Louisiana Morbidity Report

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Death from Rat-bite Fever Louisiana, 2018

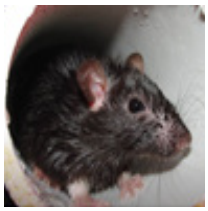
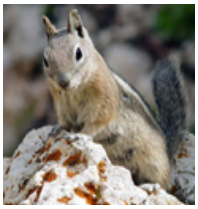
Gary Balsamo, DVM MPH; Julie Hand, MSPH; Marceia Walker, M.Ed

In early 2018, a Louisiana resident who possessed and closely interacted with pet rodents, died from the effects of a bacterial infection often referred to as rat-bite fever (RBF). Although a rare illness, the effects of this disease are often very severe. This death serves as a reminder that, although fatal consequences of zoonotic diseases are rare in Louisiana, severe illness or mortality from zoonotic infections is possible. Simple precautions are often all that is required to significantly reduce the risk of these type of infections.

RBF can be caused by either *Streptobacillus moniliformis* (streptobacillary RBF) or *Spirillum minus* (spirillary RBF or sodoku), although *S.moniliformis* is the only known etiology of the disease in North America. Despite the common name of the illness, RBF is not always transmitted through a bite, but can be transmitted through other means of contact as well as through contaminated food or water. It can also transmitted by all rodents, not just rats (Photos).

As the name implies, RBF may be transmitted through bites of

Photos - Common Rodents: Norway rat courtesy of Orkin, Inc. via cdc.gov; squirrel courtesy of Eborutta at wikipedia.org; beaver courtesy of Stephen Hersey, sherseyva@me.com


rodents that are colonized by the bacteria; the disease has also been transmitted through scratches. The causative bacteria is found in the saliva, urine and feces of the animal; therefore, contamination of bite and scratch wounds, other skin lesions or the mucus membranes

(continued on page 3)

Assessing Healthcare Worker Vaccination After Identification of Two Imported Cases of Measles: Louisiana, 2018

Andrea Salinas, MPH; Kristine Oines, MPH

In the first half of 2018, the Louisiana Department of Health (LDH), Office of Public Health (OPH), Infectious Disease Epidemiology (IDEpi) Section was notified of two unrelated, suspect cases of measles. Samples from both individuals were tested at the LDH OPH Laboratory in Baton Rouge; measles diagnoses were confirmed within 24 hours of the initial report. The individuals reported no history of measles vaccination and both were infected outside of the United States.

Measles is an acute viral respiratory illness characterized by a maculopapular rash that spreads downward and outward from the head to the trunk, and then to the lower extremities. A prodromal illness usually precedes the rash by two to four days. The illness may include: fever and malaise; cough; coryza (runny nose); conjunctivitis (red, watery eyes); and Koplik spots (blue-white spots on the mucous membranes in the mouth). Approximately 30% of cases have one or more complications, with diarrhea being the most commonly reported complication (8% of cases). Otitis media (middle ear infection), has been reported in 7% of cases and pneumonia in 6% of cases. In the U.S., death has been reported in just 0.2% of cases.

Measles can be spread through airborne transmission or direct contact with a case. Measles is highly communicable with greater than 90% secondary attack rates among susceptible persons. The virus can survive for up to two hours in the air or on objects and surfaces where an infectious person has been. Any individual who is in the same room with the case patient or any individual who is in the same room two hours prior to the case patient, is considered exposed. The incubation period for measles, from exposure to onset of rash, averages 14 days (range: seven to 21 days). People with measles are considered infectious four days before the onset of rash to four days after the onset of rash.

Upon the confirmation of a measles diagnosis, IDEpi responded by identifying individuals with potential exposures, notifying these

(continued on page 5)

Inside

Necrotizing fasciitis Due to *Chromobacterium violaceum* Louisiana, 2018

Raoult C. Ratard, MD MS MPH&TM

In 2018, an 86-year-old male patient previously in good health was hospitalized for left lower extremity cellulitis. He had done some work in his yard during the day and got an abrasion of his left leg that became painful that evening. After one day the injury on his left lower leg worsened with a bullae forming on the dorsum of the foot, a smaller blister on the side of the foot and some drainage. His leg became edematous.

As the patient showed signs of sepsis, he was admitted to a hospital. A Gram stain of the wound showed large numbers of Gram-negative rods. His blood culture grew *Chromobacterium violaceum* sensitive to third-generation cephalosporin, aztreonam, carbapenem, levofloxacin and aminoglycosides. The patient was a diabetic under marginal control. He was placed on an empiric treatment with vancomycin which was later changed to piperacillin tazobactam; he improved rapidly. His antibiotic treatment was continued by adding levofloxacin and tigecycline.

The patient's foot was debrided; some skin, soft tissue and superficial fascia were excised. He underwent several debridements and continued to slowly improve.

