergency, MDHHS would activate the MDHHS Emergency Operations Plan's Annex 05: Crisis and Emergency Risk Communication (CERC) Plan. The CERC Plan, outlines an all-hazard communication model designed to capture broad elements of a public information response. The CERC Plan defines the communication strategies, protocols, outreach channels, and tactical tools available for keeping the public, partners, and vulnerable populations informed.

Communicators should be involved in the planning and response process as early as possible. Annual evaluation and revision of communications plan shall be conducted on a regular basis.

Risk communications strives to communicate science and technical information to the public in a non-alarming manner that informs them as to what is going to occur and how that mitigates risk. Framing and context is important so the public can make informed decisions (e.g., for mapping and notifications).

MDARD will release messaging to the public and veterinarian community with facts and information available and will follow-up on quarantines that may be put into place. To best coordinate messaging among multiple agencies, the Joint Information Center (JIC) may become operational, for which all departments' PIOs would collaborate on consistent messages and press releases.

Contact information for the MDHHS, MDARD, MDNR, and EGLE Public Information Officers (PIOs) is available in Attachment 15.2.

Phased Response Activities

Preparedness and Response Phases

The phases defined in Table 1 below were developed to guide response activities through a phased, risk-based continuum. The continuum includes support for mosquito season preparedness and then graduated action in response to detection of either the first confirmed local transmission of an arbovirus in Michigan or confirmed multi-person local transmission. MDHHS, MDARD, MDNR, EGLE and partners will assist counties and local governments in the key activity areas throughout various stages of the response.

Table 1 – Response Phases

Phase Name	Phase #	Phase Definition
Preparation	0	Non-Mosquito Season - Vector present or possible in Michigan
	1	Mosquito Season – Travel-related, sexually, or other bodily fluid transmitted cases introduced.
Suspected/Confirmed Local Transmission	2	A single, locally acquired case, or cases clustered in a single household, occurring less than two weeks apart.
Incident Response	3	Single County - Locally transmitted arbovirus confirmed among multiple people with illness onsets occurring less than two weeks apart but within an approximately one-mile diameter.
		Multiple Counties – Locally transmitted arbovirus confirmed among multiple people with illness onsets occurring in multiple counties.
Recovery	4	Long-term sustainment activities related to the response are incorporated into routine/new routine operations, when applicable.

Indicators for Phase Transition

Transitions between response phases may occur for various reasons, to include but not limited to weather fluctuations, increases in human transmission of arboviruses, evidence of local clustering of arbovirus infections, and changes in morbidity/mortality rates. Table 2 below describes the indicators for the potential need to transition between phases, to assist with decision making.

Table 2 – Indicators for Transition

Phases	Description	Indicators for Transition
Phase 0 to Phase 1	<i>Preparation Phase to Mosquito Season</i>	<ul style="list-style-type: none"> • Weather permitting development of mosquitoes • Surveillance indicating mosquito activity (larval dips or adult mosquito trapping) • <i>Imported arboviruses:</i> Surveillance indicating increase in imported travel-related arboviral disease (chikungunya, dengue, Zika virus cases)
Phase 1 to Phase 2	<i>Confirmed Local Transmission</i>	<ul style="list-style-type: none"> • <i>Endemic arboviruses:</i> Single, locally acquired case, or cases clustered in a focal geographic range (zip code, city, etc.), and occurring less than two-weeks apart • <i>Detection of Aedes albopictus or Aedes aegypti vectors in MI:</i> Single or multiple collections of larvae or adults • <i>Imported arboviruses:</i> chikungunya/dengue/Zika; Single, locally acquired case, or cases clustered in a single household and occurring less than two-weeks apart
Phase 2 to Phase 3	<i>Confirmed Local Transmission for Multiple People</i>	<ul style="list-style-type: none"> • <i>Endemic arbovirus:</i> Increase in human or animal arbovirus transmission based on five-year average for a particular geographic area, or changes in virus morbidity/mortality • <i>Imported arboviruses:</i> chikungunya/dengue/Zika virus illnesses with onsets occurring ≥ 2 weeks apart but within an approximately one-mile diameter

Concept of Operations

All activities described within this Concept of Operations will be guided by the direction of the MDHHS Director, or designee. The following descriptions of phase elements are to serve as planning considerations for implementing activities and may be flexible and scalable depending on the needs of the situation. Activities described below will require collaboration across jurisdiction and between various agencies from both the private and public sectors and should be a joint effort during each phase of preparation, response, and a recovery.

