**Topic Collection: Zika Virus Disease**

Healthcare providers and emergency medical professionals need to be able to recognize and treat disease caused by novel pathogens. Zika virus can be more difficult than many other diseases to recognize and, though it has less implications for emergency care, it can result in severe health consequences.

This Topic Collection contains resources that can help our audience: learn more about managing patients at risk of or infected by Zika virus disease (particularly pregnant women who contract the virus during pregnancy); understand related infection control principles; and develop plans based on research and existing materials. Note: Jurisdictional Zika plans generally reflect a focus on vector control and risk communication without significant information about clinical information or coordination with the healthcare system. Where these issues are mentioned they are mentioned in passing.

For more information, we encourage you to access our frequently-updated factsheet [Zika: Resources at Your Fingertips](#). Information on Zika is constantly evolving. If you are a clinician treating a patient, please check the [Centers for Disease Control and Prevention (CDC) Zika site](#) for the most current information and clinical guidance.

Each resource in this Topic Collection is placed into one or more of the following categories (click on the category name to be taken directly to that set of resources). Resources marked with an asterisk (*) appear in more than one category.

**Must Reads**
- Zika Overview Resources
- Blood, Organ, and Tissue Donation and Transfusion/Transplant Issues
- Clinical Management – General
- Clinical Management – Infants and Children
- Clinical Management – Maternal/Fetal
- Clinical Management - Testing
- Education and Training
- Epidemiology and Surveillance
- Ethical Considerations
- Legal/Regulatory Issues
- Occupational Safety
- Plans, Tools, and Templates
- Prevention and Vector Control
- Reproductive Health (Prevention/Transmission)
- Risk Communications
- Agencies and Organizations
Must Reads

ASPR TRACIE. (2016). Zika: Resources at Your Fingertips.

This Assistant Secretary for Preparedness and Response (ASPR) Technical Resources, Assistance Center, and Information Exchange (TRACIE) document provides Zika virus disease resources and an overview of public health and healthcare system considerations and implications that are applicable to professionals in those systems, emergency management stakeholders, and other audiences.


The Centers for Disease Control and Prevention provide links to planning and preparedness, resources, posters, door hangers, and other items that can be used by state and local health department staff to communicate the risk of Zika with communities.


This website provides the Centers for Disease Control and Prevention resources related to Zika Virus disease including current transmission and spread information, current clinical recommendations, and prevention and mitigation information. This page is updated regularly.


This webpage provides current counts of locally-acquired, travel-associated, and laboratory-acquired Zika virus disease in the U.S.


This webpage offers a compilation of resources on Zika virus disease including governmental publications, academic publications, research pieces, and popular media mentions. The compilation is updated regularly.


This is a comprehensive collection of Zika virus disease-related resources from the U.S. and abroad. It is compiled and updated regularly by the National Library of Medicine.


The authors evaluated available data to determine causality of Zika infection and birth defects, most notably microcephaly. This evidence included Zika virus infection during
specific times in pregnancy, a specific rare phenotype involving microcephaly, and data that support biologic plausibility. The researchers concluded that the evidence supports a causal relationship between Zika virus infection and birth defects.


This World Health Organization (WHO) plan provides the basis for coordination and collaboration among WHO and its partners to ensure international preparedness and response capacities are supported to the fullest extent possible. The plan focuses on preventing and managing medical complications caused by Zika virus infection (with a focus on pregnant women, their partners, and their households) and integrated mosquito management, sexual and reproductive health counselling, and related health education and care.

**Zika Overview Resources**


This webpage provides a compilation of resources related to Zika virus disease.

ASPR TRACIE. (2016). *Zika: Resources at Your Fingertips*.

This Assistant Secretary for Preparedness and Response (ASPR) Technical Resources, Assistance Center, and Information Exchange (TRACIE) document provides Zika virus disease resources and an overview of public health and healthcare system considerations and implications that are applicable to professionals in those systems, emergency management stakeholders, and other audiences.


This webpage offers a compilation of resources on Zika virus disease including governmental publications, academic publications, research pieces, and popular media mentions. The compilation is updated regularly.

Centers for Disease Control and Prevention. (2016). *State and Local Health Departments*.

The Centers for Disease Control and Prevention provide links to planning and preparedness, resources, posters, door hangers, and other items that can be used by state and local health department staff to communicate the risk of Zika with communities.


This website provides the Centers for Disease Control and Prevention resources related to Zika Virus disease including current transmission and spread information, current clinical
recommendations, and prevention and mitigation information. This page is updated regularly.