Chromobacterium violaceum is a Gram-negative, facultative anaerobic, non-sporing coccobacillus. It is part of the normal flora of water and soil of tropical and sub-tropical regions of the world. The first reported case of *Chromobacterium violaceum* human infection in the literature is from Malaysia in 1927; only 200 cases have been reported in literature since then. Some 35 cases have been reported in the U.S., mostly from Florida.

This is the second case of sepsis due to *Chromobacteirum violaceum* observed in Louisiana. The previous case was a previously healthy child presenting with necrotizing pneumonia that led to a diagnosis of chronic granulomatous disease*. The patient eventually recovered.

The most common mode of entry of the bacteria is through a skin injury that came in contact with soil or water containing the bacteria. The disease usually starts as a limited infection of the at the point of bacterial entry. The local infection rapidly progresses to sepsis with fever, nausea, vomiting, abdominal pain and diarrhea. Necrotizing metastatic lesions may ensue, causing multiple abscesses of the liver, lung, spleen, skin, lymph nodes or brain, leading to severe septicemia, culminating in multi-organ failure which may be fatal.

For more intormation, please go to *http://ldh.la.gov/assets/oph/Center-PHCH/Center-CH/stepi/specialstudies/2018FrawleyAmJTropMedHygCViolaceum.pdf or http://ldh.la.gov/index.cfm/page/2515#N.

SAVE THE DATE

The Louisiana Healthcare-Associated Infections and Antibiotic Resistance (HAI & AR) Program of the Louisiana Department of Health will sponsor the following infection prevention training opportunities for full-time infection preventionists who are currently employed at healthcare facilities in Louisiana.

Registration links for these activities as well as hotel information will be distributed in coming weeks. These classes are regularly valued at approximately $1,500 per attendee, but are **free of charge for eligible registrants.**

CIC® Prep Course - New Orleans
January 29 - February 1, 2019

Certification in Infection Control and Epidemiology (CIC) is the certification exam managed by the Certification Board of Infection Control and Epidemiology, Inc. (CBIC). The mission of CBIC is to protect the public through the development, administration and promotion of an accredited certification in infection prevention and control. CBIC maintains and promotes professional certification of the highest quality through the accomplishment of key objectives.

The CIC® represents a level of excellence in the field of infection prevention and control that is recognized internationally. CBIC works in conjunction with its partner organizations, like APIC and IPAC Canada, to grow this competent pool of certified IP/ICPs. This prep course will be delivered by APIC faculty.

Please go to http://ldh.la.gov/index.cfm/page/3507 for more information.

EPI® Intensive - New Orleans
January 8-11, 2019

EPI® Intensive is a signature program from the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC). The course introduces the various roles and responsibilities of the infection preventionist. Areas of emphasis include how to prepare surveillance and risk assessment plans, regulatory compliance, and preventing transmission of infectious diseases. Experienced faculty deliver lectures of complex concepts taught in everyday language, facilitate smaller group activities, and lead question/answer sessions along with the sharing of experiences at the individual level. This prep course will be delivered by APIC faculty.

Please go to http://ldh.la.gov/index.cfm/page/3507 for more information.

Louisiana Morbidity Report
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(Death from Rat-bite ... continued from page 1)

of the eyes, nose or mouth with any of these substances may result in infection. Exposures to contaminated surfaces may also result in infection. Person-to-person transmission does not occur.

The family of the decedent in the recent Louisiana case informed the medical staff that the decedent had possessed and cared for several exotic pets, including rats, hamsters, frogs, amphibians, rabbits, snakes and crawfish. Prior to symptom onset, the patient had experienced all manner of exposures to the pets and their environment; the family recounted an episode where the patient had administered "CPR" to a sick hamster.

Symptoms of streptobacillary RBF commonly include fever, headache, and myalgia progressing to vomiting, arthritis with swelling (c.50%), and rash (c.75%). Rash and arthritis usually occur two to four days after onset of fever. The initial fever occurs after an incubation period of three to ten days, but can occur as long as three weeks after exposure. Often skin lesions or bite and scratch wounds are healed by the time of disease onset.

Foodborne bacillary RBF, also known as Haverhill fever, shows similar symptoms, but pharyngitis and vomiting often predominate. Bacillary RBF may progress to severe disease (hepatitis, nephritis, organ abscesses, pneumonia), and may result in infections of the heart (endocarditis, myocarditis, pericarditis) and/or central nervous system (meningitis). Spirillary RBF is generally characterized by a similar incubation period of seven to 21 days, cyclical persistent fevers, ulceration and/or swelling at the wound site, lymphadenopathy, and either a generalized rash or a rash occurring only in the area of the exposed site.