Phase 0-1 - Preparation

The Preparation Phase is defined as the presence/possible presence of the arbovirus vector within Michigan and involves routine operations associated with such. State and Local activities will include response actions, communications, surveillance, vector control, outreach to at-risk populations, laboratory testing, and blood safety, as detailed below.

Phase 0 – Non-Mosquito Season

Administrative Coordination

- State Level Activities
 - MDHHS will maintain a senior representative to coordinate arbovirus response efforts.
 - Constitute a State Arbovirus Working Group that will implement this plan and monitor arbovirus activity.
 - Engage and coordinate with local health departments to assure a coordinated response and consistent communications and public messaging. Examples should include subjects such as, “aerial treatments have been vetted by experts for safety when applied according to label instructions.” Terminology needs to be used consistently and “Discussion of a consistent taglines like, such as “attacking mosquitoes that spread disease,” as part of a communications campaign,” should be considered.
 - Review state and local mosquito control programs and assess capacity through participation in technical advisory committees and professional organizations.
 - Review preparedness plans to ensure emergency rapid hiring and contracting processes are in place, such as vector control, surveillance, and response protocols.
 - Review and/or exercise plans with relevant response partners, identify gaps in preparedness, and develop improvement plans.
 - Review the previous year’s arbovirus activities at a state, federal and international level.

- Conduct arbovirus risk assessments based on vector presence, historic human cases, and contributing ecological factors.
- Local Level Activities
 - LHD Health Officer or designee will maintain a representative to coordinate local arbovirus response efforts.
 - Ensure coordination with state public health officials for vector surveillance and control, and human surveillance.
 - Assess local mosquito control programs capacity and capability.
 - Those jurisdictions with local mosquito control capacity should coordinate surveillance and response activities with local public health.
 - Review preparedness plans to ensure emergency rapid hiring and contracting processes are in place, such as vector control, surveillance, and response.
 - Review and/or exercise plans with relevant response partners, identifying gaps in preparedness, and developing improvement plans.

Communications

- State Level Activities
 - Departmental PIOs will serve as the lead for all risk communications.
 - Prepare a communication campaign for travelers, healthcare providers, LHDs, and the public to raise awareness of the specified arbovirus.
 - Develop education campaign for the public regarding risk reduction/prevention with recommendations tailored to the arbovirus of concern.
 - Update hotline and/or call center scripts as appropriate.
 - Utilize the State of Michigan’s Emerging Disease web portal to disseminate timely updates of arbovirus surveillance information (see reference link).
 - For zoonotic and animal reportable arbovirus disease, prepare communications for animal owners, veterinarians, animal control officers, regulated animal facilities, and the public to raise awareness.
- Local Level Activities
 - Communicate with local clinicians to provide guidance on arbovirus testing and reporting.
 - Organize ongoing local discussions with applicable partners.

Surveillance

- State Level Activities
 - Provide guidance to healthcare providers for management and testing of possible arbovirus cases.

