



ZIKA VIRUS ACTION PLAN



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Illinois Zika Virus Action Plan

The Illinois Department of Public Health (IDPH) created this Zika Virus Action Plan in the event of local transmission. The plan outlines how IDPH environmental health, communicable disease, laboratory, preparedness and response, women's health and family services, and communications staff will work with local health departments, blood supply centers, and other partners to verify local transmission of Zika virus, inform the public, and prevent further spread.

Illinois

Located in the Midwestern United States, Illinois is considered to be at low risk of widespread, year-long transmission of Zika virus. The *Aedes aegypti* mosquito, which is the primary vector for Zika virus transmission, is rarely found in Illinois. The primary risks to Illinois residents for becoming infected with Zika Virus are (1) from travel to and from areas with active Zika virus transmission or (2) individuals who have unprotected sex with a man who has traveled to an area with active Zika virus transmission and been infected.

The *Aedes albopictus* mosquito is believed to be a secondary [less efficient] vector of Zika virus. *Aedes albopictus* has been reported from 37 Illinois counties, mostly in the southern two-thirds of the state. This is a "container-breeding" mosquito that uses water-filled buckets, old tires, and similar containers for larval production; it does not breed in ditches, marshes, or other water impoundments in the ground. Additional survey work is needed to determine the presence and public health importance of *Aedes albopictus* in Illinois.

At this time, local transmission of Zika virus in the United States has occurred only in southeastern Florida, and is ongoing in U.S. territories and affiliated Pacific Island countries.

Currently, the only Zika virus cases in Illinois are travel associated. Transmission can occur sexually or congenitally. Although very unlikely, infected people who come to or return to Illinois from affected areas *could* infect mosquitoes if they are bitten while the virus is still circulating in their blood (viremic). However, because the *Aedes aegypti* is rarely present in Illinois, it is unlikely that locally sustained transmission would occur.

Preparedness and Response Planning

While IDPH does not anticipate widespread local transmission in Illinois, it is important to plan for all phases of potential transmission. IDPH will determine its response to potential Zika virus transmission according to the chart below. This chart presents a phased approach to preparation for, management of, and response to potential local transmission and/or outbreak of Zika virus.

Stage	Phase Level	Transmission Risk Category
Pre-incident	0	Preparedness – vector present or possible in the state
	1	Mosquito Surveillance and Control – <i>Aedes aegypti</i> or <i>Aedes albopictus</i> mosquito biting activity. Introduced to travel related cases.
Suspected/Confirmed Incident	2	Local Confirmed Transmission – single, locally-acquired case, or cases clustered in a single household or nearby houses.
Incident/Response	3	Widespread Local Transmission – Zika virus illnesses with onsets occurring ≥ 2 weeks but within 1 mile diameter
	4	Widespread Local Multi-County Transmission – Zika virus illnesses with onsets occurring ≥ 2 weeks in > 1 jurisdictional area

Outreach

Pregnant Women and Partners

IDPH's top priority is to protect pregnant women and their fetuses from Zika virus infection. Zika virus infection during any stage of pregnancy can cause microcephaly and other severe fetal defects. In addition to microcephaly, doctors have found other problems in pregnancies and among fetuses and infants infected with Zika virus before birth, such as miscarriage, stillbirth, absent or poorly developed brain structures, defects of the eye, hearing deficits, and impaired growth. IDPH is working to educate pregnant women who may travel to areas with Zika virus or who have sexual partners who may travel to these areas about how to prevent Zika transmission. Pregnant women traveling should strictly follow steps to prevent mosquito bites, including using mosquito repellent containing DEET and protect against sexual transmission. If a pregnant woman has a sex partner who lives in or has traveled to an area with Zika, she should use a condom every time she has sex or should not have sex with that partner during the pregnancy.

Women of Child Bearing Age and Partners

IDPH is also prioritizing efforts to prevent Zika virus infection in women who may become pregnant. To accomplish this, IDPH is working with community organizations to offer materials and information to reduce the spread of Zika virus. The information will emphasize pregnancy prevention and family planning because of the risks associated with Zika virus infection during pregnancy. The IDPH Office of Women's Health and Family Services (OWHFS) prioritizes assisting women of childbearing age to take preventative measures to avoid or postpone pregnancy if they have had any exposure or potential exposure to the Zika virus. The OWHFS provides information to pregnant women and women who may become pregnant about Zika virus, travel recommendations, how to protect themselves, and what to do if they are, or may be infected.

Men

Because Illinois is considered to be at low risk of spreading Zika virus, travel to areas with Zika virus or having a sexual partner who has traveled to an area with Zika should be actively considered to prevent transmission. Zika virus can be transmitted sexually (vaginal, anal, or oral) from a male to his partner. The Zika virus appears to stay in semen longer than in the blood, so men should take extra precautions to avoid spreading the virus. If a man experiences symptoms, he should use a condom when engaging in sexual activity for six months. If a man does not experience symptoms but has visited an area where Zika is prevalent, he should use a condom or abstain from sex for eight weeks to avoid potentially spreading the virus. People visiting an area with widespread Zika should take steps to protect themselves from mosquito bites, including using [Environmental Protection Agency \(EPA\)-registered insect repellents](#). More information on steps to prevent mosquito bites and other travel precautions can be found on the CDC website.

Health Care Providers

IDPH is working with obstetricians and birthing hospitals to ensure they understand how to correctly identify, test, and manage pregnant women who may be infected with Zika virus. IDPH is also working with health care providers to ensure access to family planning messages and services. Current recommendations include:

- Advising women to wait at least 8 weeks after their symptoms first appeared before trying to get pregnant.