The Louisiana patient had exhibited a prodrome of influenza-like symptoms that within three days, developed into a severe respiratory illness with hemoptysis, uncontrollable diarrhea, and dehydration, along with signs of hemorrhage, circulatory deficits and paresthesia in the right foot. The patient was referred to an emergency department (ED) immediately after presenting to an urgent care clinic exhibiting signs and symptoms described above. The patient was severely dehydrated and was administered intravenous fluids, expiring soon after presentation to the ED.

Laboratory tests were consistent with septic or cardiogenic shock. Blood, stool and viral cultures eventually were found to be negative. Considering the history of animal exposure, the initial differential diagnosis included several zoonotic diseases including leptospirosis, brucellosis, Hantavirus, and lymphocytic choriomeningitis virus. Sera collected prior to death were negative for all of these organisms.

RBF should be considered in patients showing signs and symptoms as described above, who also have a suspected history of exposure to rodents. Culture of the organism from blood, tissues or lesions is the primary means of diagnosis of streptobacillary RBF, however the organism requires special media and conditions for growth. The fastidious characteristics of the organism likely explain the lack of culture growth associated with the Louisiana case. For this reason laboratories should be informed if these etiologies are suspected. Cases may also be identified as suspect if pleomorphic Gram-negative bacilli are observed in Gram-stained blood samples or samples of other bodily fluids. Serological assays are currently not available. Cases of spirillary RBF are almost exclusively diagnosed by identification of characteristic spirochetes utilizing darkfield microscopy in examining patient specimens.

Although not routinely available, specialized laboratories have the ability to detect the nucleic acid of these organisms (PCR) in blood and tissues. The Louisiana case was accurately diagnosed by PCR several months after the death of the patient. *S.moniliformis* DNA was detected in the blood and tissues of the patient by a private out-of-state laboratory.

Anyone exposed to saliva, urine or feces of these animals is at risk. Therefore the at-risk population includes anyone bitten or scratched by a rat or other rodent; pet rodent fanciers; persons dwelling in residences infested with rats or other rodents; those feeding frozen, fresh or live rodents to other pets; and workers in laboratories, veterinary clinics, or pet shops where rodents are housed or displayed. Greatest risk exists in children younger than five years of age, adults older than 65 years of age, pregnant women, and the immunosuppressed. Risk to children with developing immune systems is exacerbated by a characteristic lack of awareness of good-hygiene practices, such as frequent hand-washing, avoidance of placing contaminated hands in the mouth, etc.

Several antibiotics can be used to effectively treat RBF, the antimicrobial of choice being penicillin. Nevertheless, failure to recognize zoonotic disease exposure often leads to failure to consider this disease in a differential diagnosis, which may result in delays in appropriate treatment, and subsequent development of more severe disease. This fact underscores the importance of persons informing physicians about contact with rodents or other animals.

The best strategies to avoid exposure are to avoid contact with rodents and mitigate all rodent infestations. Due to the popularity of rodents as pets and the use of rodents in research facilities and laboratories, avoidance of contact is not always possible. Nevertheless, children younger than five years of age, pregnant women, and the immunosuppressed should never have direct contact with these animals. For these reasons pet rodents or animals that require feeder rodents should never be kept as pets at institutions such as child care centers, schools or resident facilities with large populations of the immunosuppressed. Additionally, rats and other rodents are not recommended as pets in households where very young children are present.

The Centers for Disease Control and Prevention (CDC) publishes recommendations for households with rodent pets and households that utilize feeder rodents (*https://www.cdc.gov/healthypets/pets/small-mammals/petrodents.html*; *https://www.cdc.gov/healthypets/pets/reptiles/feeder-rodents.html*). Recommendations for rodent handling at pet shops and research facilities are also available on the CDC website (*https://www.cdc.gov/rat-bite-fever/prevention/index.html*). General recommendations include washing hands thoroughly after handling any rodent, or material or surface contaminated by rodents; not kissing or holding rodents close to the face; keeping rodents and implements used on rodents away from kitchens and other areas where humans consume food; not smoking, eating or drinking in rodent areas; and cleaning and disinfecting all caging or implements used for rodents. When handling rodents in institutional settings, some type of protective (nitrile or latex) glove should be worn, and hands should be washed thoroughly after glove removal.

If anyone handling rodents is bitten, the wound should be washed thoroughly with soap and warm water, and the bite reported to the person's primary care provider and work supervisor (if in an institutional setting). Should a person exposed to rats or rodents develop signs or symptoms of infection, that person should contact his or her primary care provider immediately and remind the healthcare provider that he or she has had contact with rats or other rodents. There are many other diseases in addition to RBF that can be transmitted by rodents.

Both *S.moniliformis* and *S.minus* organisms are components of the normal respiratory flora of rats and other rodents. Tests on the animals are generally unreliable and are not recommended. There is also no suggestion to routinely treat these animals with antimicrobials in hopes of eliminating the bacteria.

For more information, please contact Dr. Balsamo at (504) 568-8315 or *gary.balsamo@la.gov*.

