



District Health Department #10



REPORT TO THE BOARDS OF HEALTH

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Swine Flu (Influenza A/H3N2v)

Early this month, the Michigan Department of Health and Human Services (MDHHS) announced two human cases of variant influenza A/H3N2 (H3N2v) which is a form of “swine flu.” Both individuals were swine exhibitors at the Muskegon County Fair and had direct exposure to ill swine. One of the pigs from the exhibit tested positive for influenza (H3N2.) Shortly after that, MDHHS announced that a pig shown during the Ingham County Fair August 1-6, 2016 was ill and also tested positive for Influenza A virus. No human cases of H3N2v have been reported linked to the pig from the Ingham County Fair.

This strain of flu originates from swine but has re-assorted (or combined) with a gene from the 2009 H1N1 influenza A virus. This is likely why it is more easily infecting humans compared to other strains of swine flu. Since 2011, there have been 11 cases of H3N2 in Michigan (six cases in 2012, two in 2013, one in 2015, and two cases to date this year.) In the United States, there were 346 cases reported between 2011 and 2015. Human-to-human transmission of this strain has, so far, not been seen. This means that, at this time, direct or indirect contact with swine is the only way to get infected with influenza H3N2. Direct contact would include touching and handling an infected pig. Cleaning a pig stall or touching the fence around the swine would be considered indirect contact.

Most human cases of H3N2 have been mild. Of the 346 cases reported in the US over the past four years, only 20 of those infected (or 6%) had to be hospitalized. Only one individual known to be infected with influenza H3N2 has died since 2011. The majority of individuals that suffered more severe illness have a risk factor of some type. That is why individuals at high risk for influenza complications are advised to avoid pigs and swine barns. The high risk factors for influenza can be found here: http://www.cdc.gov/flu/about/disease/high_risk.htm.

Other Useful Swine Flu resources:

- Centers for Disease Control and Prevention (CDC) Influenza A (H3N2) Variant Site: <http://www.cdc.gov/flu/swineflu/h3n2v-cases.htm>
- A Champion’s Guide to Youth Swine Exhibition: Biosecurity and Your Pig Project: <https://www.aasv.org/aasv/BiosecurityforYouthSwineProjects>
- The Changing Face of Swine Influenza Virus: <http://www.porknetwork.com/pork-magazine/smart-thinking/The-Changing-Face-of-Swine-Influenza-Virus-133249878.html>
- CDC Health Pets Healthy People Site: <http://www.cdc.gov/healthypets/>
- Handwashing Poster for Animal Exhibits: <http://www.cdc.gov/healthypets/resources/exhibits-handwashing.pdf>
- Swine Health Recommendations for All Pigs Going to Exhibit or Sales: <https://www.aasv.org/pedv/RecExhibitor.pdf>

- Michigan 2016 Fairs and Exhibition Requirements Summary: https://www.michigan.gov/documents/mdard/2016_Fair_and_Exhibition_Resource_Material_SM_52_4387_7.pdf
- MDARD 2016 Exhibition Requirements for Livestock Exhibited in Michigan Page: http://www.michigan.gov/mdard/0,4610,7-125-1571_7075---,00.html

Zika Virus Update

Zika virus continues. As of August 11, there were 23 confirmed cases in Michigan, all contracted during travel. To date, no pregnant women in Michigan have been infected. Over 660 people have been tested in Michigan. As of August 3, there have been 1,825 cases diagnosed in the U.S.; 16 of these cases were sexually transmitted. Five cases have been complicated by a rare neurologic condition known as Guillain-Barre. Unfortunately, 510 of the cases in the U.S. have been in pregnant women. As of August 4, there have been 16 live births in the U.S. with Zika-related birth defects and 5 pregnancy losses attributed to Zika. Recently, (likely in early August), an infant in Harris County, Texas, died shortly after birth due to the severity of her Zika-induced birth defects (which was reported to be microcephaly.)

Since the end of July, there have been 22 cases of locally-acquired Zika virus infections in Florida. These have all occurred in a one-square mile area just north of downtown Miami. It is suspected that the mosquitos in this area are still transmitting the Zika virus.

Zika virus is primarily spread through the bite of an *Aedes aegypti* or *Aedes albopictus* mosquito. At this time, it is unclear if there are other non-*Aedes* mosquito species that could spread Zika virus. Several counties in Michigan are conducting mosquito surveillance for *Aedes* vectors of Zika and, as of July 22, 2016, none have been detected. MDHHS has been maintaining a very useful Zika Information Page (<http://www.michigan.gov/emergingdiseases/0,4579,7-186-77096---,00.html>), which contains information for healthcare providers and residents.

Recommendations for testing and prevention continue to change and are challenging to keep pace with. Pregnant women should now be tested anytime within 12 weeks of travel to an at risk area (these areas are defined at <http://www.cdc.gov/zika/geo/active-countries.html>;) OR if they had unprotected sex with a partner who may have been exposed to Zika. When pregnant women are tested, it is now asked that both urine and blood samples are sent for testing. Testing of non-pregnant men and women is recommended when there has been travel to an at-risk area, followed within two weeks with one or more symptoms of illness (fever, rash, joint pain, red irritated eyes;) OR they had sex without protection with a person who traveled to an area with ongoing Zika transmission within two weeks prior to developing one or more symptoms of illness.