- Advise men to wait at least 6 months after their symptoms first appeared before trying to get their partner pregnant.
- Men should correctly and consistently use condoms for vaginal, anal, and oral (mouth-to-penis) sex or not have sex during this time period if they are concerned about the possibility of transmitting Zika virus to their sex partners.
- For men and women without symptoms of Zika virus but who had possible exposure to Zika virus from recent travel or sexual contact, health care providers should recommend their patients wait at least 8 weeks after their possible exposure before trying to get pregnant.
- Men and women without symptoms of Zika virus who live in an area with active Zika virus transmission should talk with their health care providers about their pregnancy plans during a Zika virus outbreak, the potential risks of Zika virus, and how they can prevent Zika virus infection during the pregnancy

Zika virus can be passed through sex from a person who has Zika virus to his or her sex partners. All pregnant women who have a sex partner who has traveled to or resides in an area with Zika virus should use barrier methods every time they have sex or they should not have sex during the pregnancy. Although no cases of woman-to-woman Zika virus transmission have been reported, these recommendations now also apply to female sex partners of pregnant women.

CDC is currently updating recommendations for sexually active people in which the couple is not pregnant or concerned about pregnancy and for people who want to reduce personal risk of Zika virus infection through sex.

OWHFS shares Zika virus educational materials developed by the CDC with the Governor's Office of Early Childhood Development and with the Illinois Department of Human Services. OWHFS also targets health care providers such as gynecologists, obstetricians, and midwives to assist with patient education. The outreach includes information about symptoms to look for in patients, questions to ask patients, how to request testing, and how to collect specimens for testing.

The IDPH Adverse Pregnancy Outcomes Reporting System (APORS) is working with the CDC to provide information for the U.S. Zika Pregnancy Registry. The registry is a way to comprehensively monitor pregnancy and infant outcomes following Zika virus infection. The data collected through this system will be used to update recommendations for clinical case, to plan for services and support for pregnant women and families affected by Zika virus, and to improve prevention of Zika virus infection during pregnancy. APORS will report to the CDC poor pregnancy outcomes related to Zika virus infection for live-born infants with birth defects and pregnancy losses with birth defects. Pregnancy Registry data will not be released at the state level to ensure the privacy of the individuals.

Health care providers and health departments with questions about the registry can email ZikaMCH@cdc.gov or call 770-488-7100 and ask for the Zika Pregnancy Hotline.

Human Disease Surveillance

The IDPH Communicable Disease Control Section (CDCS) conducts human surveillance for arboviral infections, including Zika virus.

Disease surveillance data is reported in the Illinois National Electronic Disease Surveillance System (I-NEDSS) surveillance database. Specific information can be collected on each case, including, but not limited to, complete travel history (destination, departure, and return dates), clinical symptoms, pregnancy status (including fetal ultrasound findings), and laboratory test results. These data are reviewed daily for completeness and cases with incomplete data are returned to the local health department (LHD) for completion. All confirmed cases of Zika virus for which investigations have been closed are uploaded to ArboNET and transmitted to the CDC on a weekly basis. The CDCS and Division of Epidemiologic Studies (DES) [or the Adverse Pregnancy Outcomes Reporting System (APORS) program] collaborate with LHDs to collect the information required for the U.S. Zika Pregnancy Registry (USZPR). De-identified maternal, neonate, and infant follow-up forms are submitted to the USZPR.

The CDCS coordinates specimen submission (including serum, amniotic fluid, and fetal tissue), with LHDs and providers. This involves providing appropriate guidance on collection, packaging, handling, and shipping of specimens. It also fields calls from LHDs who need additional guidance on testing, lab report interpretation, disease surveillance activities, specimen submission, etc. The DES (or APORS) provides information to callers requesting information about neonate and infant follow-up.

IDPH CDCS will continue to provide resources, educational materials, up-to-date travel notices, and guidance surrounding Zika virus on the IDPH Web Portal for infection control professionals and LHDs to share with clinicians and other health partners in their jurisdictions.

Neither vaccines nor proven clinical treatments are available at this time to treat or prevent Zika virus infections

The IDPH Office of Preparedness and Response (OPR) will assist CDCS to assess and coordinate Zika virus planning and resources, and continue to provide technical assistance.

Human Laboratory Testing

CDC has set guidance to indicate who should be tested for Zika virus infection. IDPH will use the CDC testing criteria to determine suitability for testing.

The IDPH Laboratory is using the CDC Emergency Use Authorized Trioplex assay to detect dengue, chikungunya, and Zika viruses by PCR in serum and cerebrospinal fluid (CSF) samples. The CDC Trioplex rRT-PCR is a real-time reverse transcriptase PCR (rRT-PCR) for the qualitative detection and differentiation of Zika, dengue, and chikungunya viruses from individuals meeting any of several sets of CDC Zika virus clinical criteria: 1) Clinical signs and symptoms associated with Zika virus infection, 2) CDC Zika virus epidemiological criteria (e.g., history of residence in or travel to a geographic region with active Zika transmission at the time of travel, or other epidemiologic criteria for which Zika virus testing may be indicated as part of a public health investigation), and 3) Sexual exposure to a person with a previous positive PCR or serology result for the Zika virus.

The Trioplex rRT-PCR is designed to detect virus in the specimen and is therefore best suited to evaluate specimens from individuals collected within seven days following illness onset. The Trioplex rRT-PCR can also be used with urine and amniotic fluid specimens when tested in conjunction with a patient-matched serum specimen. The Trioplex rRT-PCR test takes a minimum of four hours to complete. The laboratory is working to implement a dengue virus serotyping assay for specimens testing positive for that virus by the Trioplex assay. All specimens testing positive for chikungunya, dengue, or Zika viruses will be sent to CDC for confirmatory testing.

Serological testing is necessary for individuals who submit specimens collected after seven days following illness onset. Trioplex rRT-PCR is not indicated for asymptomatic pregnant women or for individuals without recent travel history and whose symptom onset is greater than seven days after specimen collection, as viral titer in blood decrease after this time. Urine has been shown to contain viral RNA for up to two weeks post symptom onset, extending the window of detection for Zika virus. Specimens from individuals suspecting a less recent exposure to Zika virus should only be tested using serological methods. The IDPH Laboratory is running the CDC Zika MAC-ELISA test for Zika virus IgM antibodies. Specimens that test positive, equivocal, or inconclusive for Zika IgM antibodies will be shipped to CDC for further testing and characterization, due to the possibility of cross reaction between antibodies against other flavivirus species and the Zika virus. IDPH is evaluating the use of additional testing to verify IgM test results. If these tests are successfully validated, the screening information provided by these tests will be helpful in verifying Zika positive IgM tests within the IDPH Laboratory.