This webpage provides current counts of locally-acquired, travel-associated, and laboratory-acquired Zika virus disease in the U.S.


This Informational Bulletin is geared towards Medicaid agencies and other stakeholders and highlights how Medicaid services and authorities can help states and territories prevent, detect, and respond to the Zika virus.

* Disaster Technical Assistance Center. (2016). *Behavioral Health Resources on Zika.* Substance Abuse and Mental Health Services Administration.

This webpage includes links to two types of resources: those focused on reducing stress and anxiety related to Zika and resources that highlight risk communication strategies for public health officials.


The authors discuss the current outbreak of Zika virus disease and why it is a concern for the U.S. public health and healthcare systems. They also describe steps that should be taken now to prevent and mitigate spread and steps that should be taken to prepare. The article also includes an outline for a Zika virus disease research agenda.


This webpage provides links to Zika-related resources in a variety of languages.


This is a comprehensive collection of Zika virus disease-related resources from the U.S. and abroad. It is compiled and updated regularly by the National Library of Medicine.

This fact sheet, also available in Spanish, includes information on symptoms, transmission, and prevention of Zika for head start and child care programs.


This webpage includes links to Zika resources for individuals/families, pregnant women, men, and healthcare providers. It also provides links to state-specific pages and resources in the following languages: Spanish, Portuguese, Chinese, French, Russian, and Haitian Creole.


This website provides an outline of the disease and its progression specifically in the Americas. It provides information for the general public and health professionals on disease spread, identification, treatment and prevention.


Written by Dr. Anne Schuchat, Principal Deputy Director of the Centers for Disease Control and Prevention, this blog provides a clear and easy-to-read question and answer format on Zika virus disease. The blog describes Zika virus disease, how it is spread, signs and symptoms, prevention and protective measures, spread in the U.S., and what the U.S. Department of Health and Human Services is doing to prepare for Zika virus.

*U.S. Food and Drug Administration. (2016). Zika Virus Response Updates from FDA.

This page, provided by the U.S. Food and Drug Administration, includes links to Zika-specific information in English, Spanish, and Portuguese. Links to resources on emergency use authorization (which allows the use of certain medical products for emergencies based on scientific data); information regarding the blood supply; and information on the safety and use of insect repellants are also provided.


This World Health Organization website provides an outline of Zika and an overview of its progression around the world. Links to Situation Reports and information on signs and symptoms, transmission, diagnosis, treatment, and prevention are included on the page.


This webpage provides responses to commonly asked questions about Zika virus and mosquito protection and surveillance, sexual transmission, travel, neurological syndromes, pregnancy, and government response.
Blood, Organ, and Tissue Donation and Transfusion/Transplant Issues


The U.S. Food and Drug Administration released this guidance for establishments that make donor eligibility determinations for donors of human cells, tissues, and cellular and tissue-based products for screening donors for evidence of, and risk factors for, infection with Zika virus.


This news release announces the availability of an investigational test to screen blood donations for Zika virus.


The U.S. Food and Drug Administration released this guidance in response to questions from blood establishments asked regarding the original recommendations for donor screening, deferral, and product management to reduce the risk of transfusion-transmission of Zika virus.


The U.S. Food and Drug Administration released this guidance for blood establishments to assist with donor screening, deferral, and product management to reduce the risk of transfusion-transmission of Zika virus.


Resources on this page are focused primarily on the impact of Zika on the blood supply, blood donation guidance, and testing the supply for the virus.


The author highlights the risk of Zika virus transmission for the organ transplant community.

The authors gathered information on blood collection operations in Puerto Rico to assess the impact the Zika-related restriction on blood collection is having and what would be needed to replace the affected products.

**Clinical Management – General**


The Centers for Disease Control and Prevention provide Zika virus medical management guidance on this webpage. Resources are categorized thusly: clinical guidance, clinical evaluation and disease, diagnostic testing, U.S. Zika pregnancy registry, tools for healthcare providers, and HIV infection and Zika virus.

* Centers for Disease Control and Prevention. (2016). [HIV Infection and Zika Virus](#).

This article highlights the research on HIV-infected patients who also contract Zika virus.

* Centers for Disease Control and Prevention. (2016). [Symptoms, Diagnosis, and Treatment](#).

This webpage includes information on the symptoms of Zika, how it is diagnosed, and how it is treated.


This webpage includes information on the relationship between Zika and Guillain-Barré Syndrome (e.g., symptoms, causes, links to related resources).