Delusional Parasitosis: The Invisible Bug

Natalie Christophe, MPH

The Louisiana Department of Health, Office of Public Health, Infectious Disease Epidemiology (IDEpi) Section receives calls from the public asking for help with treatment of a parasitic infection that may not always exist. IDEpi recently received a call from a woman regarding intestinal worms. She stated that she had a "belly full of worms" and had been dealing with them for years; she stated that she pulls hundreds and hundreds of them from her body and they are of various shapes and sizes.

Ekbom syndrome, also known as delusional parasitosis, is a mental disorder which causes a person to believe that their body is infested with parasites. The person is not actually infested with any type of parasite, but the person has an extreme belief that they are. Some patients experience a sensation known as formication which causes them to feel that there is something crawling on or under their skin; this condition causes the patient to further believe that their body is infested.

Patients may experience visual hallucinations in which they believe common items such as lint or skin debris are parasites. Although this illness is seen more often in women older than 40 years of age, everyone is at risk for developing this condition no matter what a person's age, gender, or socioeconomic status may be.

Delusional parasitosis is a life-altering condition. Some patients think limiting their diet to certain foods will help to rid their body of the infestation, which can cause the patient to not eat adequately. Patients may refrain from being around others in order to prevent spreading the infection to another person. Total isolation can cause the patient to lose their job and have trouble supporting themselves financially. Some sufferers are convinced that the infestation is in their home instead of their body. This condition is known as delusory cleptoparasitosis. Patients may exercise a strict cleaning regimen thinking that this will help with removing the infestation from the home. The patient will also throw out any belongings that is believed to be infested. Pets are sometimes given away if they are believed to be the cause of the infestation.

The syndrome not only affects the patient but it also affects their loved ones and care givers. It's very difficult for those close to the sufferer to watch the patient struggle with this condition and to stop the patient from harming themselves.

Patients will try to remove the "parasites" by digging them out of their skin feeling that this is the only way to remove them. Patients will scratch at their skin with needles, knives, their finger nails, and other sharp objects. These wounds can become infected if not treated properly. This caller mentioned that she used sewing needles to get the parasites out of her skin.

Patients try using home remedies to get rid of their infestation, some of which are not safe. Those affected have used pesticides, insecticides, bleach, or other harsh chemicals on their bodies. The patient believes that this treatment will cause some temporary relief. The infestation usually comes back, according to the sufferer; they believe that it is due to the parasites becoming resistant to the home treatment.

Diagnosis can be difficult. The illness is not well known to non-specialists which causes the illness to be incorrectly diagnosed or not diagnosed at all. Patients will seek care from multiple doctors. The patient may become upset that the physician is not able to see the parasite and is not able to understand why the parasite is only visible to them and no one else.

This caller stated that she visited at least three doctors. She felt frustrated because she was being told that she could only be tested for pinworms or tape worms. She said that she had a refrigerator full of samples that she wanted IDEpi to have tested for her.

Patients often try to collect what are believed to be parasites and bring them to their physician as proof. The items collected are usually just dust, skin flakes, hair, and other materials. Diagnosis will likely involve the physician documenting the patient's case history and performing a physical exam. A lab evaluation including biopsies, blood count and chemistry profile may take place. The physician will try to rule out other medical conditions that can cause skin irritation. It is helpful to consult an entomologist or parasitologist to rule out any true parasitic infestation. They can also help to determine if there is some other reason for the patient's symptoms such as allergies or contact dermatitis.

The affected person is so convinced that their body is infested that they are not usually willing to consider any alternative possibilities. A psychiatrist is very helpful with treating this condition.

Psychiatrists are able to make a diagnosis of delusional parasitosis and provide long-term treatment. It can be difficult to convince those suffering with this illness to seek help from a psychiatrist. If the option of seeing a psychiatrist is not suggested respectfully, the patient can become offended and continue to suffer without the proper care. Atypical antipsychotics such as olanzapine or risperidone may be prescribed by a psychiatrist to help relieve the patient's symptoms.

When speaking with someone with suspected delusional parisitosis it is useful to remember that the person can be frustrated, scared, or desperate. The IDEpi staff attempts to sympathize with their situation and offer guidance as respectfully as possible. IDEpi is available to assist physicians and help with diagnosis.

For more information, contact Natalie Christophe at (337) 262-5322 or email to natalie.christophe@la.gov.