The laboratory has the capacity to run 50 PCR specimens and 40 serology tests per day. Programmatic authorization is required for specimen testing. Authorization is signified through the use of an authorization number that is written on the submission form.

Mosquitoes Surveillance and Control

IDPH developed a robust vector surveillance program involving LHDs and Mosquito Abatement Districts (MAD) due to heavy West Nile virus activity in Illinois beginning in 2002. The vector surveillance program affords IDPH the ability to disseminate Zika virus educational materials quickly, along with recommendations for mosquito collection and disease surveillance as appropriate. IDPH provides annual Vector Control Grants and resources for mosquito and dead bird surveillance to LHDs throughout the state. Currently, 93 LHDs are receiving Vector Control Grants. MADs, which are governmental entities with knowledge and expertise on mosquito collection and surveillance, identification, and abatement procedures, also conduct mosquito abatement activities in several areas in Illinois. Additionally, at least one private company conducts mosquito abatement and collects and sends mosquito surveillance data to IDPH. Currently, IDPH has an electronic data submission mechanism for collection of all state-wide vector surveillance data. IDPH meets periodically with these surveillance and abatement cooperators, and assesses their capacity for emergency disease surveillance and abatement. IDPH sends the mosquito data to CDC's ArboNET system.

Mosquito Distribution

Not all species of mosquitoes can transmit pathogens and the pathogens are limited to a specific species of mosquito. For example, the *Culex* group transmits West Nile virus, whereas the *Aedes* group of mosquitoes is not an important vector of West Nile virus, but may transmit Zika virus.

Aedes aegypti (yellow fever mosquito) is the primary vector of Zika virus, while the extent of transmission possible via *Aedes albopictus* (Asian tiger mosquito) is less understood. *Aedes* are aggressive daytime biters, with dawn and dusk being peak feeding times. *Aedes aegypti* cannot survive freezing weather, so they are virtually absent in Illinois except when they may be seasonally introduced, e.g., via transport of used tires. *Aedes albopictus* are present in several counties in the southern two-thirds of the state and in a few other areas of Illinois. IDPH is working with the Illinois Natural History Survey to conduct focused surveillance for *Aedes aegypti* and *Aedes albopictus*. These surveillance activities will provide more accurate mosquito data and help determine the presence or absence of these mosquitoes in Illinois, as data for this species are limited.

Although the extent of transmission via *Aedes albopictus* is still being studied, it would be the most likely Zika virus vector mosquito in Illinois. While mosquito abundance data are most meaningful when collected over several seasons, identifying the presence/absence, rather than abundance of *Aedes albopictus* in Illinois is the primary goal of Zika virus vector surveillance for purposes of establishing transmission risk and the need for increased vector control.

Vector control efforts would target both *Aedes aegypti* and *Aedes albopictus* as control procedures are generally similar for both species. The flight range of both species is short – one-half mile or less – making local populations somewhat easier to manage. IDPH will coordinate with CDC to identify a Zika Virus Transmission Area, a geographic area in which multi-person local transmission has occurred and may be ongoing, to determine response activities and communicate this information to the public and partners.

During a Zika virus outbreak, aggressive vector management and personal protection activities that effectively reduce mosquito density and prevent mosquitoes from feeding on infected people are required to prevent transmission by mosquito. Unlike West Nile virus, non-human vertebrate animals such as birds do not act as a reservoir for Zika virus: humans and mosquitoes are the only hosts (other than certain forest primates in Africa).

According to the CDC, the efficacy of vector control in reducing mosquito-borne infection risks may be limited, as has been the case with similar mosquito-borne viruses, such as dengue and chikungunya.

Mosquito Surveillance

Confirmed identification of a vector species in a jurisdiction is needed before any adult mosquito insecticide applications are performed. Initial identification of adult *Aedes albopictus* is relatively easily, but specialized traps like oviposition traps that draw egg-laying female mosquitoes are needed to collect specimens. Oviposition traps must be checked weekly. If left unattended for longer periods, they can act as breeding sites. About one oviposition trap per city block is sufficient to establish presence or absence of the *Aedes albopictus*. However, the most reliable way to identify mosquito species is to hatch the eggs and identify larvae. Consequently, there must be suitable laboratory capability for this process. Adult mosquitoes can be sampled using the BG-Sentinel Trap baited with CO₂ and/or the manufacturer's attractant (BG-Lure; Biogents, Regensburg, Germany). As is the case with oviposition traps, the agency must have the proper equipment and facility to work with live adult mosquitoes. The gravid traps currently used to trap West Nile virus vectors, occasionally capture adult *Aedes albopictus* and are operated by trained individuals so that these data can be compiled with data from other traps.

IDPH is recommending the use of BGS2 traps to conduct surveillance for adult *Aedes aegypti* or *Aedes albopictus*. IDPH is in the process of procuring several of these traps that may be used to assist LHDs with surveillance activities if there is evidence of a locally-transmitted case of Zika virus. LHDs will be notified when the procurement is complete and traps are

available. More information regarding these traps can be found at <http://www.bg-sentinel.com/>.