This planning resource can enhance healthcare coalition and healthcare system preparedness and response to a domestic Zika virus disease outbreak, as it highlights some of the anticipated hospital resource needs essential to caring for Guillain-Barré syndrome and other neurological deficits.
Clinical Management – Infants and Children


The Centers for Disease Control and Prevention provide guidance related to Zika virus and: pregnant women and women of reproductive age, infants and children, and sexual transmission.


The Centers for Disease Control and Prevention share information and definitions for definite and possible congenital microcephaly related to Zika on this webpage.


This webpage includes a definition and links to information on microcephaly. It also includes a link to the page "Zika Virus and Pregnancy."


This resource provides information on clinical and social support services available to children with special medical needs.


This resource page provides information on agencies and organizations that can help support families of children affected by Zika.


This factsheet includes links to information on Zika and children and encourages healthcare providers to share information at the local and state level.


Sponsored by the Centers for Disease Control and Prevention and the American Academy of Pediatrics, this meeting provided information to clinicians on congenital Zika virus infection including the evaluation, diagnosis and management of infants.

The authors provide an overview of the congenital abnormalities associated with Zika.


This article describes findings from a study of 48 infants up to eight months of age with probable congenital Zika virus syndrome. The study found that additional neurological symptoms emerged with age and that head circumference measurements fell further from the mean, suggesting that affected infants may continue to fall further behind non-affected children.


This document summarizes interim guidelines for U.S. healthcare providers caring for infants born to mothers who traveled to or resided in areas with Zika virus transmission during pregnancy. While the guidance on infants with congenital infection has been superseded (as highlighted in Russell, Nelson, Oliver, et al., 2016), the guidelines for treating infants and children with possible acute Zika virus disease are valid as of October 4, 2016.


This early release examined 158 cases of confirmed or probable Zika virus disease in children under 18 reported to the CDC by 30 states. All cases were acquired postnatally and most had mild symptoms, with 2 hospitalizations and no deaths reported. Nearly half of the cases were aged 15-17, which the authors attributed to healthcare-seeking or testing bias (five cases were pregnant) or a greater likelihood of exposure through travel.


This document summarizes interim guidelines for U.S. healthcare providers caring for infants born to mothers who traveled to or resided in areas with Zika virus transmission during pregnancy. It also includes guidelines for treating infants and children with possible acute Zika virus disease.

This matrix highlights some of the existing federal and national services and programs for supporting children with special healthcare needs in the context of Zika. It includes guidance and links to helpful resources.


This webpage includes information on insect repellant, including safety, application, and use on children. It also includes links to other pages featuring information on insect repellant.


This resource provides a framework for healthcare providers to work with other sectors, such as social work and education to provide a comprehensive support network for pregnant women and their families following a diagnosis of congenital Zika infection.


This guidance is designed to support the development of national and local clinical protocols and policies to address infants and children’s medical, developmental, and social needs following Zika virus exposure in utero.

Clinical Management – Maternal/Fetal


This joint message from the American College of Obstetricians and Gynecologists and the Society for Maternal Fetal Medicine mirrors the interim guidance issued by the Centers for Disease Control and Prevention for the management of pregnant women presenting with symptoms consistent with Zika virus disease infection and is updated as required. This publication includes an algorithm for assessment, diagnosis, and treatment of a pregnant woman.

Researchers in Rio de Janeiro enrolled 88 pregnant women in a prospective study, where they were tested for Zika virus and then followed throughout their pregnancies. Seventy-two of the 88 women enrolled tested positive for Zika virus infection. The authors concluded that “despite mild clinical symptoms, Zika virus infection during pregnancy appears to be associated with grave outcomes, including fetal death, placental insufficiency, fetal growth restriction, and CNS injury.”


The Centers for Disease Control and Prevention provide guidance related to Zika virus and: pregnant women and women of reproductive age, infants and children, and sexual transmission.


The Centers for Disease Control and Prevention share information and definitions for definite and possible congenital microcephaly related to Zika on this webpage.


This webpage includes a definition and links to information on microcephaly. It also includes a link to the page "Zika Virus and Pregnancy."


The Centers for Disease Control and Prevention provide Zika virus medical management guidance on this webpage. Resources are categorized thusly: clinical guidance, clinical evaluation and disease, diagnostic testing, U.S. Zika pregnancy registry, tools for healthcare providers, and HIV infection and Zika virus.


This webpage includes tips for preventing mosquito bites, information on pregnant women and Zika, tips for practicing safe sex, and links to related information.


This article highlights the research on HIV-infected patients who also contract Zika virus.

The Centers for Disease Control and Prevention provide an easy to read infographic that depicts the testing algorithm for pregnant women NOT living in an area with Zika.


This webpage includes information on insect repellant, including safety, application, and use by pregnant/nursing women.


