

Boone County
Communicable Disease Summary
2014

In Missouri, there are 91 reportable communicable diseases and conditions defined under the Department of Health and Senior Services (DHSS) reporting rule 19 CSR 20-20.020 (Figure 1). The information collected on these reports from medical providers, hospitals, patients, and other reporters are received by the local health agency, who investigates these reports according to Missouri Department of Health and Senior Service guidelines. Both timely reporting and rapid investigations are important to identify possible outbreaks, to assure appropriate preventive treatment and education, and to guide in the planning and evaluation of disease prevention and control programs.

The information in this report was gathered from disease and condition reports made to local health agencies and DHSS on Boone County residents during 2014. There was 985 total suspect cases received and investigated with 825 of those cases meeting the DHSS guidelines or “case definition” to be considered a confirmed case. Confirmed cases are forwarded to the Centers for Disease Control and Prevention (CDC) and included in national and Missouri annual case counts. Although all the 985 cases reported are not reflected in the annual case count, they reflect staff time spent on investigations to determine the status of the report. It is also important to remember that the number of reported cases may not represent the true total number of cases that occur in a county. Some diseases, particularly those with milder symptoms, may go undiagnosed and unreported either because the ill person may not see a doctor, or the doctor may treat without a lab confirmation. Figure 2 lists the 2014 confirmed case counts for Boone County, and Figure 3 shows the confirmed communicable diseases reported in Boone County from 2010-2014 along with the 5 year trend.

While reviewing the count of reportable diseases in Boone County, keep in mind that those diseases which cause severe symptoms are more likely to be diagnosed and reported than those which cause mild or no symptoms, or those which are not confirmed by lab testing. If there is a single case of botulism reported, it is likely a true representation of the disease prevalence for botulism. However, 300 animal bites reported annually is likely a gross underrepresentation of the actual number of bites which occur within the year since they do not require lab confirmation, and often the person bitten does not seek medical care. Also, when a disease becomes a newsworthy event nationally and/or locally, the attention may lead to an increase in total cases reported in a year. Once attention is drawn to the symptoms, there is increased awareness by patients to seek medical care, and increased awareness by physicians to test and find cases.

This report and the annual morbidity count do not address reported HIV, gonorrhea, chlamydia, syphilis, or influenza for Boone County. Sexually transmitted diseases and influenza are addressed in separate reports which can be found at the Columbia/Boone County Public Health and Human Service website:

<https://www.gocolumbiamo.com/Health/PublicHealthandHumanServicesPublications.php>.

Outbreaks

An outbreak is defined as the occurrence of more cases of a disease than expected in a specific setting or the community. The trigger for an outbreak may depend on the cause. While one disease may have an outbreak trigger of ten cases, another may be considered an outbreak with a single case. As with reportable diseases, the total number of outbreaks reported is not a true representation of the actual number of outbreaks occurring during the year since many who become ill do not seek medical care and do not report illness. The Columbia/Boone County Department of Public Health and Human Services investigated five outbreaks during 2014. A summary of the outbreaks reported and investigated can be found in Figure 4 along with a brief description.

Figure 1: Diseases and Conditions Reportable in Missouri:

Diseases and Conditions Reportable In Missouri (19 CSR 20-20.020)

Numbers in parenthesis represent ICD-9 and ICD-10 Codes

Report Diseases and Conditions to your local health agency or to:

Missouri Department of Health and Senior Services during business hours 573-751-6113,
after hours and on weekends 800-392-0272 or by fax 573-526-0235

1. Immediately reportable diseases or findings shall be reported to the local health authority or to the Department of Health and Senior Services immediately upon knowledge or suspicion by telephone, facsimile or other rapid communication. Immediately reportable diseases or findings are—

(A) Selected high priority diseases, findings or agents that occur naturally, form accidental exposure, or as the result of a bioterrorism event:

- Anthrax (022, A22)
- Botulism (005.1, A05.1)
- Plague (020, A20)
- Rabies (Human) (071, A82)
- Ricin Toxin (988, T62)
- Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) Disease (480.3, J12.8)
- Smallpox (variola) (050, B03)
- Tularemia (pneumonic) (021.2, A21.2)
- Viral hemorrhagic fevers (filoviruses (e.g., Ebola, Marburg) and arenaviruses (e.g., Lassa, Machupo)) (078.7, 078.89, A96, A98, A99)

(B) Instances, clusters, or outbreaks of unusual diseases or manifestations of illness and clusters or instances of unexplained deaths which appear to be a result of a terrorist act or the intentional or deliberate release of biological, chemical, radiological, or physical agents, including exposures through food, water, or air.

(C) Instances, clusters, or outbreaks of unusual, novel, and/or emerging diseases or findings not otherwise named in this rule, appearing to be naturally occurring, but posing a substantial risk to public health and/or social and economic stability due to their ease of dissemination or transmittal, associated mortality rates, or the need for special public health actions to control.