Trap placement may be the most important part of success for mosquito collections. *Aedes albopictus*, and especially *Aedes aegypti*, are “urbanized” mosquitoes: they are most likely found in close association with human activities. Consequently, a likely location to detect either of these species would be an older residential area near a scrap yard or where other industrial activities are nearby. Staff should set traps in low, shaded areas, out of sight, and near containers collecting water and vegetation where there is higher humidity. Lower areas will also protect the trap from too much wind and mosquitoes will not have to fly against a stiff breeze. Staff should make sure there is at least 20 inches clear above the trap so airflow is not restricted. The trap should also be about three feet away from any walls or solid structures. After placing the trap with the battery attached, the lures should be checked and if dry ice is being used, assure the mist/vapor is moving toward the trap. Staff should place the traps in the morning and pick them up as early as practical the next morning. Staff running the traps another day can just remove the collection bag with the mosquitoes, tie the top securely, label it with the location and date, and put in a cooler with “blue ice.” Staff can then put a new bag on the trap, attach the charged battery, and take the used battery for recharging.

Determining mosquito abundance requires a larger investment in traps and workforce, and depends on the type and number of traps used per unit area, as well as the availability of alternate oviposition sites in the area. Other species, such as the *Aedes triseriatus* (Eastern treehole mosquito), also lay eggs in oviposition traps. Identification of the resultant larvae, pupae, or reared adults from these traps must be performed to accurately estimate *Aedes albopictus* abundance.

To submit adult mosquitoes for identification of suspected *Aedes aegypti* or *Aedes albopictus*, place tissue in the bottom of the container, then mosquitoes, then loosely put more tissue and cover. If the mosquitoes are not dry, do NOT seal the container tightly as they may become moldy and make identification difficult. Send samples with a filled-out Mosquito Specimen Identification Form to:

Illinois Department of Public Health
Peoria Regional Office
5415 North University
Peoria, IL. 61614

Images of *Aedes albopictus*, *Aedes aegypti*, and other adult mosquitoes may be found in a manual maintained by the University of Florida <http://fmel.ifas.ufl.edu/key/>. If field staff observes suspected *Aedes aegypti* or *Aedes albopictus* attempting to bite, staff can collect the mosquitoes with a small hand net, remove them using a power aspirator, and freeze the samples to kill the mosquitoes so they can then be sent for identification. *Aedes aegypti* and *Aedes albopictus* are relatively small, dark-colored daytime-biting mosquitoes that often land on the lower legs while attempting to feed. A summary *Aedes albopictus*'

biology may be found at <http://www.dph.illinois.gov/topics-services/environmental-health-protection/structural-pest-control/asian-tiger-mosquito>.

Mosquito Source Reduction

Source reduction is the removal of mosquito breeding habitats and is a local government activity. LHDs should provide mosquito prevention information to local government authorities and assist in responding to identified breeding grounds, such as unkempt swimming pools. These activities can be partially funded through the Vector Control grants to LHDs.

Removing larval habitats will reduce mosquito densities. Remove discarded, unused, and unmaintained containers through community involvement programs or by vector control personnel. Containers are ideal larval habitats, particularly discarded used tires. But these mosquitoes can develop in a vast variety of water-holding containers such as plant drip pans, clogged gutters, garden pools, etc. However, the primary focus should be on larger containers that can produce more mosquitoes.

IDPH is working with the Illinois Environmental Protection Agency (IEPA) on an initiative to remove used tires from locations across Illinois. The two agencies have divided the state into three priority zones for used tire removal. The zones are based on where Illinois would potentially experience Zika virus, such as southern counties that typically have hotter weather. Zone 1 is the highest priority area and is defined by a straight east-west line going through Effingham and areas south of that line. Zone 2 is the next highest priority area and is defined by a straight east-west line through Peoria south to the Effingham line. Zone 3 is the third highest priority area and is defined by the straight east-west line through Peoria north to the Wisconsin border.

Illinois EPA is identifying and initiating used tire removal actions for units of local government beginning in Zone 1. Illinois EPA will collect, transport, and properly dispose of used tires from public and abandoned properties. Additional activities planned by the Illinois EPA include close monitoring of regulated used tire sites located in Zone 1 and using larvicide to actively treat and mitigate known sources of improperly managed used tires.

In addition, the Illinois EPA and IDPH are entering into an Intergovernmental Agreement to allocate \$750,000 from the Used Tire Management Fund. This funding will enable IDPH to enhance statewide mosquito control activities related Zika virus, and other mosquito-borne diseases through activities associated with the improper storage, handling, and disposal of tires.

In the instance of local transmission, larval surveillance can help identify containers where *Aedes* and other container-breeding mosquitoes are breeding. This will require ground inspection. Inspection by helicopter can locate unkempt or “green” swimming pools and

accumulations of discarded tires. Inspections for larval production sites, such as old tires, should be conducted on residences or property within at least 1,000 to 1,300 feet from the home of a resident with locally acquired Zika virus.

Mosquito Larval Control

Larviciding is primarily a local government responsibility supported by LHDs in some jurisdictions. When source reduction is not feasible, biological or chemical larvicides should be applied to potential larval habitats. Source reduction and larval control of *Aedes albopictus* in containers has the added benefit of reducing other container-breeding mosquitoes.

NOTE: Larval control can be expensive and time consuming, and personnel who do mosquito control applications on the property of others must be licensed and/or certified by the Illinois Department of Agriculture. Contact the Illinois Environmental Protection Agency about accumulations of discarded tires or those outside tire and auto repair shops.

Adult mosquito control

Application of mosquito adulticides is generally warranted only in potential outbreak situations in possible or confirmed Zika Transmission Area(s). These control activities are primarily the responsibility of local government entities and IDPH does not have the ability to apply or manage the application of adulticides. As mentioned, the Illinois Department of Agriculture regulates mosquito control companies, which can be found by searching <https://www.agr.state.il.us/Environment/Pesticide/aplicatorsearch.php>.

Aedes albopictus are most active during the day and are not effectively controlled by standard truck-mounted ultra-low volume (ULV) applications that are typically performed at night. Early morning or late evening ULV applications can be done against this species. Because *Aedes albopictus* hide in dense vegetation, treatment of individual properties using backpack spray units is likely to give the most effective adult mosquito control. A minimum response would be adulticiding the affected residence and adjacent backyards, particularly areas of dense vegetation. A more robust response would be adulticiding the yards of residences 1,000 to 1,300 feet from the home of a resident with locally acquired Zika virus. ULV or barrier applications to homes (around windows, doors, etc.) of residents with locally acquired Zika virus, or Zika Virus Transmission Areas, can be done to further reduce the likelihood of vectors feeding on people infected with Zika virus.