- Enhance surveillance for travel-associated arbovirus cases and possible sexual transmission from travel cases (such as Zika).
- Participate in CDC ArboNET, CDC MosquitoNET, and Zika pregnancy registry and other outbreak surveillance programs when applicable.
- Develop an education plan to encourage public participation in reporting animal morbidity and mortality.
- For zoonotic and animal reportable diseases, provide guidance to veterinarians for management and testing of possible arbovirus cases.
- Participate in USDA's National Animal Health Reporting System (NAHRS) animal disease reporting system.
- Based on the arbovirus risk assessment, target specific high-risk jurisdictions for enhanced mosquito surveillance:
 - Counties with historically high numbers of arbovirus cases in humans and/or animals.
 - Counties that border states or Michigan counties with known populations of virus-competent novel vector species.
 - Counties containing large ports of entry for goods and people
- Local Level Activities
 - Coordinate with local clinicians to provide guidance for management and testing of possible arbovirus cases.
 - Enhance surveillance for travel-associated arbovirus cases and possible sexual transmission from travel cases (Zika only).
 - Communicate mechanisms for monitoring arboviral disease in animals to the public.
 - Report suspect cases of arboviral disease in domestic and exotic animals to MDARD (1-800-292-3939).
 - See reference list for the link to MDNR's Diseased Wildlife Reporting Form.
 - Assess the local health department's capacity to conduct mosquito surveillance and testing.

Vector Control

- State Level Activities
 - Review (and as necessary, conduct) mosquito surveillance activities to assess whether historic maps of all vector species distribution are accurate.
 - Plan preparedness and mitigation activities to reduce the likelihood of transmission from mosquitoes, including reduce habitat/potential breeding sites, initiate community clean-up efforts, initiate public information campaigns encouraging yard clean up, use of insecticides, etc.

- Participate in local mosquito control technical advisory control groups/committees.
- Local Level Activities
 - Review vector control programs and assess capacity to collect and test mosquitoes for arboviruses.
 - Coordinate with state agencies to plan preparedness and mitigation activities to reduce the likelihood of transmission from mosquitoes, including reduce habitat/potential breeding sites, initiate community clean-up efforts, initiate public information campaigns encouraging yard clean up, use of insecticides, etc.
 - Participate in local mosquito control and technical advisory control groups/committees.

Outreach to At-Risk Populations

- State Level Activities
 - Plan enhanced surveillance for suspected arbovirus infections.
 - Target messages to at-risk groups, dependent on arbovirus.
- Local Level Activities
 - Disseminate messages to at-risk groups, dependent on arbovirus.

Blood Safety

- State Level Activities
 - Utilize federally established guidelines and protocols for local blood collection agencies to screen potential blood donors for arboviral diseases of concern and report infected blood donors to public health.
 - Alert blood collection agencies of increasing arbovirus risk within the state via Michigan’s Emerging Diseases website
 - See reference list for the link to the website.
 - Report infected blood donors to CDC through ArboNET.
 - Investigate cases of arboviral disease in blood and tissue recipients.
- Local Level Activities
 - Investigate reports of infected blood donors and report according to established case criteria.

Phase 1 – Mosquito Season

Administrative Coordination

- State Level Activities
 - The Arbovirus Working Group will monitor arbovirus activity and update related plans as needed.

- State Arbovirus Working Group should include, but is not limited to: MDHHS, MDARD, EGLE, and MDNR EMCs, MDHHS Epidemiologists, and SMEs for each Department, in collaboration with local partners.
 - Organize meetings with incident managers and representatives to discuss updates to any plans or programs.
- Local Level Activities
 - Monitor arbovirus surveillance activity in mosquito, animal and human hosts and report suspected cases to MDHHS/MDARD.

Communications

- State Level Activities
 - Initiate communication campaigns planned during the preparation phase.
 - Utilize MDHHS web portal for state maps of emerging infectious diseases (see reference link).
- Local Level Activities
 - Emphasize personal and household prevention measures.
 - Initiate communication campaigns planned during the preparation phase.