The Centers for Disease Control and Prevention share guidance for women and men who live in areas where Zika virus has spread and are interested in conceiving.


This webpage includes information on the symptoms of Zika, how it is diagnosed, and how it is treated.


The authors provide an overview of the congenital abnormalities associated with Zika.


This document summarizes interim guidelines for U.S. healthcare providers caring for infants born to mothers who traveled to or resided in areas with Zika virus transmission during pregnancy. While the guidance on infants with congenital infection has been superseded (as highlighted in Russell, Nelson, Oliver, et al., 2016), the guidelines for treating infants and children with possible acute Zika virus disease are valid.


The authors share evidence regarding the link between Zika virus infection and microcephaly and fetal demise based on viral RNA and antigens in brain tissues from infants with microcephaly and placental tissues from early miscarriages.

This article discusses a case report of an expectant mother infected with Zika during the end of her first trimester while in Brazil. Serial ultrasounds at 14 and 20 weeks showed normal fetal growth and anatomy. An ultrasound performed at 29 weeks confirmed intrauterine growth retardation and fetal anomalies. Medical termination of the pregnancy occurred at 32 weeks of gestation. Fetal autopsy findings detail the severe brain injury and placental damage associated with the infection. Genome sequence identity was also performed.


The authors list guidelines healthcare providers can use to evaluate pregnant women with possible Zika virus exposure.


The authors evaluated available data to determine causality of Zika infection and birth defects, most notably microcephaly. This evidence included Zika virus infection during specific times in pregnancy, a specific rare phenotype involving microcephaly, and data that support biologic plausibility. The researchers concluded that the evidence supports a causal relationship between Zika virus infection and birth defects.


This article looked at Zika virus occurrence and surges of microcephaly births to determine if projections could be made. Researchers developed a modifiable spreadsheet tool that public health officials can use to plan for delivery of infants from mothers infected with Zika virus.


This document summarizes interim guidelines for U.S. healthcare providers caring for infants born to mothers who traveled to or resided in areas with Zika virus transmission during pregnancy. It also includes guidelines for treating infants and children with possible acute Zika virus disease.

The authors explain how increased access to contraception could reduce the rates of unintended pregnancy and fewer adverse Zika-related pregnancy and birth outcomes.


This map depicts the areas of the country that are at higher risk from unplanned pregnancies due to access to birth control.


This matrix illustrates some of the anticipated hospital and healthcare system resources needs essential to caring for high-risk pregnancies and children born with microcephaly or other birth defects that may be associated with Zika virus infection.


The guidance on this webpage includes strategies healthcare providers can use to help their pregnant patients manage stress during a Zika virus update. Guidance includes communication tips, actual strategies for stress reduction, and links to related resources. The document is available in both English and Spanish.


This matrix highlights some of the existing federal and national services and programs for supporting children with special healthcare needs in the context of Zika. It includes guidance and links to helpful resources.


This webpage includes information on insect repellant, including safety, application, and use on children. It also includes links to other pages featuring information on insect repellant.
Clinical Management – Testing


The Centers for Disease Control and Prevention provide guidelines for collecting, testing, and shipping spinal fluid, urine, and other body fluids for Zika virus. Guidelines for reporting results are also included.


The Centers for Disease Control and Prevention share information and related links on Zika diagnostic testing. Instructions for specimen collection and submission are also included.


The Centers for Disease Control and Prevention provide Zika virus medical management guidance on this webpage. Resources are categorized thusly: clinical guidance, clinical evaluation and disease, diagnostic testing, U.S. Zika pregnancy registry, tools for healthcare providers, and HIV infection and Zika virus.


The Centers for Disease Control and Prevention provide an easy to read infographic that depicts the testing algorithm for pregnant women NOT living in an area with Zika.


The Centers for Disease Control and Prevention provide guidelines for testing urine for Zika virus.


This webpage provides links to Zika-related Emergency Use Authorizations.


The author summarizes three tests being used to test patients for Zika virus: Polymerase Chain Reaction, Enzyme Linked Immunosorbent Assay, and Plaque Reduction Neutralization Test.

The authors provide guidelines for interpreting Zika virus antibody test results and managing patients with suspected Zika or Dengue virus infection.


This fact sheet summarizes the U.S. Food and Drug Administration's release of an Emergency Use Authorization to interpret "RealStar RT-PCR" testing for the in vitro detection of Zika virus.


This fact sheet summarizes the U.S. Food and Drug Administration's release of an Emergency Use Authorization to allow "special Real-Time RT-PCR" testing for the in vitro detection of Zika virus.

