

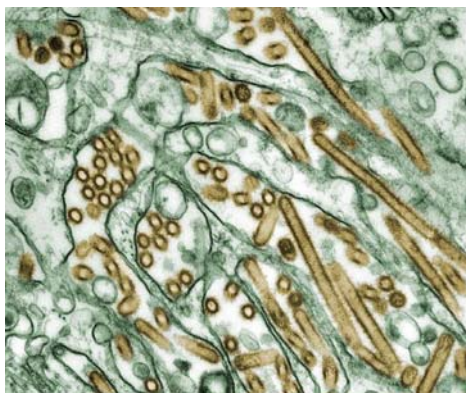
The Epi Chronicle



IN THE NEWS: Avian Influenza **Author:** Paul Zivich

Avian influenza, also referred to as HPAI H5, is a highly pathogenic strain of flu that affects birds. Pathogenicity refers to a microbe's (like bacteria or viruses) ability to cause disease. Avian influenza H5 was first confirmed by the United States Department of Agriculture (USDA) in December 2014. The disease has impacted wild birds, commercial poultry farms, and backyard farms. Currently, there have been no human infections with HPAI H5 in the US. While the Centers for Disease Control and Prevention (CDC) believes the risk of future human infections to be low, this disease can still have substantial impacts on the economy. In order to control and minimize the spread of avian influenza, farms with confirmed cases must euthanize their flock and go through a lengthy disinfectant procedure on their farm.

As of June 2015, there has been no reported HPAI H5 in Ohio. The Ohio Department of Agriculture is primarily responsible for the prevention and control of Avian influenza in Ohio. To reduce potential spread, all live bird exhibitions have been banned this year. Ohio is the second largest egg producer in the US and the poultry industry constitutes \$2.3 billion of Ohio's economy.



HPAI H5N1 seen in gold.

Photo credit: Cynthia Goldsmith

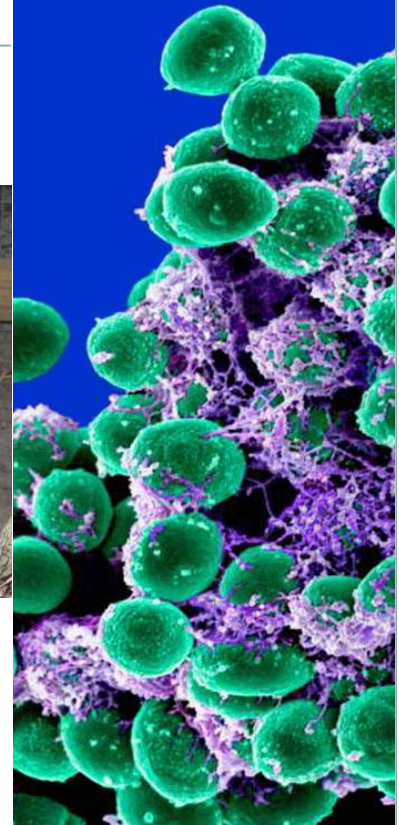


Image (left) courtesy of CDC / Eric Grafman

Image (above) courtesy of NIAID

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SPECIAL POINTS OF INTEREST

- See some food recalls from Quarter 2 on page 2
- Ebola update on page 3
- Tips to avoid bug bites on page 4



RECALL NOTICE

List of Notable Recalls:

- April 8, 2015: Sabra Hummus- Possible Listeria contamination
 - May 1, 2015: Sun Rich Fresh Food sliced apples– Listeria contamination
 - June 10, 2015: Nice! Powdered Sugar Mini Donuts (Walgreens co.)- Mold
 - June 12, 2015: Jeni’s Splendid Ice Creams closed- Listeria detected a second time
 - June 22, 2015: Niagara water—Possible E. coli contamination
 - June 25, 2015: Morris Frozen Food Locker’s pork products— mislabeled
- Further information regarding these recalls and others can be found at www.fda.gov/Safety/Recalls/ or <http://www.agri.ohio.gov/apps/odanews/odarecalls.aspx?div=Food%20Safety>

“Factors like how much education an individual obtains, what kind of work a person does, and discrimination all influence the health of people and communities.”