LHDs, with IDPH assistance, will conduct mitigation activities to reduce the likelihood of Zika virus transmission. Information regarding mosquito breeding sites and habitat were provided to all LHDs prior to the mosquito season, and this information has been disseminated to the public through media, social media, and other alerts. Additional

mosquito surveillance activities are being proposed to further identify *Aedes albopictus* prevalence in the state and its potential as a Zika virus vector. These include conducting targeted *Aedes* surveillance or reporting the identification of the *Aedes* species collected during West Nile Virus mosquito surveillance. Should Zika virus cases and local transmission occur, IDPH will assess capabilities for emergency disease surveillance and mosquito management in all areas of the state to help ensure adequate emergency response.

Risk and safety of mosquito control pesticides

All insecticides used in the U.S. for public health use have been approved and registered by the Environmental Protection Agency (EPA). The EPA has assessed these chemicals and found that, when used according to label directions, they do not pose unreasonable risk to public health and the environment. Instructions provided on the product labels prescribe the required application and use parameters, and must be strictly followed. Pesticide use should be restricted to trained and licensed technicians, according to state, tribal, or local legal requirements. Research has demonstrated that ULV application of mosquito control adulticides did not produce detectable exposure or increases in asthma events in persons living in treated areas. Additional information about mosquito control may be found on the EPA website at <https://www.epa.gov/mosquitocontrol>.

Mosquito Breeding Habitats on Private Property

Individually owned private properties may be major sources of mosquito production. Examples include accumulations of discarded tires or trash, or neglected swimming pools or bird baths that become stagnant and produce mosquitoes. Local public health statutes or public nuisance regulations may be employed to gain access for surveillance and control, or to require the property owner to mitigate the problem. Proactive communication with residents and public education programs may alleviate the need to use legal actions. However, legal efforts may be required to eliminate persistent mosquito production sites.

The Vector Control Act (410 ILCS 95/) gives IDPH, or designated local health departments, the authority to take necessary steps to eliminate vector hazards. The Vector Control Act can be found at: <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1537&ChapterID=35>.

Local Transmission

Limited local confirmed transmission is defined as a single, locally acquired case, or cases clustered in a single household or nearby houses. Local transmission of the virus from a person infected while traveling is possible during the summer. A person who becomes infected, while traveling outside Illinois, and then returns to Illinois while the virus is still circulating in their blood, could be bitten by *Aedes aegypti* or *Aedes albopictus* mosquito. That mosquito could then bite a second person and transmit the virus.

In the emergency preparedness and response chart, this would be phases two and three.

Should limited local confirmed transmission occur in Illinois, IDPH will request assistance from CDC, including the support of the CDC's Emergency Response Team (CERT). IDPH will conduct weekly, or more frequent, Zika Virus Incident Management meetings and consider activation of the Public Health Emergency Operations Center (PHEOC).

Also in the unlikely event of local transmission, IDPH will set up disease surveillance centers around the state and will begin conducting mosquito laboratory testing.

Human Disease Surveillance

If an individual tests positive for Zika virus and did not travel to an area with Zika virus, and has not had unprotected sexual contact with someone who traveled to an area with Zika virus, CDCS would ask about exposures to mosquitoes within Illinois or the U.S. (as well as receipt of blood transfusions/organs). During the summer months in Illinois, IDPH is asking all individuals who have laboratory confirmed Zika virus to wear insect repellent and reduce their outdoor exposure to minimize the possibility of mosquitoes acquiring the virus. CDCS would then provide this information to IDPH environmental health staff and emergency response coordinators to work with the local health department to visit the locations where the individual had exposure to mosquitoes. Staff would check for *Aedes aegypti* and *Aedes albopictus* and perform any necessary mosquito control measures. CDCS would monitor for other illnesses/suspected Zika virus cases in that area.

Mosquito Control

Because *Aedes aegypti* have rarely been detected in Illinois, efforts will focus on the habitat of *Aedes albopictus* mosquitoes in coordination with LHDs, MADs, and other municipal mosquito control programs. IDPH environmental health staff and emergency response coordinators will work with LHD environmental health staff and emergency response coordinators.

If the traveler infected with Zika virus does not spend time outdoors while the virus is still circulating in their blood, it is very unlikely local mosquitoes will be infected. Therefore, environmental health staff response will be limited to the inspection of local residence properties for water-filled containers and distribution of door hangers recommending the use of insect repellent.

Widespread Transmission

Widespread transmission of Zika virus in Illinois is very unlikely unless a new mosquito vector, regularly present in Illinois, is identified. In the emergency preparedness and response chart, found on page four, this would be phases four and five.

Human Disease Surveillance

CDCS will continue to collect information about suspect cases, where they have been, and what symptoms they have. CDCS will ask blood donation and organ donor questions to make sure individuals who may have Zika virus do not donate while the virus is still circulating in their blood. CDCS will work with the IDPH laboratory to monitor the capacity for testing specimens and make recommendations as to who should be tested based on that capacity.

Mosquito Control

In the event of widespread transmission, IDPH will activate cooperative ventures with MADs and other county or municipal mosquito control programs, licensed pest control companies, and other providers, to expand larviciding and adulticiding mosquito control efforts in Zika Virus Transmission Areas in greatest need.

The PHEOC and State Emergency Operations Center may be activated to coordinate Zika virus response efforts and resource with other State agencies.

Blood Safety

The American Red Cross has been involved in Zika Virus Planning meetings with the American Association of Blood Banks (AABB) Disaster Task Force, which includes America's Blood Centers, Blood Centers of America, and the Armed Services Blood Program Office, to ensure that all Department of Health and Human Service, Centers for Disease Control, and Food and Drug Administration guidance, policies, and information are clearly communicated with the various blood centers in the U.S.