Announcements

Updates: Infectious Disease Epidemiology (IDEpi) Webpages
www.infectiousdisease.dhh.louisiana.gov

Epi Manual: *Angiostongylus cantonensis* Summary; Foodborne Infection Prevention & Investigation Manual; Giardiasis; Information on Bats: Removal Companies, Cleaning Guano, Exclusion Devices; Histoplasmosis Summary; Meningococcal Worksheet (CDC); Mumps Form (CDC); Pertussis Form (CDC); Rabies Case Investigation Worksheet; Shigellosis; *Vibrio vulnificus* Public Information

HAI/AR: New Course Information - Epi® Intensive and CIC® Prep

Influenza: Week 47 Surveillance Report

Louisiana Morbidity Report: 2017-2018 Index

Parasitic Vector-borne: Kissing Bug Identification Tool

Tickborne - Surveillance Project Link

Veterinary: Louisiana Bat Removal Companies; Protocol for Shipping Specimens to the Office of Public Health Laboratory for Rabies Testing

World Leprosy Day

January 27, 2019

(Assessing Healthcare Worker ... continued from page 1)

individuals of their exposure, and providing post-exposure prophylaxis (PEP) to individuals who met the criteria to receive PEP. While it was concluded that neither case had extensive exposure in the community at-large, both had visited multiple healthcare facilities before their diagnosis was confirmed. Infection control recommendations were given to all facilities in which they were treated. During the investigationof these two cases, 114 employees at healthcare facilites were identified as exposed. This figure includes physicians, nurses, respiratory therapists, administrative personnel, environmental services and security staff, as well as medical residents, fellows, and students.

In the pre-vaccine era, infection with measles virus was nearly universal during childhood with approximately 500,000 cases and 500 deaths reported annually. Following the licensure of the first live attenuated vaccine for measles in 1963, the incidence of measles decreased by more than 95%. Measles is still a common, and often fatal, disease in developing countries. Most of the cases occurring in the U.S. are imported or linked to importation; most people who develop illness are unvaccinated. The Advisory Committee on Immunization Practices (ACIP) recommends one dose of a measles-containing vaccine at 12 months of age and a second dose prior to school entry (four to six years of age). The measles component of the measles, mumps, and rubella (MMR) vaccine is very effective, with 95% of individuals developing antibodies after the first vaccination and 99% developing antibodies following the second dose.

For the purpose of preventing a potential measles outbreak in a healthcare setting, all healthcare workers who were exposed had to be immediately assessed for immunity. Evidence of immunity was established using three criteria: positive serologic test result for measles antibody, documentation of two (2) MMR vaccinations, or birth before 1957. Any exposed individual who could not prove immunity based on one of these three criteria was required to be excluded from service in the healthcare facility from day five post-exposure to day 21 post-exposure, the longest potential incubation period for measles.

IDEpi worked with each facility's employee health department to identify whether the exposed staff members had evidence of immunity on file. There are currently no Louisiana laws requiring the administration of any vaccines to healthcare workers; however, the Centers for Medicaid and Medicare Services does require for hospitals, under the Federal Department of Health and Human Services §482.42(a), "*The infection control officer or officers must develop a system for identifying, reporting, investigating, and controlling infections and communicable diseases of patients and personnel*". Implicit in this rule is the ability of the infection control officer to evaluate hospital staff immunization with vaccinations such as MMR, Hepatitis B, and Influenza as recommended by the Centers for Disease Control and Prevention and the ACIP to control infectious diseases transmissible to both patients and personnel.

While most staff members directly employed by the facilities had documented immunity in their human resources file, issues arose while attempting to discern the immune status of individuals who worked at the healthcare facilities, but were either contracted employees or were medical students, residents, or fellows associated with schools of medicine. Contracted services included emergency department physicians and security staff. Efforts were made to gain documentation of immunity for these individuals from their respective companies or schools; however, it took multiple days for IDEpi to get any documentation of immunity. In one instance, the contracted company did not require staff to have vaccinations, and vaccination was not stipulated as part of the company's contract with the hospital.

Any staff member who could not independently prove vaccination had to get serologic testing which necessitated the furlough of multiple employees until positive measles titer results could be confirmed. The breakdown of healthcare worker immunity is shown in the table.

Table: Number of People Employed at Healthcare Facilities Followed for the Two Measles Investigations - Louisiana, 2018

Exposed	Two Doses MMR	Positive Titers Previously on File	Positive Titers Drawn After Exposure	Born Before 1957	No Vaccination or Titers on File
114	23	65	18	1	7

Of the 114 exposed, 18 employees had positive titers drawn after exposure and were required to be furloughed until their results came back. Seven staff members either could not produce documentation of two doses of MMR, or had negative serological test results. This required their exclusion from working in healthcare settings until 21 days post-exposure. Having to furlough employees for any length of time, because immunity is unable to be verified, can cause staffing issues and employee dissatisfaction.

The major lesson learned for infection control and employee health personnel is that verifying staff vaccination is not as easy as it may initially appear. Though contracted staff and individuals associated with medical schools are not directly employed by a facility, it is important to be able to readily assess the immunity of these individuals. Any vaccinations that are required for staff employed by a facility should also be a requirement for contracted staff. Compliance with this requirement may be improved if formally stipulated in contracts, with language similar to the facility's vaccination policy.

If a patient is suspected of having measles, call IDEpi immediately at 1-800-256-2748.