DETERMINANTS OF POPULATION HEALTH

- Genes & Biology
- Health Behaviors
- Medical Care
- Societal characteristics
- Physical environment

CLEVELAND OFFICE OF MINORITY HEALTH CONTACT INFORMATION

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WHAT ARE SOCIAL DETERMINANTS OF HEALTH?

Author: Paul Zivich

Health is determined by many factors. In this article, we will explore what are some of the social determinants of health. The Centers for Disease Control and Prevention defines social determinants of health as “the circumstances in which people are born, grow up, live, work, and age, as well as the systems put in place to deal with illness.” These conditions are influenced by economics, social policies, and politics. Factors like how much education an individual obtains, what kind of work a person does, and discrimination all influence the health of people and communities.

A list of all the determinants of health are listed on the left. Social determinants are encompassed by societal characteristics, physical environment, and medical care. According to this theory, social determinants account for about 75% of a population’s health

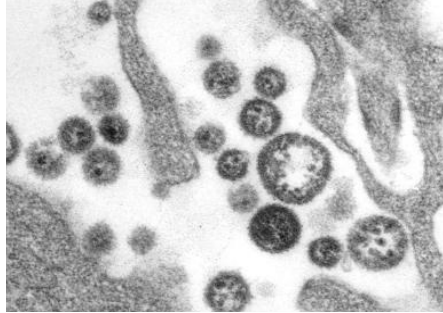
By working to address the social determinants of health, health equity can be achieved. Health equity means removing systematic differences in health due to advantages and disadvantages due to social hierarchy.

In Cleveland, the Office of Minority Health works to achieve health equity. The contact information for the office can be found to the left of the article.

DISEASE SPOTLIGHT: *LASSA FEVER*

Author: Paul Zivich

On May 26, 2015 a traveler from West Africa died due to Lassa Fever in the United States. This caused some concern because Lassa Fever has similar features to Ebola. In this article, we will discuss the similarities and differences between Lassa Fever and Ebola Virus Disease.



Lassa fever virus particles
Image courtesy of CDC, C.S. Goldsmith,
P. Rollin, M. Bowen

Lassa Fever was first discovered in 1969 when two missionaries died in Nigeria. Lassa Fever is a virus that is spread by a certain species of rat native to Africa. Lassa Fever is considered endemic in certain regions of Africa. Endemic means the disease is always present at some rate in the population. In order to control Lassa Fever, governments in Africa have created Lassa Fever surveillance programs. When the Ebola outbreak began, these surveillance systems worked to track and minimize Ebola infections.

Similarities:

- Both Ebola virus disease (EVD) and Lassa Fever have similar symptoms, such as fever, headache, muscle pain, and bleeding. Severe cases can lead to organ failure. Symptoms are generally milder in Lassa Fever cases.
- For both EVD and Lassa Fever, symptoms usually occur 1-3 weeks after exposure.
- Person-to-person transmission is possible for both viruses, but it is highly unlikely for Lassa Fever. Person-to-person transmission is only likely to occur in hospitals where proper personal protective equipment is not utilized.

Differences:

- Lassa Fever can cause facial swelling, tremors, and even deafness in some cases.
- Most cases of Lassa Fever have milder symptoms than EVD.
- Lassa Fever is primarily spread by rodent urine or feces.
- Lassa Fever can be treated, if it is caught early. The treatment consists of an antiviral drug known as Ribavirin.
- Death due to Lassa Fever is significantly lower than EVD (overall Lassa Fever mortality: 1% vs. overall Ebola mortality: 50%)

Both Lassa fever and Ebola are listed as Class A reportable diseases. This means that if a doctor or laboratory discovers or suspects a case of a Class A disease, they are required by Ohio law to immediately report the condition to the health department.