The Food and Drug Administration (FDA) has issued recommendations for donor screening, donor deferral, and product management to reduce the risk for transfusion-transmitted Zika virus in the United States and its territories. In addition to behavioral- and health-risk questionnaires for blood donors in all areas, FDA recommends deferrals for donors in unaffected areas who recently lived in or visited an area with active mosquito-borne transmission of Zika virus. The most up-to-date guidance from the FDA can be found at <http://www.fda.gov/%20EmergencyPreparedness/Counterterrorism/MedicalCountermeasures/MCMIssues/ucm485199.htm>.

In the event of local or widespread Zika virus transmission in Illinois, the AABB Disaster Task Force will coordinate the provision of blood and blood products and share state and federal guidance with the American Red Cross, America's Blood Centers, and Blood Centers of America. IDPH meets monthly with State emergency response partners, including the American Red Cross at the Illinois Emergency Management Agency. Information is shared among partners and assistance provided during emergency response events. If there is a lack of blood donors because of possible exposure, the American Red Cross will provide blood from non-affected regions of the country.

IDPH will continue to communicate with blood centers in Illinois to ensure receipt of available guidance from the AABB Disaster Task Force, HHS, FDA, and CDC. Blood centers identifying a donor who is positive for Zika virus should follow the standard protocol for reporting diseases.

Communications

IDPH stands ready to help protect the health and safety of Illinois citizens. We can help calm public fears by communicating credible information and by promoting appropriate health actions.

Appropriate and timely communication allows IDPH to work effectively with our partners, engender public trust in our scientifically based health recommendations, and perform our public health mission.

IDPH will provide the latest information and recommendations about Zika virus through several media platforms.

- News releases and media interviews – Issue news releases and conduct interview about mosquito control, and local, or widespread transmission of Zika virus in Illinois.
- Website – Link rotator graphic on IDPH website home page to Zika virus page. Include case count updates. Link to Centers for Disease Control and Prevention (CDC) microsite for more information.
- Post IDPH Zika virus presentations on website. Presentations cover or reference CDC’s most current guidelines and list actions being implemented by IDPH to monitor Zika virus activity in Illinois.
- Social media – Make regular Facebook postings and tweets (and reposts/retweets of CDC information and advisories). Infographics. <http://www.cdc.gov/zika/fs-posters/index.html> - posters - prevention, travel, pregnancy. Link to CDC microsite on IDPH website for more information.
- Zika virus FAQ – To use in the event a Zika Virus Hotline is needed.
- Media monitoring
- Campaign – e.g., fact sheets, billboard, posters, flyers, etc.
- Public Service Announcements

Messaging targeted toward the general public, pregnant women, travelers, and health care providers, as well as messaging about Guillain-Barré Syndrome and sexual transmission, can be found in Appendix A.

Appendix A – Sample Messaging

For the most current messaging, log onto the CDC Zika Virus homepage <http://www.cdc.gov/zika/index.html> for Information for Specific Groups.

Targeted Messaging

[General Public](#)

[Pregnant Women](#)

[Travelers](#)

[Health Care Providers](#)

Supplemental Messaging

[Guillain-Barré Syndrome](#)

[Sexual Transmission](#)

For General Public

Transmission:

Zika virus is spread to people primarily through the bite of an infected *Aedes aegypti* species mosquito, which is very rarely found in Illinois (*Aedes aegypti* cannot survive freezing temperatures). Another possible Zika virus carrier mosquito species is *Aedes albopictus*, which is found primarily in the southern two-thirds of Illinois (*Aedes albopictus* can survive freezing temperatures). However, *Aedes albopictus* is less effective as a vector of Zika virus than *Aedes aegypti*. Both *Aedes aegypti* and *Aedes albopictus* breed in water-filled “artificial containers” like buckets, old tires, plant drip pans and uncovered rain barrels that are often found around buildings. They do not breed in ditches or flooded areas like many other species of mosquitoes.

Zika virus is NOT spread through coughing or sneezing.

Zika virus has not been spread by mosquitoes in the continental United States as of the date of this publication. However, travel-associated cases and cases of sexual transmission have been reported in travelers returning to the United States.

Although mosquito bites are the main way that Zika virus is spread, Zika virus can be passed from a pregnant woman to her fetus during pregnancy or at delivery. Zika virus can also spread when an infected man has sex with his partner(s).

Symptoms:

The most common symptoms of Zika virus are:

- Fever
- Rash
- Joint pain
- Conjunctivitis (red eyes)

The illness is usually mild with symptoms lasting for several days to a week after being bitten by an infected mosquito. People usually do not get sick enough to go to the hospital and they very rarely die of Zika virus. Most people infected with Zika virus won't even know they have the disease because they won't have symptoms.

Prevention:

Mosquito Exposure Prevention

The best way to prevent diseases spread by mosquitoes is to protect yourself and your family from mosquito bites.

- Wear long-sleeved shirts and long pants.
- Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- Sleep under a mosquito bed net if you are overseas or outside and are not able to protect yourself from mosquito bites.
- Use [Environmental Protection Agency \(EPA\)-registered](#) insect repellents. When used as directed, EPA-registered insect repellents are proven safe and effective, even for

- pregnant and breast-feeding women.
 - Always follow the product label instructions.
 - Reapply insect repellent as directed.
 - Do not spray repellent on the skin under clothing.
 - If you are also using sunscreen, apply sunscreen before applying insect repellent.
- If you have a baby or child:
 - Do not use insect repellent on babies younger than two months of age.
 - Dress your child in clothing that covers arms and legs.
 - Cover crib, stroller, and baby carrier with mosquito netting.
 - Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
 - Adults: Spray insect repellent onto your hands and then apply to a child's face.
- Treat clothing and gear with permethrin or purchase permethrin-treated items.
 - Treated clothing remains protective after multiple washings. See product information to learn how long the protection will last.
 - If treating items yourself, follow the product instructions carefully.
 - Do NOT use permethrin products directly on skin. They are intended to treat clothing.