If there are any questions about health care staff vaccination, please email Andrea Salinas at *andrea.salinas@la.gov*. For general measles questions, please email Kristine Oines at *kristine.oines@la.gov*.

IDEpi Question/Answer Corner

What is an antibiogram?

An antibiogram is a table listing bacteria and their respective antibiotic sensitivities. It can show the spectrum of resistance for common bacteria detected by hospital laboratories.

The Louisiana Antibiogram is a compilation of antibiograms from Louisiana hospitals. It was started in 2000 and has now 132,143 entries with the number of entries ranging from 5,000 to 10,000 per year. There are now between 40 to 50 hospital antibiograms compiled every year. A comprehensive report of antibiotic resistance trends is available on the OPH website at *http://ldh.la.gov/index.cfm/page/534*. More analysis is underway to study differences between inpatient and outpatient, large and small hospitals, geographical regions, and hospitals with antibiotic stewardship programs of varying qualities.

Subject Index for the Louisiana Morbidity Report, 2017-2018

Note: Year and Issue Number are listed after the comma on each line - 11-12/17 = Issue Number 6 (Nov-Dec) for the Year 2017. Indices for the years 1967-2016 can be found on http://new.dhh.louisiana.gov/index.cfm/newsroom/detail/2226

Table 1: Communicable Disease Surveillance, Incidence by Region and Time Period, September-October, 2018

DISEASE		HEALTH REGION 1	2	3	4	5	6	7	8	9	TIME PERIOD Sep-Oct 2018	Sep-Oct 2017	Jan-Dec Cum 2018	Jan-Dec Cum 2017	Jan-Dec % Chg*
Vaccine-preventable															
Hepatitis B Acute	Cases[4]	1	1	1	0	0	0	0	1	1	5	12	38	78	-51.3
	Rate[1]	0.1	0.2	0.3	0	0	0	0	0.3	0.3	0.1	0.3	0.9	1.8	NA*
Measles (Rubeola)	Cases[5]	0	0	0	0	0	0	0	0	0	0	0	2	0	NA*
Mumps	Cases[5]	3	0	0	1	0	0	0	0	0	4	0	18	70	-74.3
Rubella	Cases[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	NA*
Pertussis	Cases[5]	0	0	0	0	0	1	0	0	1	2	7	95	75	26.7
Sexually-transmitted															
HIV/AIDS	Cases[2]	55	48	5	24	7	14	16	9	7	185	160	918	899	2.1
	Rate[1]	6.1	7.0	1.2	3.9	2.3	4.6	3.0	2.6	1.2	3.9	3.4	19.6	19.2	NA*
Chlamydia	Cases[1,3]	1,537	948	457	608	245	334	835	557	438	5,960	5,985	26,975	24,085	12.0
	Rate[1]	170.4	138.3	113.8	99.9	80.8	109.6	154.0	158.1	75.0	127.2	127.8	575.9	514.2	NA*
Gonorrhea	Cases[1,3]	575	321	124	183	79	151	262	209	134	2,038	2,099	8,761	8,193	6.9
	Rate[1]	63.8	46.8	30.9	30.1	26.0	49.6	48.3	59.3	22.9	43.5	44.8	187.0	174.9	NA*
Syphilis (P&S)	Cases[1,3]	18	17	0	5	1	21	12	12	3	89	145	486	494	-1.6
	Rate[1]	2.0	2.5	0.0	0.8	0.3	6.9	2.2	3.4	0.5	1.9	3.1	10.4	10.5	NA*
Enteric															
Campylobacter	Cases[5]	1	16	3	41	6	3	6	6	12	94	142	619	714	-13.3
Hepatitis A	Cases[4]	0	0	0	0	0	0	0	4	0	4	1	18	8	125.0
	Rate[1]	0	0	0	0	0	0	0	1.1	0	0.1	0	0.4	0.2	NA*
Salmonella	Cases[5]	9	15	14	25	13	10	10	15	20	131	354	806	1032	-21.9
	Rate[1]	0.9	2.6	3.7	4.8	4.9	3.3	2.0	4.3	5.2	3.0	8.2	18.7	23.9	NA*
Shigella	Cases[5]	0	1	0	6	3	0	0	0	2	12	29	144	210	-31.4
	Rate[1]	0	0.2	0	1.2	1.1	0	0	0	0.5	0.3	0.7	3.3	4.9	NA*
Vibrio, Cholera	Cases[4]	0	0	0	0	0	0	0	0	0	0	0	0	1	NA*
Vibrio, Other	Cases[5]	0	5	1	3	0	0	0	0	1	10	12	87	68	27.9
Other															
H. influenzae (invasive) [5]		0	0	0	0	0	1	3	1	1	6	6	66	49	34.7
N. Meningitidis (invasive) [5]		0	0	0	0	0	0	0	0	0	0	2	0	5	-100.0

[1] = Cases Per 100 000 Population.