Surveillance

- State Level Activities
 - Monitor local and regional mosquito surveillance data.
 - Determine areas that are highest risk of transmission based upon reported local activity.
 - When *Aedes aegypti* or *Aedes albopictus* are identified in any jurisdiction, conduct enhanced mosquito surveillance to determine the geographic range of the vector species.
- Local Level Activities
 - Initiate communication campaigns.
 - Promote and increase local mosquito surveillance.
 - Gather volunteers to implement surveillance measures.
 - If *Aedes aegypti* and *Aedes albopictus* are suspected: contact the MDHHS BEPH, collect immediately, and conduct a case investigation.
 - Report suspected animal cases of an arbovirus to the state (see reference link).

Laboratory Testing

- State Level Activities
 - Provide guidance for testing, including specimen collection, transportation, and reporting results.

- Prepare for surge in testing volume.
- Local Level Activities
 - Provide guidance to hospitals and healthcare providers on arboviral testing procedures available through MDHHS.

Vector Control

- State Level Activities
 - Connect with local governments on community habitat reduction projects.
 - Encourage local government to apply larvicide, with a higher priority in determined risk areas.
 - Respond to public complaints regarding potential mosquito breeding sites.
- Local Level Activities
 - Conduct vector control activities and/or mitigation activities to reduce habitat for vectors, including abandoned pool cleanup, scrap tire drives, and cleaning/flushing of catch basins.
 - Consider larviciding for catch basins, retention ponds, and sewage lagoons during mosquito season.
 - MDARD can provide assistance with identification of businesses that are licensed to perform pesticide applications and can provide guidance related to certification requirements for pesticide applicators.
 - See reference link for MDARD Pesticide and Plant Pest Management Division (PPPM). Click for more information: www.michigan.gov/mdard
 - Contact EGLE Water Resource Division to determine if a permit is necessary: <https://www.michigan.gov/egle/>. Click on Water/Surface Water/NPDES Permits.

Blood Safety

- State Level Activities
 - Maintain surveillance for reporting presumptive viremic donors to the CDC via ArboNET.
- Local Level Activities
 - Maintain communications with blood collection agencies within jurisdiction.

Phase 2 - Suspected/Confirmed Local Transmission

The Suspected/Confirmed phase is defined as a single, locally acquired human or animal case, or cases clustered in a single household and occurring less than two weeks apart. This phase

includes response actions, communications, surveillance, vector control, outreach to at-risk populations, and blood safety, as detailed below. The following activities will be initiated in addition to the activities described for Phases 0-1.

Administrative Coordination

- State Level Activities
 - Consider activating the state incident management structure.
 - Agency EMC to notify Emergency Management Homeland Security Division (EMHSD) Duty Officer
 - Review and verify that contracts are in place for local or regional mosquito surveillance and control.
 - Determine if there is a need for assistance from the USDA in the case of animal disease, especially if foreign in nature.
 - Consider the activation of the SEOC to a level 3, as well as the JIC.

Communications

- State Level Activities
 - As appropriate, issue press releases/media statements to increase attention to arbovirus transmission risk and personal protection measures
 - Monitor local news stories and social media postings to determine if information is accurate, identify messaging gaps, and make adjustments to communications as needed.
 - Create and deploy messages encouraging travelers to take precautions upon return to reduce the risk of spreading the disease to local mosquito populations (non-endemic arboviruses).
 - For animal reportable diseases, disseminate information through the animal health communication network.
 - Ensure connectivity to local health departments by engaging with them on communications calls or integration into the Joint Information Center. This will assist in achieving more consistent messaging and phrasing coming from state agencies and local health departments.
- Develop and distribute a checklist and narrative as to how the JIC works and how agency communicators work together in the JIC, to include how the approval process for achieving a quick agreement as to what information is disseminated.
- Local Level Activities
 - As appropriate, issue press release/media statement and intensify visible activities in the county to increase attention to arbovirus transmission risk and personal protection measures (fliers, community leaders, and social media).

- Monitor local news stories and social media postings to determine if information is accurate, identify messaging gaps, and make adjustments to communications as needed.
- Create and deploy messages encouraging travelers to take precautions upon returning, in order to reduce the risk of spreading the disease to local mosquito populations (non-endemic arboviruses).