Sexual Transmission Prevention

Sexual partners should either abstain from having vaginal, anal, and oral (mouth-to-penis) sex for couples with a male partner who might have Zika virus or use condoms the right way every time they have vaginal, anal, and oral sex.

A person with Zika virus can pass it to his sex partners if he has sex (vaginal, anal, or oral) without a condom. We do not know how long Zika can persist in semen. A person who lives in or travels to an area with Zika virus should either not have sex or use condoms or other barrier methods (female and male condoms, dental dams) the right way every time he/she has vaginal, anal, and oral sex (mouth-to-penis), especially with a woman who is pregnant.

There is one documented case of female-to-male sexual transmission of Zika virus infection. All previously reported cases of sexually transmitted Zika virus infection have been spread from men to their sex partners. CDC recommends that all pregnant women who have a sex partner who has traveled to or resides in an area with Zika virus use barrier methods every time they have sex or they should not have sex during the pregnancy. Although no cases of woman-to-woman Zika virus transmission have been reported, these recommendations now also apply to female sex partners of pregnant women.

CDC is currently updating recommendations for sexually active people in which the couple is not pregnant or concerned about pregnancy and for people who want to reduce personal risk of Zika infection through sex.

Treatment:

There is no vaccine or specific medicine for Zika virus.

See your doctor if you develop symptoms (fever, rash, joint pain, red eyes) and you live in or have recently traveled to an area with Zika virus and let them know where you have traveled.

A blood test is the only way to confirm a Zika virus infection. Your doctor may order blood tests to look for Zika virus or other similar viral diseases like dengue or chikungunya.

Some travelers become infected while traveling abroad but do not get sick until they return

home. Be aware of any illness or symptoms during your trip or after you return home. Tell your health care provider where you have traveled and when you were there.

When returning to Illinois or coming from an area with ongoing Zika virus transmission, take the following steps:

- Watch for symptoms and call your health care provider if you develop fever, rash, joint pain, red eyes.
- To help prevent others from getting sick, avoid mosquito bites and use insect repellent for three weeks after travel.
- Use condoms when you have sex.

For Pregnant Women

Zika virus can pass from a pregnant woman to her fetus during pregnancy or during birth, although we do not yet know how often this occurs.

Zika virus has been linked to birth defects, including microcephaly, a severe birth defect that is a sign of incomplete brain development. Microcephaly is a condition where a baby's head is

much smaller than expected. The CDC continues to study the link between Zika virus and microcephaly. [Microcephaly Fact Sheet](#)

Adverse consequences could occur at any time during the pregnancy so it is important that women take precautions during all trimesters.

To date, there are no reports of babies getting Zika virus through breastfeeding. Because of the benefits of breastfeeding, mothers are encouraged to breastfeed even in areas where Zika virus is found.

There is no evidence to suggest that pregnant women are more susceptible to Zika virus or experience more severe symptoms of the disease during pregnancy compared to the general population.

How to Protect Yourself:

1. Avoid travel to an areas with ongoing Zika virus transmission

- If you are pregnant, CDC currently recommends you delay travel to any [area where Zika virus](#) is spreading.
- If you must travel to one of these areas, talk to your health care provider first and strictly follow [steps to prevent mosquito bites](#) during your trip.

2. Take steps to [prevent mosquito bites](#).

- Wear long-sleeved shirts and long pants.
- Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- Use [Environmental Protection Agency \(EPA\)-registered insect repellents](#). When used as directed, these insect repellents are proven safe and effective even for pregnant and breastfeeding women.
- Remove or stay away from mosquito breeding sites, like containers with standing water. Dump any small standing water sources near residences and treat larger standing water bodies with appropriate larvicides.

3. Take steps to [prevent getting Zika through sex](#)

- Until more is known, pregnant women with male sex partners who have lived in or traveled to an area with Zika virus should either [use condoms the right way, every time](#), for vaginal, anal, or oral (mouth-to-penis) sex or not have sex during the pregnancy.
- If a pregnant woman is concerned her male partner may have or had Zika virus infection, she should talk to her health care provider. She should tell her health care provider about her male partner's travel history, including how long he stayed, whether or not he took steps to prevent getting mosquito bites, and if she had sex with him without a condom since his return.
- Women trying to get pregnant and their male partners should talk to their health care provider before traveling to [areas with Zika](#) virus. Because sexual transmission is possible, both men and women should strictly follow steps to [prevent mosquito bites](#) during the trip.

4. See a health care provider

- Pregnant women who have recently traveled to an area with Zika virus should talk to a health care provider about their travel even if they don't feel sick.
- It is especially important that pregnant women see a doctor if they develop a fever, rash, joint pain, or red eyes during their trip or within two weeks after traveling to an area where Zika virus has been reported. They should tell the doctor where they traveled.
- CDC has [guidance](#) to help doctors decide what tests are needed for pregnant women who may have been exposed to Zika virus.

For Travelers

Areas where Zika virus transmission is ongoing often change overtime. Travelers should visit CDC's [Zika Travel Information page](#) for the most up-to-date information about travel recommendations.

When traveling to countries where Zika virus or other viruses spread by mosquitoes are found, take the following steps:

- Wear long-sleeved shirts and long pants.
- Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- Sleep under a mosquito bed net if you are overseas or outside and are not able to protect yourself from mosquito bites.
- Use [Environmental Protection Agency \(EPA\)-registered](#) insect repellents. When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breast-feeding women.
 - Always follow the product label instructions.
 - Reapply insect repellent as directed.
 - Do not spray repellent on the skin under clothing.
 - If you are also using sunscreen, apply sunscreen before applying insect repellent.
- If you have a baby or child:
 - Do not use insect repellent on babies younger than two months of age.
 - Dress your child in clothing that covers arms and legs.
 - Cover crib, stroller, and baby carrier with mosquito netting.
 - Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
 - Adults: Spray insect repellent onto your hands and then apply to a child's face.
- Treat clothing and gear with permethrin or purchase permethrin-treated items.
 - Treated clothing remains protective after multiple washings. See product information to learn how long the protection will last.
 - If treating items yourself, follow the product instructions carefully.
 - Do NOT use permethrin products directly on skin. They are intended to treat clothing.