[2] = These totals reflect people with HIV infection whose status was first detected during the specified time period. This includes people who were diagnosed with AIDS at the time HIV first was detected. Because of delays in reporting HIV/AIDS cases, the number of persons reported is a minimal estimate. Data should be considered provisional.

[3] = Prelminary data.

[4] = Confirmed cases

[5] = Confirmed and Probable cases

* = Percent change not calculated for rates or count differences less than 5.

Table 2: Diseases of Low Frequency, January-December, 2018

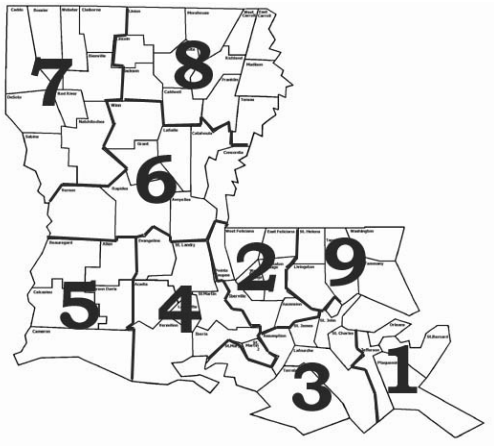
Disease	Total to Date
Legionellosis	27
Lyme Disease	4
Malaria	6
Rabies, animal	10
Varicella	87

Table 3: Animal Rabies, September-October, 2018

Parish	No. Cases	Species
Ascension	1	Bat
St. Bernard	1	Bat

Correction: July-August 2018 - 1 Bat Ascension and 2 Bats E. Baton Rouge

Figure: Department of Health Regional Map



Sanitary Code - State of Louisiana
Part II - The Control of Disease

LAC 51:II.105: The following diseases/conditions are hereby declared reportable with reporting requirements by Class:

Class A Diseases/Conditions - Reporting Required Within 24 Hours

Diseases of major public health concern because of the severity of disease and potential for epidemic spread-report by telephone immediately upon recognition that a case, a suspected case, or a positive laboratory result is known; [in addition, all cases of rare or exotic communicable diseases, unexplained death, unusual cluster of disease and all outbreaks shall be reported.

- Acute Flaccid Paralysis
- Anthrax
- Avian or Novel Strain Influenza A (initial detection)
- Botulism
- Brucellosis
- Cholera
- *Clostridium perfringens* (foodborne infection)
- Diphtheria
- Fish/Shellfish Poisoning (domoic acid, neurotoxic shellfish poisoning, ciguatera, paralytic shellfish poisoning, scombroid)
- Foodborne Infection
- *Haemophilus influenzae* (invasive infection)
- Influenza-associated Mortality
- Measles (Rubeola imported or indigenous)
- *Neisseria meningitidis* (invasive infection)
- Outbreaks of Any Infectious Disease
- Pertussis
- Plague (*Yersinia pestis*)
- Poliomyelitis (paralytic & non-paralytic)
- Q Fever (*Coxiella burnetii)*
- Rabies (animal and human)
- Ricin Poisoning
- Rubella (congenital syndrome)
- Rubella (German Measles)
- Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV)
- Smallpox
- *Staphylococcus aureus*, Vancomycin Intermediate or Resistant (VISA/VRSA)
- Staphylococcal Enterotoxin B (SEB) Pulmonary Poisoning
- Tularemia (*Francisella tularensis*)
- Viral Hemorrhagic Fever (Ebola, Lassa, Marburg, Crimean Congo, etc.)
- Yellow Fever

Class B Diseases/Conditions - Reporting Required Within 1 Business Day

Diseases of public health concern needing timely response because of potential of epidemic spread-report by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known.

- Amoeba (free living infection: *Acanthamoeba, Naegleria, Balamuthia,* others)
- Anaplasmosis
- Arthropod-Borne Viral Infections (West Nile, Dengue, St, Louis, California, Eastern Equine, Western Equine, Chikungunya, Usutu, and others)
- Aseptic Meningitis
- Babesiosis
- Chagas Disease
- Chancroid
- *Escherichia coli*, Shiga-toxin producing (STEC), including *E. coli* O157:H7
- Granuloma Inguinale
- Hantavirus (infection or Pulmonary Syndrome)
- Hemolytic-Uremic Syndrome
- Hepatitis A (acute illness)
- Hepatitis B (acute illness and carriage in pregnancy)
- Hepatitis B (perinatal infection)
- Hepatitis E
- Herpes (neonatal)
- Human Immunodeficiency Virus[2] [(HIV), infection in pregnancy]
- Human Immunodeficiency Virus[2] [(HIV), perinatal exposure]
- Legionellosis
- Malaria
- Mumps
- Salmonellosis
- Shigellosis
- Syphilis[1]
- Tetanus
- Tuberculosis[3] (due to *M. tuberculosis*, *M. bovis, or M. africanum*)
- Typhoid Fever

Class C Diseases/Conditions - Reporting Required Within 5 Business Days

Diseases of significant public health concern-report by the end of the workweek after the existence of a case, suspected case, or a positive laboratory result is known.