Laboratory

- State Level Activities
 - Provide guidance and technical assistance for laboratory testing
 - Increase frequency of communications with providers submitting specimens.
 - Notify CDC to initiate the process for contacting laboratory partners in other states for situational awareness, should testing surge capacity in Michigan be exceeded.

Surveillance

- State Level Activities
 - Enhance local surveillance for human and animal cases (consider local clinician and veterinarian outreach, syndromic surveillance in nearby hospitals, etc.)
 - Increase surveillance in areas of positive findings and work closely with local public health to re-evaluate the need to modify surveillance and/or the direction of response efforts.
 - Work with local public health to determine the need and benefit of county local mosquito surveillance.
- Local Level Activities
 - Increase surveillance for vectors of endemic arboviruses if capacity is available.
 - Increase surveillance for human cases in a 150-yard radius (or other boundary, as deemed appropriate) around homes of identified cases or other likely sites of exposure (*Aedes vectored diseases*).
 - Consider conducting household and door-to-door surveillance for clinically compatible cases (*Aedes vectored diseases*).
 - Recommend suspected or confirmed patients to stay in air-conditioned/screened accommodations and use personal precautions to reduce mosquito bites (*Aedes vectored diseases*).

Vector Control

- State Level Activities
 - Review criteria and be prepared to respond with local or contracted mosquito control agencies, if local public health specifies areas of high human risk and the need for limited, targeted adult mosquito control (i.e., prior to a festival or other outdoor event).
 - MDARD can provide assistance with identification of businesses that are licensed to perform pesticide applications and can provide guidance related to certification requirements for pesticide applicators (1-800-292-3939).
- Local Level Activities
 - Conduct a rapid pesticide resistance study for local mosquito populations, if treating the area with pesticides.
 - Increase mosquito habitat/source reduction and larval control at retention/detention facilities, water features, and drainage systems.
 - Conduct enhanced larval and adult mosquito control in a 150-yard radius (or other boundary, as deemed appropriate) around homes of identified cases, including residential habitat reduction (trash cleanup, etc.) and outdoor space spraying (*Aedes vectored disease*).
 - MDARD can provide assistance with identification of businesses that are licensed to perform pesticide applications and can provide guidance related to certification requirements for pesticide applicators (1-800-292-3939).

Outreach to At-Risk Populations

- State Level Activities
 - Deploy targeted communication, surveillance, and monitoring programs for the at-risk population in coordination with the county/jurisdiction affected.
- Local Level Activities
 - Deploy targeted communication, surveillance, and monitoring programs for the at-risk population (to include those experiencing homelessness) in the county/jurisdiction affected.
 - *Eastern Equine Encephalitis – Persons over 50 or under 15 years of age.*
 - *La Crosse Encephalitis – Persons under 16 years of age*
 - *West Nile Virus – Persons over 50 years of age.*
 - *Zika – Pregnant women and women of childbearing age.*

Blood Safety

- State Level Activities
 - Notify local blood collection agencies for awareness.
 - Review CDC toolkit for investigation of transfusion-transmitted infection.
 - Contact blood collection agencies for consultation and to emphasize the importance of blood safety contingency plans.
- Local Level Activities
 - Contact local blood collection agencies for consultation and emphasize the important of blood safety contingency plans.

Phases 3 - Incident Response

The Incident Response phase is defined as confirmed local transmission among multiple people, either greater than two weeks apart but within one mile diameter, or among multiple people across more than one local jurisdiction. State and local activities will include response actions, communications, surveillance, laboratory testing, vector control, outreach to at-risk populations, and blood safety, as detailed below. The following Phase 3 activities will be initiated in addition to the activities described for Phase 2.