Some travelers become infected while traveling abroad but do not get sick until they return home. Be aware of any illness or symptoms during your trip or after you return home. Tell your health care provider where you have traveled and when you were there.

When returning to Illinois or coming from an area with ongoing Zika virus transmission, take the following steps:

- Watch for symptoms and call your health care provider if you develop fever, rash, joint pain, red eyes.
- To help prevent others from getting sick, avoid mosquito bites and use insect repellent for three weeks after travel.
- Use condoms when you have sex.

For Health Care Providers

About 1 in 5 people infected with Zika virus become symptomatic. Characteristic clinical findings are acute onset of fever with maculopapular rash, arthralgia, or conjunctivitis. Other commonly reported symptoms include myalgia and headache. Clinical illness is usually mild with symptoms lasting for several days to a week. Severe disease requiring hospitalization is uncommon and case fatality is low. However, there have been cases of Guillain-Barre syndrome reported in patients following suspected Zika virus infection.

Based on the typical clinical features, the differential diagnosis for Zika virus infection is broad. In addition to dengue, other considerations include leptospirosis, malaria, rickettsia, group A streptococcus, rubella, measles, and parvovirus, enterovirus, adenovirus, and alphavirus infections (e.g., Chikungunya, Mayaro, Ross River, Barmah Forest, O'nyong-nyong, and Sindbis viruses).

Preliminary diagnosis is based on the patient's clinical features, places and dates of travel, and activities. Laboratory diagnosis is generally accomplished by testing serum or plasma to detect virus, viral nucleic acid, or virus-specific immunoglobulin M and neutralizing antibodies.

The Illinois Department of Public Health (IDPH) Division of Laboratories has implemented both a Zika Virus Real-Time – Polymerase Chain Reaction (RT-PCR) CDC Assay to detect viral RNA in acute specimens and a Zika MAC ELISA serology test to detect IgM in serum collected ≥ 4 days after illness onset.

Zika virus is a national notifiable condition. Hospitals and health care providers in Illinois should contact their [local health department \(LHD\)](#) to discuss testing. LHDs will provide authorization for appropriate testing. Specimens that are not authorized will not be sent to CDC for testing.

Test results from specimens sent to CDC have been very delayed recently due to the large number of requests for testing. Currently, it takes around 6-8 weeks to receive results from CDC after they receive the specimen.

There is no specific antiviral treatment for Zika virus disease. Treatment is generally supportive and can include rest, fluids, and use of analgesics and antipyretics. Because of similar geographic distribution and symptoms, patients with suspected Zika virus infections also should be evaluated and managed for possible dengue and chikungunya virus infection. Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue can be ruled out to reduce the risk of hemorrhage. People infected with Zika, chikungunya, or dengue virus should take precautions to prevent further mosquito exposure during the first few days of illness to prevent other mosquitoes from becoming infected and infecting other people locally.

Additional information for health care providers can be found on the CDC website at <http://www.cdc.gov/zika/hc-providers/index.html>.

[Instructions for the Collection and Submission of Fetal Tissues for Zika Virus Testing](#)
[Collection and Submission of Body Fluids for Zika Virus Testing](#)

Guillain-Barré Syndrome

The Brazil Ministry of Health has reported an increased number of people who have been infected with Zika virus who also have Guillain-Barré syndrome (GBS). CDC is working with Brazil to study the possibility of a link between Zika virus and GBS.

GBS is an uncommon sickness of the nervous system in which a person's own immune system damages the nerve cells, causing muscle weakness, and sometimes, paralysis.

Appendix B – Illinois Perinatal Advisory Committee Zika Task Force Recommendations

On June 9, the Zika Task Force, a subset of members of the Perinatal Advisory Committee reviewed a draft of the Zika Virus Action Plan and made a number of suggestions, most of which have been included in the current version of the plan.

Consensus feedback/recommendations:

- *Agreed with premise* that most cases in IL will be travel-related or *sexually transmitted* unless change in vector dynamics.
- *Cost/benefit* utility of a dedicated Zika virus telephone hotline for public/providers is minimal unless Zika virus prevalence increases dramatically.
- There is significant need for local coordination of authorized Zika virus testing between providers, LHDs, and IDPH lab. This will reduce turn-around time compared to sending specimens directly to CDC.
- All acute, convalescent, and placental Zika virus testing in the public arena will flow through IDPH labs (only fresh placentas will be forwarded to CDC). All public testing will need to be authorized by each LHD before any Zika virus testing is performed.
- Availability of private testing by Quest (acute PCR only) complicates the current public health testing scheme with positive results being reported to IDPH. However, reporting of negative results and pertinent case information to LHDs/IDPH via Quest remains poorly defined at present; otherwise inadequate testing may result in undetected cases. Hence, a *direct liaison relationship between Quest labs and IDPH* needs to be established.
- IDPH plans to avoid duplication in the distribution of Zika virus education materials and recommended protocol from CDC, ACOG, and APA. However, all providers must be aware of these resources regardless of practice type. Therefore, the educational activities within our Perinatal Networks should include: introductory Zika virus education, an initial roll out of the plan, and dissemination of available national resources.
- Identification of local Zika virus champions (similar to ILSQC projects) can improve communications and testing implementation at the community level. These individuals could also help to streamline necessary interactions with LHDs for testing authorization and subsequent follow-up action on positive results.
- An opportunity exists to improve/expand communications between women's health providers and their designated LHDs.
- There is an opening to promote long-term contraception in the prevention of Zika virus transmission via local education schemes at the Perinatal Network level