EBOLA TIMELINE

- December 2013: First believed case of Ebola
- March 2014: Health officials in Guinea & Sierra Leone notice spike in hemorrhagic fevers
- August 2014: Three cases are transported to the US and receive treatment
- September 2014: Thomas Duncan diagnosed with EVD. Infected two nurses. Duncan later passed away.
- October 2014: Exposed nurse visits Cleveland and later develops EVD. Both nurses recovered and no further spread.
- May 9, 2015: Liberia declared Ebola free
- June 27, 2015: There have been over 27,500 cases and 11,000 deaths due to EVD



Image courtesy of CDC & Dr. Heidi Soeters

PREVENTING MOSQUITO BITES

- Use insect repellent that contain either DEET, picaridin, IR3535, or plant-based oil of lemon eucalyptus
- Wear long-sleeves and long pants
- Minimize time spent outside during dawn and dusk
- Empty standing water from containers (flower pots, buckets, etc.) to prevent mosquito larva from developing in the water

PREVENTING TICK BITES

- Perform tick checks during and after outdoor activities
- Avoid walking through tall grass
- Shower after coming indoors to wash-off or discover any ticks
- Tumble dry clothes on high heat to kill any remaining ticks in clothing
- Talk with your veterinarian about tick preventatives for your pet
- Use landscaping to reduce the number of ticks in your yard.
More information is available at http://www.cdc.gov/lyme/prev/in_the_yard.html

WEST NILE VIRUS

Author: Paul Zivich

West Nile Virus is a disease that is spread by infected mosquitoes. The virus is spread in Europe, Asia, Africa, and Australia. The first case in the US was detected in 1999. Since then, it has spread across the continental US. Outbreaks generally occur every summer (June to September). Last year, three cases were reported to the Cleveland Department of Public Health (CDPH).

Symptoms take 2 to 14 days after being bit by an infected mosquito to develop. About 70 to 80% of West Nile cases will not exhibit any symptoms. Those who do develop symptoms often will have a fever, joint pain, vomiting, diarrhea, or a rash. Fatigue and weakness can last for several weeks to months after other symptoms disappear. Less than 1% of those infected develop into severe cases. In severe cases, individuals may develop inflammation (swelling) of the brain. These cases require hospitalization. Symptoms can include headache, high fever, tremors, seizures, or paralysis. Severe cases can take months to recover from and could result in permanent neurological damage.

Currently, there is no vaccine or treatment for West Nile virus. The most important action you can take is to prevent mosquito bites. See the side panel for advice on how to avoid mosquito bites this summer.



Image courtesy of CDC, James Gathany

West Nile virus also affects birds bitten by mosquitoes. Dead birds can serve as a warning of a West Nile outbreak. If you see unusual dead birds, please report them to Cleveland Animal Control at (216) 664-3069.

LYME DISEASE

Author: Paul Zivich

Lyme disease is caused by the bacterium *Borrelia burgdorferi*. The disease is spread by the Blacklegged tick, also known as the Deer tick. Ticks will bite and attach themselves to hard-to-see areas like the scalp or armpits. After the tick bites it takes 36 to 48 hours for the bacteria to enter the human body. If you discover a tick, it is important to remove it with tweezers as soon as possible. Use the tweezers to grasp the tick as near to the head as possible, and then firmly pull away from the skin. After removing the tick, dispose of it by flushing it down the toilet. Clean the tweezers, your hands, and the bite area with alcohol, or soap and water.

The major indicator of Lyme disease infection is a 'bull's eye' rash that develops 3 to 30 days after the tick bite. The rash is often not painful and does not itch. Infected individuals may also have a fever, fatigue, headache, or joint pain. If untreated, the bacteria can spread to other parts of the body. Symptoms can include swelling and pain in large joints (especially in the knees), severe headache, temporary facial paralysis, or irregular heartbeat (Lyme carditis). While there is no vaccine for Lyme disease, there is an antibiotic treatment.