Phase 3 – Scalable Incident Response

Administrative Coordination

- State Level Activities
 - EMC will notify EMHSD Duty Officer.
 - Review current status of the state incident management structure for modification to meet the incident needs and discuss the potential need for an emergency declaration or advisory to be issued.
 - Determine geographical boundaries that will be used for aggressive response efforts.
 - Designate county/jurisdiction as an area of “active arbovirus disease transmission.”
 - MDARD will promptly notify the USDA VS. In the event of a foreign animal disease, the USDA will investigate and potentially take the lead for the animal disease response activities.
 - The incident manager will provide daily situation reports to the public and to partner agencies.
 - Consider the need for assistance from a CDC field team (e.g., Epi Aid or rapid response team) to provide on the ground technical assistance, risk communication, vector control, and/or logistical support.

- Local Level Activities
 - Determine geographic boundaries that will be used for aggressive response efforts.
 - Designate county/jurisdiction as an area of “active arbovirus disease transmission.”
 - Consider issuing a Public Health Advisory and/or a State of Emergency declaration, to include considerations for limiting outdoor activities, and/or shifting them to times when mosquito activities is less prevalent.

Communications

- State Level Activities
 - Intensify statewide outreach (TV, radio, newspaper, online)
 - Establish a Joint Information Center (JIC)
 - Departmental PIOs participate in the JIC
 - Notify apiarist of aerial larviciding/adulticiding (MDARD’s Emergency Notification for Beekeepers listserv)
- Local Level Activities
 - Intensify local outreach (TV, radio, newspaper, online)
 - Participate in the JIC, if applicable.
 - Notify apiarists of aerial larviciding/adulticiding

Laboratory

- State Level Activities
 - Enhance efforts to conduct mosquito testing.
 - Conduct pesticide resistance testing for vector mosquitos if capacity exists.
 - Notify CDC for the need to initiate arrangements with other states to support laboratory surge.
 - Consider requesting a federal team from CDC and/or USDA for additional laboratory support. Utilize surge capacity plans to assure timely testing of suspect cases.

Surveillance

- State Level Activities
 - Monitor the effectiveness of control measures.
 - Monitor reports of adverse events related to pesticides.
 - Initiate testing of asymptomatic pregnant women that are residents who live or have traveled through an at-risk jurisdiction (*Zika specific*).
 - Consider retrospective enhanced surveillance in health facilities to establish earliest known date of local human infection for future counseling and testing of asymptomatic pregnant women (*Zika specific*).

- Local Level Activities
 - Monitor the effectiveness of control measures.
 - Maintain community education strategies.

Vector Control

- State Level Activities
 - Coordinate enhanced and expanded vector control efforts that may include ground and aerial larviciding and adulticiding.
 - Monitor the effectiveness of control efforts through mosquito surveillance.
- Local Level Activities
 - Enhance and expand vector control efforts with increased ground and aerial spraying.
 - Monitor the effectiveness of control efforts through mosquito surveillance.

Outreach to At-Risk Populations

- State Level Activities
 - Continue outreach to at-risk populations regarding mosquito bite prevention/mosquito control and general disease awareness.
 - Implement intervention plans for high-risk populations to reduce exposure by promoting repellent use.
 - Mosquito-proof homes by recommending that residents add screens or air conditioning systems to their homes.
 - Distribute:
 - Zika Prevention Kits (*Zika specific*)
 - Repellent to older residents (WNV)
 - Assure access to family planning services (*Zika specific*).
 - Expand response activities regionally or state-wide.
- Local Level Activities
 - Implement intervention plans for high-risk populations to reduce exposure by promoting repellent use.
 - Assist with efforts to mosquito-proof homes by adding screens or air conditioning systems.
 - Distribute:
 - Zika Prevention Kits (*Zika specific*)
 - Repellent to older residents (WNV)
 - Assure access to family planning services (*Zika specific*).
 - Consider drafting memorandums of understanding with neighboring counties to share/pool resources.

- Recommend that residents curtail outdoor activities, including sports and other events, in the evening from dusk to dawn.