Note that sexual contact with a symptomatic or asymptomatic person at risk of exposure to Zika is a risk factor. Zika has already been known to be present in semen. Previously, the longest Zika RNA had been detected in semen was 93 days. On August 11, new data was published showing that it can be present much longer. An Italian citizen who traveled to Haiti in February 2016 has been followed since his return home. On day 91 (approximately 3 months) after his return home, urine, saliva and semen samples all tested positive for Zika RNA. On day 134 (almost five months,) only his semen sample was positive. On day 188 (over 6 months after return,) a semen sample was again positive; the patient is still under evaluation.¹ There has also been a confirmed case of female-to-male sexual transmission of Zika virus in the United States. Zika virus RNA has been found in vaginal fluids three days after symptom onset and in cervical mucus up to 11 days after symptom onset.

Finding RNA means that at least parts of the virus are present in the sample but does not necessarily mean it is infectious or contagious. However, it is certainly concerning. Therefore, any sexual exposure is considered a risk for transmitting the Zika virus. For more specific information defining sexual exposure

and preventing sexual transmission of Zika virus, see <http://www.cdc.gov/zika/prevention/protect-yourself-during-sex.html>.

Women who have traveled to Zika endemic areas should use condoms abstain from intercourse and avoid pregnancy for eight weeks or more after their return. Men who return and do not develop any signs of illness should use condoms or abstain from intercourse for eight weeks after their return. Any man who has a symptomatic infection with Zika should practice these precautions for at least six months. However, if their partner is pregnant, any man with risks for Zika exposure, whether or not symptomatic, should use condoms or abstain from sex during the entirety of their partner's pregnancy.

In April, \$589 million in Ebola funding was shifted to the Zika effort, with about two-thirds of the total designated for domestic use.² The CDC redistributed \$44.25 million in funds from Public Health and Emergency Preparedness (PHEP) grants to the Zika response. In doing so, state and local health departments lost resources needed to prepare for and respond to emergencies, including Zika, at the community level.³ In the last four months, the CDC has spent \$60 million to help states protect pregnant women, \$25 million to strengthen their Zika preparedness and response plans, and \$16 million to help them create data-collection systems to quickly detect microcephaly and other Zika-related syndromes.

In May, the Senate approved \$1.1 billion in funding to fight Zika, fund vaccine research, and fund prevention efforts.⁴ However, the House has introduced different legislation that is funded in part by taking more money from Ebola programs, which many argue is a problem that is not over. The House bill is also tied to numerous other provisions, such as restricting the role of Planned Parenthood and similar clinics in providing contraceptive services related to fighting the Zika virus, cutting \$540 million in financing from the Affordable Care Act, and weakening environmental restrictions on pesticide use.⁵

Due to dwindling funds and lack of other options, the Obama administration announced on August 11 it was shifting \$81 million away from biomedical research, antipoverty and health care programs to pay for the development of a Zika vaccine.² An editorial published this month in *The Journal of the American Medical Association (JAMA)* called for urgent action and reminds us we do not have time to waste when it comes to our response to Zika. The author also points out "an improved mechanism to respond to emergencies is also crucial, with bipartisan calls for an infectious disease rapid response fund to speed implementation of emergency response".⁶

¹ Nicastrì E, Castillettì C, Liuzzi G, Iannetta M, Capobianchi MR, Ippolito G. Persistent detection of Zika virus RNA in semen for six months after symptom onset in a traveler returning from Haiti to Italy, February 2016. *Euro Surveill.* 2016;21(32):pii=30314. DOI: <http://dx.doi.org/10.2807/1560-7917.ES.2016.21.32.30314>

² Hirschfeld-Davis, J. (August, 2016.) *With Congress Deadlocked, White House Diverts Funds to Fight Zika.* *The New York Times.* Retrieved at <http://www.nytimes.com/2016/08/12/us/politics/with-congress-deadlocked-white-house-diverts-funds-to-fight-zika.html> on August 12, 2016.

³ *The National Association of County and City Health Officials, The Association of State and Territorial Health Officials, The Council of State and Territorial Epidemiologists, The Association of Public Health Laboratories. Impact of the Redirection of Public Health Emergency Preparedness (PHEP) Funding from State and Local Health Departments to Support National Zika Response.* Retrieved at <http://astho.org/Infectious-Disease/Impact-of-the-Redirection-of-PHEP-Funding-to-Support-National-Zika-Response/> on June 18, 2016.

⁴ Sumner, M. (May, 2016.) *Senate Passes Zika funding, heads for fight with House.* *Daily Kos.* Retrieved at <http://www.dailykos.com/story/2016/5/19/1528465/-Senate-passes-Zika-funding-as-an-amendment-heads-for-fight-with-House> on August 12, 2016.

⁵ Herszenhorn, D. (June, 2016.) *Zika Bill Is Blocked by Senate Democrats Upset Over Provisions.* *The New York Times.* Retrieved at <http://www.nytimes.com/2016/06/29/us/politics/congress-zika-funding.html> on August 12, 2016.

⁶ Frieden TR, Schuchat A, Petersen LR. *Zika Virus 6 Months Later.* *JAMA.* Published online August 08, 2016. doi:10.1001/jama.2016.11941.