**Education and Training**


The Centers for Disease Control and Prevention provides links to select training resources on the Zika virus and related topics for health professionals including videos, webinar archives, and other materials.

**Epidemiology and Surveillance**


This webpage lists "Nationally Notifiable Conditions," including Zika (added in 2016).

Centers for Disease Control and Prevention. (2016). *Areas with Zika*.

This webpage provides updated information on areas in the U.S. and abroad where cases of Zika virus have been reported.


This article discusses the establishment of a comprehensive surveillance system to monitor pregnant women with Zika virus in the United States.

The Centers for Disease Control and Prevention maintains a current count of cases of Zika virus infected pregnant women in the U.S. by state and territory.


This document--written for state and local public health officials and vector control specialists--provides guidance for Aedes aegypti and Aedes albopictus surveillance and control with regards to the risk of dengue, chikungunya, Zika, and yellow fever viruses in the United States and its territories.

Centers for Disease Control and Prevention. (2016). *Zika Active Pregnancy Surveillance System (ZAPSS)/Sistema de Vigilancia Activa de Zika en Embarazos (SVAZE).*

This webpage highlights the Zika surveillance program developed by the Puerto Rico Department of Health and Centers for Disease Control and Prevention. This system will be used to examine the relationship between Zika virus infection during pregnancy and adverse outcomes during pregnancy, birth, and early childhood up to 3 years old.


The Centers for Disease Control and Prevention provide Zika-specific current travel notices on this webpage. Information is available by country, for special populations, and for clinicians.


This document is the latest in a series of epidemiological updates provided by the Pan American Health Organization. It highlights the specific issues related to the correlation between Zika virus disease outbreaks and the increase in neurological syndromes, including Guillain-Barre syndrome and congenital anomalies, specifically microcephaly. The document details recommendations for management, increased surveillance and other public health recommendations.

* Reefhuis, J., Gilboa, S., Johansson, M., et al. (2016). *Projecting Month of Birth for At-Risk Infants after Zika Virus Disease Outbreaks.* Emerging Infectious Diseases. 22(5).

This article looked at Zika virus occurrence and surges of microcephaly births to determine if projections could be made. Researchers developed a modifiable spreadsheet tool that public health officials can use to plan for delivery of infants from mothers infected with Zika virus.
Gaps in Contraception Access and Zika: Interactive Map.

This map depicts the areas of the country that are at higher risk from unplanned pregnancies due to access to birth control.


This article highlights the Zika virus outbreak in Cape Verde, and includes information on the outbreak in Panama and Honduras.

Ethical Considerations


The author summarizes four ethical issues related to Zika: research, travel, healthcare, and prevention.


This document highlights Zika-specific ethical considerations related to public health ethics, research in developing countries, solidarity, the sharing of biological and health data, and the regulation of emerging biotechnologies.


A group of bioethicists who formed the Zika Ethics Consultation concluded that that countries are obliged to share all available information on Zika, including what is not known.


The author highlights the ethical considerations associated with altering/genetically engineering and/or entirely destroying the mosquito.

Legal/Regulatory Issues


This document provides an overview of Executive Orders and Emergency Declarations issued by states and territories in the past (specific to West Nile Virus), and how those
authorities may be used to support prevention, response, and recovery actions for Zika virus.


This primer, presented in a PowerPoint format, outlines public health concerns from Zika Virus disease and discusses potential legal issues in the U.S. and abroad.

* U.S. Food and Drug Administration. (2016). Zika Virus Response Updates from FDA.

This page, provided by the U.S. Food and Drug Administration, includes links to Zika-specific information in English, Spanish, and Portuguese. Links to resources on emergency use authorization (which allows the use of certain medical products for emergencies based on scientific data); information regarding the blood supply; and information on the safety and use of insect repellants is also provided.


This statement includes the official statement from the World Health Organization Director-General declaring Zika virus disease a Public Health Emergency of International Concern. The declaration was made on February 1, 2016 after a meeting of the International Health Regulations (2005) Emergency Committee.

**Occupational Safety**

Centers for Disease Control and Prevention. (2016). Biosafety Guidance for Transportation of Specimens and for Work with Zika Virus in the Laboratory.

Guidance related to Zika virus in the laboratory is provided on this Centers for Disease Control and Prevention webpage.


The authors--attorneys who specialize in labor and employment law--explain what the World Health Organization's declaration of Zika as a global health emergency could mean for employers.


The information on this webpage is geared towards employers and workers, and includes tips for preventing mosquito-borne diseases such as Zika and West Nile.