In 2014, there were two suspected cases of Lyme Disease reported to CDPH. One of the cases was later proven not to be Lyme Disease. Most cases reported are travel-associated, meaning the individual was exposed outside of Cleveland and then began to show symptoms once they returned. To see how you can prevent tick bites, refer to the side panel, "Preventing tick bites."

CHIKUNGUNYA

Author: Paul Zivich

Chikungunya is a viral disease that is spread by mosquitoes. A mosquito will bite an infected person and carry the virus. If the mosquito then bites another person, it will spread the virus. After being bit by an infected mosquito, most people will develop symptoms 3 to 7 days later. The most common symptoms are fever and joint pain. Other symptoms that may occur are headache, muscle pain, joint swelling, or a rash. Most patients recover within a week, however some may experience symptoms for months. Currently, there is no treatment for Chikungunya.

In Cleveland, there have been 11 cases since June 2014. These cases are all from travelers who traveled to Central America, or live in Central America and visited Cleveland. There is no evidence that Chikungunya is spread by mosquitoes in Ohio. You are more likely to contract Chikungunya while traveling. The CDC's webpage provides helpful information for travelers (<http://wwwnc.cdc.gov/travel>). To reduce your risk of Chikungunya and other arthropod-borne (spread by bugs) diseases, refer to the side panel on the previous page, "Preventing Mosquito bites."



CDC Entomologist, John-Paul Mutebi, collecting mosquitoes for chikungunya testing in the US Virgin Islands

Image courtesy of CDC

"...to avoid the yearly flu ... receive the yearly vaccine and wash your hands regularly."

LOCAL OUTBREAK: INFLUENZA

Author: Paul Zivich

In March, the Office of Communicable Diseases Surveillance and Epidemiology (OCDSE) was contacted by a school administrator to report fourteen students who had influenza like illness symptoms. The primary symptoms reported were muscle aches, fever, and cough. Later in the afternoon, the administrator reported the school had sent 67 children home and 5 staff members. The next day there were 5 additional children and 3 more staff members sick with influenza-like illness.

There are three types of Influenza virus; A, B, and C. Influenza types A and B are the causes of the season flu. Influenza type C is not believed to lead to yearly outbreaks. In this outbreak, one student had gone to the doctor and tested positive for Influenza B. The common flu vaccine used every year is a trivalent vaccine. This means the vaccine is designed to protect against three strains of flu virus. In general, two strains are for Influenza A and one for Influenza B. Every year, about 36,000 people die from the seasonal flu. The most vulnerable are young children, elderly adults, and immune-compromised individuals. The most important steps to avoid the yearly flu are to receive the yearly vaccine and wash your hands regularly.

To prevent further spread, the administrator was provided with control measure recommendations. The recommendations outlined cleaning guidelines and exclusion protocols. The OCDSE also met with other departments at the Cleveland Department of Public Health (CDPH) to discuss possibly recommending voluntary closing of the school. The administrator decided to close the school for one week based on the recommendations from CDPH. Through this recommendation and extensive cleaning, the outbreak was controlled. No additional cases were reported after the school had reopened.



The image above shows an influenza virus particle. The image was taken using an electron microscope.

Image courtesy of CDC, Erskine L. Palmer PhD, M.L. Martin, Frederick Murphy

COMMUNICABLE DISEASE SYNDROMIC SURVEILLANCE: QUARTER 2 HIGHLIGHTS

OFFICE OF COMMUNICABLE DISEASE SURVEILLANCE AND EPIDEMIOLOGY

The OCDSE is responsible for reducing the incidence of communicable disease (not including tuberculosis, sexually transmitted diseases, and HIV/AIDS) in the City of Cleveland through prevention, surveillance, and outbreak control.

