



# EPI WATCH

Monthly Epidemiology and Preparedness Newsletter

June 2016

**Florida Department of Health in Pinellas County**

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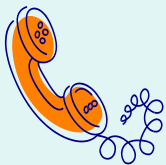
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**For more information, or to add your e-mail address to the distribution list, please contact the Editor.**

**Division of Disease Control and Health Protection****Disease Reporting**

To report diseases and clusters of illness:

Phone: (727) 824-6932  
Fax: (727) 820-4270  
(excluding HIV/AIDS)

To Report HIV/AIDS  
by mail:

Surveillance Room 3-138  
205 Dr. MLK Jr St. N  
St. Petersburg, FL 33701

Animal Bite Reporting:  
Phone: (727) 524-4410  
x7665

## Cryptococcus gattii Infections

By Andrea Leapley, MPH

*Cryptococcus gattii* is a fungus that lives in the environment in tropical and sub-tropical areas of the world, from Australia and Papua New Guinea to parts of Africa, Asia, Europe, Mexico and South America. In North America, it is present in British Columbia, Vancouver Island, and the U.S. Pacific Northwest. There is also evidence that *C. gattii* may be present in other areas in the U.S. including California and the Southeast, as people from these areas have become infected without traveling outside these areas.

In the environment, *C. gattii* is often found living in trees or in soil around trees. Animals and humans become infected after inhaling the dried yeast cells or spores. Once in the body, the fungus travels to the lungs where the body's temperature facilitates a transformation into its yeast form and it develops thick outer layers for protection. The yeast cells bud and divide and can spread into the bloodstream to infect other parts of the body, such as the central nervous system.

The incubation period for *C. gattii* infection is uncertain. Some studies have demonstrated an average incubation period of 6-7 months (range 2-13 months). Other case reports detail incubation periods as long as 3 years after travel to areas where *C. gattii* is present. Symptoms of *C. gattii* infections depend upon the location of the infection. In the lungs, *C. gattii* causes a pneumonia-like illness with cough, shortness of breath, chest pain, and fever. In the brain, the fungus causes meningitis with symptoms including headache, fever, neck pain, nausea, vomiting, photophobia, and confusion or changes in behavior. *C. gattii* can also cause cryptococcomas (fungal growths) to develop throughout the body.

The risks for *C. gattii* infection vary by geographic location. It sometimes causes infection in persons with no underlying health conditions, which is common in Australia and Papua New Guinea. In Canada, a study found persons who have a weakened immune system, have lung conditions, are age 50 years or older, or are smokers are at an increased risk of infection. The varying risks may be related to the different molecular types of the fungus. There are four known types: VGI, VGII, VGIII, and VGIV. Type VGII is the most common cause of infections in North America and mostly causes lung infections. In Australia and Papua New Guinea, type VGI is most common type, which generally causes meningitis in previously healthy persons. More research is needed to understand the differences in types of *C. gattii* infections.

There are no established methods of *C. gattii* prevention. Most persons breathe in small amounts of various fungi every day and never become ill. There is no environmental test to determine if *C. gattii* is present in your area. Further, a positive environmental sample would not necessarily mean *C. gattii* is the source of an infection and a negative test would not mean that it is not present in that area. *C. gattii* infections cannot be spread from person to person or from animals to humans.

Testing serum or cerebrospinal fluid can detect the present of cryptococcal antigens but cannot distinguish between *C. gattii* and *C. neoformans*. Culture is the preferred method of determining whether an infection is caused by *C. gattii*. Treatment for *C. gattii* infections varies depending on the type of infection, but generally involves a prolonged course of antifungal medications. Physicians should consult the [Infectious Diseases Society of America's Clinical Practice Guidelines for the Management of Cryptococcal Disease](#) for guidance.

*C. gattii* infections are uncommon. According to the Centers for Disease Control and Prevention, 96 cases were reported in the United States between December 2004 and July 2011. Most cases occurred in the Pacific Northwest though a few cases occurred outside the region.