- Acquired Immune Deficiency Syndrome[3] (AIDS)
- *Anaplasma Phagocytophilum*
- Blastomycosis
- Campylobacteriosis
- Chlamydial infection[1]
- Coccidioidomycosis
- Cryptococcosis (*C. neoformans* and *C. gattii*)
- Cryptosporidiosis
- Cyclosporiasis
- Ehrlichiosis (human granulocytic, human monocytic, *E. chaffeensis* and *E. ewingii)*
- *Enterococcus*, Vancomycin Resistant [(VRE), invasive disease]
- Giardiasis
- Glanders (*Burkholderia mallei*)
- Gonorrhea[1] (genital, oral, ophthalmic, pelvic inflammatory disease, rectal)
- Hansen's Disease (leprosy)
- Hepatitis C (acute illness)
- Histoplasmosis
- Human Immunodeficiency Virus[2] (HIV (infection other than as in Class B)
- Human T Lymphocyte Virus (HTLV I and II infection)
- Leptospirosis
- Listeriosis
- Lyme Disease
- Lymphogranuloma Venereum[1]
- Melioidosis (*Burkholderia pseudomallei)*
- Meningitis, Eosinophilic (including those due to *Angiostrongylus* infection)
- Nipah Virus Infection
- Non-gonococcal Urethritis
- Ophthalmia neonatorum
- Psittacosis
- Spotted Fevers [*Rickettsia* species including Rocky Mountain Spotted Fever (RMSF)]
- *Staphylococcus aureus* (MRSA), invasive infection
- Staphylococcal Toxic Shock Syndrome
- Streptococcal Disease, Group A (invasive disease)
- Streptococcal Disease, Group B (invasive disease)
- Streptococcal Toxic Shock Syndrome
- *Streptococcus pneumoniae*, invasive disease
- Transmissible Spongiform Encephalopathies (Creutzfeldt-Jacob Disease & variants)
- Trichinosis
- Varicella (chickenpox)
- *Vibrio* Infections (other than cholera)
- Yersiniosis

Class D Diseases/Conditions - Reporting Required Within 5 Business Days

- Cancer
- Carbon Monoxide Exposure and/or Poisoning[5]
- Complications of Abortion
- Congenital Hypothyroidism[4]
- Galactosemia[4]
- Heavy Metal (arsenic, cadmium, mercury) Exposure and/or Poisoning (all ages)[5]
- Hemophilia[4]
- Lead Exposure and/or Poisoning (all ages)[4, 5]
- Pesticide-Related Illness or Injury (all ages)[5]
- Phenylketonuria[4]
- Pneumoconiosis (asbestosis, berylliosis, silicosis, byssinosis, etc.)
- Radiation Exposure, Over Normal Limits
- Reye's Syndrome
- Severe Traumatic Head Injury
- Severe Undernutrition (severe anemia, failure to thrive)
- Sickle Cell Disease[4] (newborns)
- Spinal Cord Injury
- Sudden Infant Death Syndrome (SIDS)

Case reports not requiring special reporting instructions (see below) can be reported by mail or facsimile on Confidential Disease Report forms (2430), fascimile (504) 568-8290, telephone (504) 568-8313, or (800) 256-2748 for forms and instructions.

[1]Report on STD-43 form. Report cases of syphilis with active lesions by telephone, within one business day, to (504) 568-8374.

[2]Report to the Louisiana HIV/AIDS Program: Visit www.hiv.dhh.louisiana.gov or call 504-568-7474 for regional contact information.

[3]Report on form TB 2431 (8/94). Mail form to TB Control Program, DHH-OPH, P.O. Box 60630, New Orleans, LA. 70160-0630 or fax both sides of the form to (504) 568-5016

[4]Report to the Louisiana Genetic Diseases Program and Louisiana Childhood Lead Poisoning Prevention Programs: www.genetics.dhh.louisiana.gov or fascimile (504) 568-8253, telephone (504) 568-8254, or (800) 242-3112

[5]Report to the Section of Environmental Epidemiology and Toxicology: www.seet.dhh.louisiana.gov or call (225) 342-7136 or (888) 293-7020

All **laboratory facilities** shall, in addition to reporting tests indicative of conditions found in §105, report positive or suggestive results for additional conditions of public health interest. The following findings shall be reported as detected by laboratory facilities: 1. adenoviruses; 2. coronaviruses; 3 .enteroviruses; 4. hepatitis B (carriage other than in pregnancy); 5. hepatitis C (past or present infection); 6. human metapneumovirus; 7. parainfluenza viruses; 8. respiratory syncytial virus; and 9. rhinoviruses.