Mission Statement:

To provide disease surveillance, data collection, data analysis, health education, preparedness planning, outbreak response, and disease prevention services designed to protect the health of Clevelanders

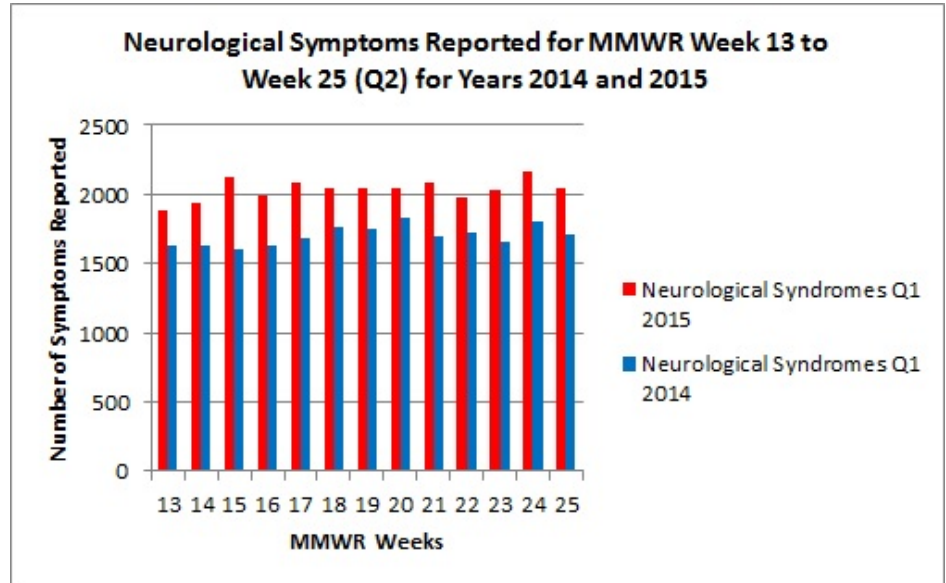


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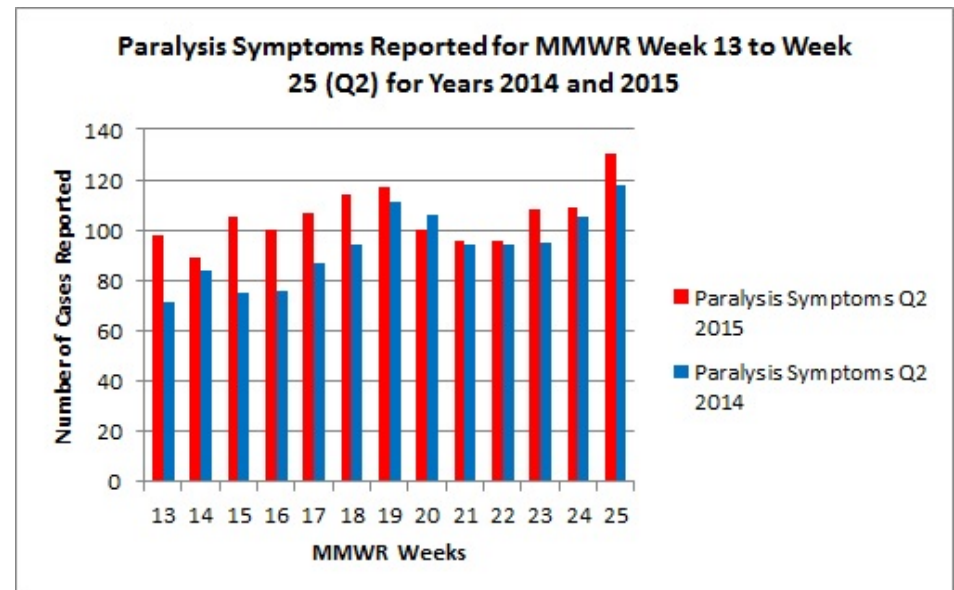
Author: Brent Styer, MPH

Neurological and Paralysis Symptoms Reported to EpiCenter by MMWR Weeks for Cuyahoga County



Percent change from last year (2014): +19.71%

Neurological symptoms were higher for Q2 2015 compared to the same time frame of Q2 2014



Percent change from last year (2014): +13.14%

Paralysis symptoms were higher for Q2 2015 compared to the same time frame of Q2 2014