This guidance is geared towards employers and workers who are interested in preventing occupational exposure to the Zika virus.


The authors note the potential for exposure to large volumes of body fluids during the labor and delivery process and encourage the use of Standard Precautions to prevent possible transmission of Zika virus from patients to healthcare personnel.


The U.S. Office of Personnel Management issued this guidance on protecting workers from occupational exposure to the Zika virus. The attachments can help federal employees learn more about human resources flexibilities and helpful authorities.


The author shares a human resources perspective on what employers should and should not do with regards to employees and potential occupational exposure to Zika.


This document—developed for use by vector control managers, public health workers, healthcare providers, and the like—provides recommendations on essential measures to protect the health and safety of those involved in emergency vector control of Aedes spp. mosquitoes (e.g., space spraying of insecticides and larvicide application).

**Plans, Tools, and Templates**

* Centers for Disease Control and Prevention. (2016). *CDC Emergency Vector Control Request Form*.

This Excel file can be used to request vector control services from the Centers for Disease Control and Prevention. Different tabs are offered, allowing requests to be tailored to need and location.

This document provides preparedness considerations for urgent care, hospitals, and doctor’s offices in planning for patient diagnosis and symptom management.


This planning guide provides resources that can help develop Zika-specific communication strategies and messages. The Centers for Disease Control and Prevention also include links to factsheets, infographics, and other materials that can be used in communication efforts.


This document is designed to provide public health officials with actions to consider in the first hours or days upon laboratory confirmation of the first locally acquired case of Zika virus infection.


This document describes the Centers for Disease Control and Prevention response plan for the first locally acquired cases of Zika virus infection in the continental United States and Hawaii.


This Annex addresses how the Virginia Zika Task Force (led by Virginia Department of Health), will use the powers of state, local, and federal government and the private and non-profit sectors to meet public health needs in response to threat of the Zika virus.


This plan highlights actions that will be taken in the event of locally-acquired/transmitted by the bite of a local vector cases of Zika virus disease in Kentucky, and more specifically, within the Louisville Metro jurisdiction.


This document highlights the roles and responsibilities of Zika response teams in Texas. It can serve as a model for other states and jurisdictions.
Texas Department of State Health Services. (2016). *Zika Virus Preparedness and Response Plan*. Developed by and for the State of Texas, this Zika preparedness and response plan can be used by others charged with creating related guidance.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). *About the Zika Virus Planning Resources*. This document provides an overview of the planning resources documents designed to enhance healthcare coalition and healthcare system preparedness and response to a domestic Zika virus disease outbreak.

* U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). *Guillain-Barré Syndrome and Other Neurological Deficits Planning Resource*. The planning resource can enhance healthcare coalition and healthcare system preparedness and response to a domestic Zika virus disease outbreak, as it highlights some of the anticipated hospital resource needs essential to caring for Guillain-Barré syndrome and other neurological deficits.

U.S. Department of Health and Human Services, Office for the Assistant Secretary for Preparedness and Response. (2015). *HHS Response and Recovery Resources Compendium*. The HHS Response and Recovery Resources Compendium is an easy to navigate, comprehensive, web-based repository of HHS resources and capabilities available to federal, state, local, territorial and tribal stakeholders before, during, and after public health and medical incidents.

* U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). *Maternal-Fetal Health Planning Resource*. This matrix illustrates some of the anticipated hospital and healthcare system resources needs essential to caring for high-risk pregnancies and children born with microcephaly or other birth defects that may be associated with Zika virus infection.

* U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). *Supporting Children with Special Healthcare Needs Planning Resource*. This matrix highlights some of the existing federal and national services and programs for supporting children with special healthcare needs in the context of Zika. It includes guidance and links to helpful resources.
This document highlights some of the anticipated hospital and healthcare system planning issues essential to caring for suspect Zika cases, complicated Zika cases, pregnancies associated with Zika virus infection, and children born to Zika-infected mothers who have birth defects that may be associated with Zika virus infection.


Healthcare providers and others can download this app to access the latest World Health Organization information Zika virus disease.


This World Health Organization (WHO) plan provides the basis for coordination and collaboration among WHO and its partners to ensure international preparedness and response capacities are supported to the fullest extent possible. The plan focuses on preventing and managing medical complications caused by Zika virus infection (with a focus on pregnant women, their partners, and their households) and integrated mosquito management, sexual and reproductive health counselling, and related health education and care.

Prevention and Vector Control


The Centers for Disease Control and Prevention share information on mosquito bite protection, focusing on Zika, dengue, chikungunya, and how to prevent bites when traveling.