Blood Safety

- State Level Activities
 - Blood centers with collection sites within the affected jurisdiction should follow Food and Drug Administration (FDA) guidance for an area with active arboviral transmission, including outsourcing blood if laboratory screening or pathogen reduction is unavailable.
 - Blood centers in other areas and states should follow FDA guidelines for deferring blood donations for people who have a recent travel history to a high-risk area.

Phase 4 – Recovery

The Recovery Phase is defined as the stage at which activities related to the response that will be sustained long-term are integrated into routine/new routine operations and activities. During this phase, MDHHS will continue to monitor the population for effects of prior infection, particularly in pregnant women and infants exposed to or infected with Zika Virus.

Administrative Coordination

- State Level Activities
 - Hold regular meetings of the Michigan Arbovirus Working Group.
 - Review the APRP and conduct revisions, as necessary.

Communications

- State Level
 - Update communications materials based on outbreak response review.
 - Prepare for upcoming surveillance season.
 - Plan ahead with PIOs for messaging to public and healthcare providers.
- Local Level
 - Update communications materials based on outbreak response review.
 - Prepare for upcoming surveillance season.

Laboratory

- State Level Activities
 - Continue testing for resistance to pesticides if capacity exists.
 - Maintain capacity to identify human cases of arboviral disease of concern in Michigan
 - Train necessary staff.

- Obtain necessary laboratory supplies.

Surveillance

- State Level Activities
 - Monitor Zika virus infections in pregnant women and monitor fetal and infant outcomes following Zika virus infection during pregnancy.
 - Assess the efficacy of surveillance and control activities.
 - Plan to continue monitoring at the beginning of the next mosquito season.
 - Determine support for state or LHD surveillance functions.
 - If Zika vectors are found, plan for an intensive surveillance effort in the following mosquito season to identify whether mosquitoes are overwintering.
 - If there is a novel arbovirus outbreak, add the arbovirus to the lists of MDHHS and MDARD reportable diseases.

Vector Control

- State Level Activities
 - Maintain contingency contracts for mosquito control for the following season.
 - Pesticide Disposal is the responsibility of the purchaser.
 - Instructions for proper pesticide disposal can be found on the label of every pesticide.
 - Clean Sweep pesticide disposal sites are located throughout the state. Contact MDARD at 517-284-5612 for information about the Clean Sweep pesticide disposal program.
 - Consider hiring a contractor to dispose of remaining pesticides.
 - Conduct and Monitor insecticide resistance (this is a local activity conducted by Mosquito Control Districts).

Resource Listing and Links

General arbovirus information, statistics/maps, guidance for the public and healthcare providers:

- Centers for Disease Control and Prevention (CDC) – www.cdc.gov
- Michigan Department of Health & Human Services (MDHHS), Emerging Disease Website – www.michigan.gov/emergingdiseases
- CDC Zika General Information - www.cdc.gov/zap/

Mosquito control:

- American Mosquito Control Association – www.mosquito.org

Information regarding pesticide use and application:

- Michigan Department of Environment, Great Lakes and Energy - <https://www.michigan.gov/egle/>
- U.S. Environmental Protection Agency – www.epa.gov
 - Insect Repellent Search Tool - www.epa.gov/insect-repellents/find-insect-repellent-right-you

Public Health Resources:

- Association of State and Territorial Health Officials www.astho.org/Programs/Environmental-Health/Natural-Environment/Vector-Borne-and-Zoonotic-Diseases/
- Michigan Human Reportable Disease Lists:
https://www.michigan.gov/documents/mdch/Reportable_Diseases_Michigan_by_Pathogen_478489_7.pdf and
https://www.michigan.gov/documents/mdch/Reportable_Diseases_Michigan_by_Condition_478488_7.pdf

Zika and Blood and Tissue Safety

<https://www.cdc.gov/zika/blood-tissue-collection-centers.html>

WNV Blood and Tissue Safety

<http://www.aabb.org/research/hemovigilance/Pages/wnv.aspx>