**In Florida, meningitis caused by *C. gattii* is reportable by the next business day. Clusters or unusual cases or trends of any disease, including any type of *C. gattii* infection, are reportable immediately upon suspicion.**

**For more information on *Cryptococcus gattii*, please visit the Centers for Disease Control and Prevention website: <http://www.cdc.gov/fungal/diseases/cryptococcosis-gattii/index.html>**

# First Report of the *mcr-1* Gene in a Human in the United States

On May 31, 2016, the Centers for Disease Control and Prevention (CDC) announced the first case of the *mcr-1* gene found in bacteria isolated from a human in the United States. The patient is a 49 year old Pennsylvania woman with no recent travel outside of the United States. In April, the patient presented to a physician with symptoms of a urinary tract infection and *E. coli* bacteria carrying the *mcr-1* gene were isolated from her urine. The *mcr-1* gene renders bacteria resistant to colistin, which is a last-resort antibiotic used to treat patients infected with multi-drug resistant organisms, including carbapenem-resistant enterobacteriaceae (CRE). Fortunately, this patient did not have CRE and the infection was not resistant to all antibiotics. Close contacts of the patient are being identified to determine whether they are at risk of infection from the bacteria.

Also in recent weeks, the U.S. Department of Agriculture (USDA) and Health and Human Services (HHS) departments announced the detection of the *mcr-1* gene in a single sample from a pig intestine in the United States.

The *mcr-1* gene was first identified in China in 2015. The gene exists on a plasmid, which is a small piece of DNA that is able to be transferred from one bacterium to another, spreading resistance among species. Government agencies, including the CDC, the USDA, and HHS, are working in collaboration to detect and prevent antibiotic resistance in the United States. To read more about the government response, visit the HHS website: <http://www.hhs.gov/blog/2016/05/26/early-detection-new-antibiotic-resistance.html>

On June 13, the CDC distributed a Health Advisory Notice (HAN) to remind health care providers about recommendations to prevent antibiotic resistant infections and steps to take to detect bacteria with the *mcr-1* gene.

CDC recommends the following:

- **Infection Prevention:** Healthcare providers should follow Standard and Contact Precautions for any patients colonized or infected with antibiotic resistant bacteria, including patients who are found to have *mcr-1* mediated resistant organisms. Healthcare facilities should follow manufacturers' instructions for device cleaning and reprocessing.
- **Laboratory Testing:** If laboratories are testing to determine whether colistin can be used clinically, Enterobacteriaceae isolates with a minimum inhibitory concentration (MIC) to colistin of 4 µg/ml or higher should be tested for confirmation and the presence of *mcr-1*. Thus far, all microorganisms that have contained the *mcr-1* gene can safely be tested in a biosafety level-2 (BSL-2) laboratory. Isolates should be sent to CDC for confirmatory testing via the state or local public health department, per the CDC test directory, if local testing is not available.
- **Validation of Laboratory Testing:** CDC is making test-bacteria with elevated colistin MICs, available to laboratories, researchers, and others through the FDA-CDC Antimicrobial Resistance Bacteria Isolate Bank for use in validation of colistin-resistance testing in U.S. clinical laboratories.
- **Environmental Cleaning:** Healthcare facilities should ensure rooms where patients with antibiotic-resistant infections have been placed receive thorough daily and terminal cleaning.
- **Reporting to Public Health:** Healthcare facilities and laboratories should adhere to local reporting requirements for all antibiotic resistant infections. If Enterobacteriaceae with *mcr-1* are identified from patients, healthcare facilities and laboratories should notify local or state public health authorities as quickly as possible, and inform clinicians caring for the patient and responsible infection prevention staff.
- **Preparing food safely:** Cook all meat, poultry, and fish to its proper internal temperature to kill bacteria, viruses, and other foodborne pathogens, regardless of antibiotic resistance.