The Centers for Disease Control and Prevention share tips for mosquito control outside and inside the home. This webpage also includes links to related graphics.


This webpage explains aerial spraying (to control disease such as Zika virus), when and how it is used, and includes links to related resources.
* Centers for Disease Control and Prevention. (2016). *Insect Repellent Use & Safety*. This webpage includes information on insect repellant, including safety, application, and use by pregnant/nursing women.

Centers for Disease Control and Prevention. (2016). *Interim CDC Recommendations for Zika Vector Control in the Continental United States*. This webpage includes guidance related to what can be done by state, local, and tribal vector control specialists before and during mosquito season to prepare for Zika virus activity.

Centers for Disease Control and Prevention. (2016). *Prevention*. The Centers for Disease Control and Prevention share strategies for preventing Zika, including how to prevent mosquito bites, how to prevent others from getting sick, and information on sexual transmission.

Centers for Disease Control and Prevention. (2016). *Technical Statement on the Role of Disinsection in the Context of Zika Outbreaks, 2016*. The Centers for Disease Control and Prevention discuss the use of insecticides (i.e., disinsection) to curb the spread of Zika virus.

Centers for Disease Control and Prevention. (2016). *Zika and Animals*. This webpage contains information about Zika and animals and emphasizes that there have not been any reports of pets or other types of animals becoming sick with the virus.

* Organization of Teratology Information Specialists. (2016). *DEET (N,N-ethyl-m-toluamide) and Pregnancy*. MotherToBaby. This factsheet includes a definition of DEET (the ingredient found in many insect repellants), explains how it is absorbed by humans, and provides information on safety of use by pregnant women and women who have recently given birth.

Texas Department of State Health Services. (2016). *Texas Integrated Vector Management Capacity*. The Texas Department of State Health Services surveyed 46 Public Health Emergency Preparedness (PHEP) participating local health departments to understand the state’s integrated vector management capacity in the context of Zika. The primary finding was that 65% of the state’s population lives in a PHEP jurisdiction that has an integrated vector management plan and/or activities.
Texas Department of State Health Services. (2016). *Zika Prevention.*

These 15- and 30- second videos were developed by and for the State of Texas. Available on YouTube, in English and Spanish, these videos encourage residents to visit [www.texaszika.org](http://www.texaszika.org) to learn more about preventing Zika.


This toolkit was developed to help providers of family planning services share information with non-pregnant clients about the risk of Zika infection.


This notice published by the U.S. Food and Drug Administration requests public feedback on the investigational release of genetically engineered (GE) mosquitoes under an investigational new animal drug exemption.


This webpage includes information on insect repellant, including safety, application, and use on children. It also includes links to other pages featuring information on insect repellant.

Reproductive Health (Prevention/Transmission)


The authors tested serum, urine, and semen from a Zika-positive patient and found that only semen was positive for Zika virus by rRT-PCR, at 27 and 62 days after onset of febrile illness. The authors discuss the implications of this finding.


The Centers for Disease Control and Prevention provide guidance related to Zika virus and: pregnant women and women of reproductive age, infants and children, and sexual transmission.

The Centers for Disease Control and Prevention shares updated interim guidance for those with possible Zika virus exposure who are planning to conceive and interim guidance to prevent transmission of Zika virus through sexual contact.

Centers for Disease Control and Prevention. (2016). *Contraception to Prevent Unintended Pregnancy during the Zika Virus Outbreak.*

The guidance on this webpage can help healthcare providers provide Zika-related contraceptive information to their patients.


This webpage includes tips for preventing mosquito bites, information on pregnant women and Zika, tips for practicing safe sex, and links to related information.


The Centers for Disease Control and Prevention share guidance for women and men who live in areas where Zika virus has spread and are interested in conceiving.


Resources on this page are focused primarily on the sexual transmission of Zika, including knows and unknowns. Links to resources in English and Spanish are also provided.


This letter was sent from the Centers for Medicare and Medicaid Services to all State Health Officials (SHOs) to clarify previous guidance on the delivery of family planning services and supplies to all Medicaid beneficiaries.


This case report highlights how Zika virus can be transmitted through anal and vaginal sex.

The authors tested a Zika patients' semen two weeks after system onset and found viral load was nearly 100,000 times that of his blood or urine. The authors discuss implications regarding sexual transmission.


The recommendations in this guidance document apply to men who have traveled to or reside in areas with active Zika virus transmission and their female or male sex partners.


The Centers for Disease Control and Prevention issued this interim guidance for couples planning to conceive and couples who are not pregnant or planning to become pregnant, but who want to maximally reduce their risk of sexual transmission.


The authors explain how increased access to contraception could reduce the rates of unintended pregnancy and fewer adverse Zika-related pregnancy and birth outcomes.


This toolkit was developed to help providers of family planning services share information with non-pregnant clients about the risk of Zika infection.


The World Health Organization explains updated guidance regarding prevention of sexual transmission of the Zika virus.

**Research**

The Florida Department of Health Bureau of Public Health Laboratories conducted testing on samples from 913 persons who met the state criteria for testing. Test results for urine and serum samples showed that approximately twice as many urine specimens tested positive for Zika virus than serum specimens, suggesting that urine might be a more useful specimen for identifying acute Zika virus infection.


Through evaluation of travel patterns from current countries with Zika virus disease spread and mosquito habitation patterns, the authors have predicted possible Zika virus disease spread throughout the Americas, including the U.S. The authors also included a predictive map.


This article describes a research study demonstrating that Aedes aegypti mosquitoes were present in samples taken in Capitol Hill, Washington, DC throughout 2011-2014. These mosquitoes were not previously thought to travel further north than the average 10 degree Celsius isotherm.


The author discusses the emerging cases of Zika virus in Cape Verde, West Africa and the need to begin surveillance and mosquito control to prevent more transmission. The author also discusses the timeline of the epidemic, beginning in October 2015 and predicting an increase in cases of microcephaly in May/June 2016, from mothers infected with Zika virus who have not been properly screened and evaluated.


Researchers working with Zika virus and human neural cells demonstrated that Zika virus does infect the neural cells and affects their ability to replicate and survive.

**Risk Communications**

* Centers for Disease Control and Prevention. (2016). *CDC Emergency Vector Control Request Form*.

This Excel file can be used to request vector control services from the Centers for Disease Control and Prevention. Different tabs are offered, allowing requests to be tailored to need and location.
Centers for Disease Control and Prevention. (2016). Make Sure to Get Your Zika Test Results.

Healthcare providers can download, print, and complete this card and share it with patients as a reminder to follow up on Zika testing results.


Speakers can use this flipbook when communicating about Zika risk to community members.


This webpage includes links to Zika-specific factsheets, posters, palm cards, and other resources in several languages.


This summary of key Zika virus resources is a ready reference and aid for response planning for state, local, and territorial public health officials.


This planning guide provides resources that can help develop Zika-specific communication strategies and messages. The Centers for Disease Control and Prevention also include links to factsheets, infographics, and other materials that can be used in communication efforts.


This webpage includes links to two types of resources: those focused on reducing stress and anxiety related to Zika and resources that highlight risk communication strategies for public health officials.

Texas Department of State Health Services. (2016). Zika Communications Toolkit.

This Zika toolkit includes posters, push cards, and fact sheets--specific to Texas and available in English and Spanish--that can be tailored to other states and jurisdictions.


This guidance can help community health ministers communicate about Zika virus with residents. It includes communication strategies that can be used before mosquito season,
at the start of the season, after the first case of local transmission, and during active transmission.


This guide was written for health ministers (who may serve as residents’ first point of contact when it comes to Zika virus) and provides an overview of the virus, explains how it is spread, and lists symptoms and prevention strategies.


The World Health Organization shares information that dispels rumors about Zika virus and issues such as repellants, Wolbachia, and genetically modified mosquitoes.

Agencies and Organizations

Note: The agencies and organizations listed in this section have a page, program, or specific research dedicated to this topic area.


Center for Infectious Disease Research and Policy. Zika Resource Page.

Centers for Disease Control and Prevention. Zika Virus.

National Library of Medicine. Zika Virus Health Information Resources.


U.S. Food and Drug Administration. Zika Virus Response Updates from FDA.

World Health Organization. Zika Virus.

This Topic Collection contains all of the resources found in the ASPR TRACIE document Zika: Resources at Your Fingertips. That document is updated regularly and reviewed by the following subject matter experts, listed in alphabetical order (an asterisk indicates the expert also reviewed this Topic Collection): Marion Danis,* MD, Department of Bioethics, National Institutes of Health; Dan Hanfling, MD, Contributing Scholar, UPMC Center for Health Security, Member, InterAgency Board, Health and Medical Responder Safety, Attending Physician, BestPractices, Inc. (a division of EmCare), Clinical Professor of Emergency Medicine, George Washington University, and Strategic Advisor, U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response (HHS/ASPR), Hospital Preparedness Program; John Hick,* MD, HHS ASPR and Hennepin County Medical Center; Alicia Livinski, Biomedical Librarian, HHS National Institutes of Health; Gavin
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