**The complete CDC HAN, with links to resources, can be found here: <http://emergency.cdc.gov/han/han00390.asp>**

# Selected Reportable Diseases in Pinellas County

Disease	Pinellas		YTD Total		Pinellas County Annual Totals		
	May 2016	May 2015	Pinellas 2016	Florida 2016	2015	2014	2013
<b>A. Vaccine Preventable</b>							
Measles	0	0	0	0	0	0	0
Mumps	0	0	0	5	0	0	0
Pertussis	2	1	9	150	17	19	17
Varicella	4	1	52	390	38	35	19
<b>B. CNS Diseases &amp; Bacteremias</b>							
Creutzfeldt-Jakob Disease (CJD)	0	0	0	4	3	0	0
Meningitis (Bacterial, Cryptococcal, Mycotic)	1	0	4	57	6	4	5
Meningococcal Disease	0	0	0	7	1	0	1
<b>C. Enteric Infections</b>							
Campylobacteriosis	12	8	42	751	104	103	63
Cryptosporidiosis	2	8	9	179	49	240	19
Cyclosporiasis	0	0	0	1	3	0	5
<i>E. coli</i> Shiga Toxin (+)	0	0	0	61	2	6	7
Giardiasis	4	1	13	470	30	42	34
Hemolytic Uremic Syndrome (HUS)	0	0	0	4	0	0	1
Listeriosis	0	0	0	11	2	0	0
Salmonellosis	7	12	42	1471	196	216	203
Shigellosis	4	12	11	252	174	21	5
<b>D. Viral Hepatitis</b>							
Hepatitis A	1	0	2	44	4	2	6
Hepatitis B: Pregnant Woman +HBsAg	5	4	13	178	37	21	17
Hepatitis B, Acute	6	2	24	235	57	44	39
Hepatitis C, Acute	5	3	20	106	32	19	17
<b>E. Vector Borne/Zoonoses</b>							
Animal Rabies	0	0	2	28	1	2	0
Rabies, possible exposure	7	5	44	1280	114	190	193
Chikungunya Fever	0	0	1	6	2	10	0
Dengue	0	0	1	29	3	1	2
Eastern Equine Encephalitis	0	0	0	0	0	0	0
Lyme Disease	0	0	2	37	6	5	8
Malaria	0	0	0	12	2	3	1
West Nile Virus	0	0	0	1	1	0	0
Zika Virus	4	0	4	129	0	0	0
<b>F. Others</b>							
AIDS**	13	20	57	n/a	118	129	114
HIV**	28	33	131	n/a	252	171	157
Chlamydia	366	337	1770	n/a	4147	3853	4141
Gonorrhea	138	106	664	n/a	1438	1295	1424
Hansen's Disease	0	0	0	7	0	0	0
Lead Poisoning: Children < 6 years:	0	0	1	50	6	8	4
Legionellosis	0	1	5	91	18	13	10
Mercury Poisoning	0	0	0	12	1	2	0
Syphilis, Total	30	21	151	n/a	283	186	114
Syphilis, Infectious (Primary and Secondary)	15	10	80	n/a	151	75	52
Syphilis, Early Latent	10	4	54	n/a	83	61	37
Syphilis, Congenital	0	0	0	n/a	3	0	0
Syphilis, Late Syphilis (Late Latent; Neurosyphilis)	5	7	17	n/a	52	50	25
Tuberculosis	1	3	7	n/a	14	25	30
<i>Vibrio</i> Infections	1	1	2	48	11	10	11

n/a = not available at this time. Blank cells indicate no cases reported. Reportable diseases include confirmed and probable cases only. All case counts are provisional. Data is collected from the Merlin Reportable Disease database, surveillance systems maintained at the Florida Department of Health in Pinellas County, and Florida CHARTS <http://www.floridacharts.com/charts/default.aspx>.

\*\*STD data in PRISM is continually updated. Please note, data from the previous month takes up to an additional month or more to be correctly updated.

\*\*Current HIV Infection data by year of report reflects any case meeting the CDC definition of 'HIV infection' which includes all newly reported HIV cases and newly reported AIDS cases with no previous report of HIV in Florida. If a case is later identified as being previously diagnosed and reported from another state, the case will no longer be reflected as a Florida case and the data will be adjusted accordingly. Data from the most recent calendar year (2015 or 2016) are considered provisional and therefore should not be used to confirm or rule out an increase in newly reported cases in Florida.