2. Reportable within one (1) day diseases or findings shall be reported to the local health authority or to the Department of Health and Senior Services within one (1) calendar day of first knowledge or suspicion by telephone, facsimile or other rapid communication. Reportable within one (1) day diseases or findings are—

(A) Diseases, findings or agents that occur naturally, or from accidental exposure, or as a result of an undetected bioterrorism event:

- Acute respiratory distress syndrome (ARDS) in patients under fifty (50) years of age (without a contributing medical history)
- Animal (mammal) bite, wound, humans
- Brucellosis (023, A23)
- Cholera (001, A00)
- Dengue fever (065.4, A90, A91)
- Diphtheria (032, A36)
- Glanders (024, A24.0)
- *Haemophilus influenzae*, invasive disease (038.41, 041.5, 320.0, A41.3, J14, G00.0)
- Hantavirus pulmonary syndrome (079.81, 480.8, B33.8)
- Hemolytic uremic syndrome (HUS), post-diarrheal (283.11, D59.3)
- Hepatitis A (070.0, 070.1, B15)
- Influenza - associated pediatric mortality (18 years of age or younger) (487, J10)
- Influenza - associated public and/or private school closures (487, J10)
- Lead (blood) level greater than or equal to forty-five micrograms per deciliter ($\geq 45 \mu\text{g/dl}$) in any person equal to or less than seventy-two (≤ 72) months of age

- Measles (rubeola) (055, B05)
- Meningococcal disease, invasive (036, A39)
- Novel Influenza A virus infections, human (487, J10)
- Outbreaks (including nosocomial) or epidemics of any illness, disease or condition that may be of public health concern, including illness in a food handler that is potentially transmissible through food
- Pertussis (033.0, A37.0)
- Poliomyelitis (045, A80)
- Poliovirus infection, nonparalytic
- Q fever (083.0, A78)
- Rabies (animal)
- Rubella, including congenital syndrome (056, 771.0, B06, P35.0)
- Shiga toxin-producing *Escherichia coli* (STEC) (008.04, A04.3)
- Shiga toxin positive, unknown organism (005.8, 005.9, A04.8, A04.9)
- Shigellosis (004, A03)
- Staphylococcal enterotoxin B (988, T62)
- Streptococcus pneumoniae, drug resistant invasive disease (038.2, 481, 482.3, A40.3, J13)
- Syphilis, including congenital syphilis (090, 093-097, A50-A52)
- T-2 mycotoxins (989.7, 989.9, T64)
- Tetanus (037, A35)
- Tuberculosis disease (010-018, A15-A19)
- Tularemia (non-pneumonic) (021.3-9, A21.0-.1, A21.3-.9)
- Typhoid fever (*Salmonella typhi*) (002.0, A01.0)
- Vancomycin-intermediate Staphylococcus aureus (VISA), and Vancomycin-resistant Staphylococcus aureus (VRSA) (038.11, 041.11, A41.0, A49.0)
- Venezuelan equine encephalitis virus neuroinvasive disease (066.2, A92.2)
- Venezuelan equine encephalitis virus non-neuroinvasive disease (066.2, A92.2)
- Yellow fever (060.9, A95)

(B) Diseases, findings or adverse reactions that occur as a result of inoculation to prevent smallpox, including but not limited to the following:

- Accidental administration
- Contact transmission (i.e., vaccinia virus infection in a contact of a smallpox vaccinee)
- Eczema vaccinatum
- Erythema multiforme (roseola vaccinia, toxic urticaria)
- Fetal vaccinia (congenital vaccinia)
- Generalized vaccinia
- Inadvertent autoinoculation (accidental implantation)
- Myocarditis, pericarditis, or myopericarditis
- Ocular vaccinia (can include keratitis, conjunctivitis, or blepharitis)
- Post-vaccinal encephalitis or encephalomyelitis
- Progressive vaccinia (vaccinia necrosum, vaccinia gangrenosa, disseminated vaccinia)
- Pyogenic infection of the vaccination site
- Stevens-Johnson Syndrome

3. Reportable within three (3) days diseases or findings shall be reported to the local health authority or the Department of Health and Senior Services within three (3) calendar days of first knowledge or suspicion. These diseases or findings are—

- Acquired immunodeficiency syndrome (AIDS) (042, B20)
- Arsenic poisoning

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- California serogroup virus neuroinvasive disease (062.5, A83.5)
- California serogroup virus non-neuroinvasive disease (062.5, A92.8)
- Campylobacteriosis (008.43, A04.5)
- Carbon monoxide poisoning
- CD4+ T cell count
- Chancroid (099.0, A57)
- Chemical poisoning, acute, as defined in the most current ATSDR CERCLA Priority List of Hazardous Substances; if terrorism is suspected, refer to subsection (1)(B)
- *Chlamydia trachomatis* infections (099.8, A56)
- Coccidioidomycosis (114, B38)
- Creutzfeldt-Jakob disease (046.1, A81.0)
- Cryptosporidiosis (007.4, A07.2)
- Cyclosporiasis (007.5, A07.8)
- Eastern equine encephalitis virus neuroinvasive disease (062.2, A83.2)
- Eastern equine encephalitis virus non-neuroinvasive disease (062.2, A92.8)
- Ehrlichiosis, human granulocytic, monocytic, or other/unspecified agent (082.40, 082.41, 082.49, A79.8, A79.9)
- Giardiasis (007.1, A07.1)
- Gonorrhea (098.0-098.3, A54.0-A54.2)
- Hansen's disease (Leprosy) (030, A30)
- Heavy metal poisoning including, but not limited to, cadmium and mercury
- Hepatitis B, acute (070.20, 070.21, 070.30, 070.31, B16)
- Hepatitis B, chronic (070.22, 070.23, 070.32, 070.33, 070.42, 070.52, B18.0, B18.1)
- Hepatitis B surface antigen (prenatal HBsAg) in pregnant women (070.20-070.23, 070.30-070.33, 070.42, 070.52, B16, B18.0, B18.1)
- Hepatitis B Virus Infection, perinatal (HBsAg positivity in any infant aged equal to or less than twenty-four (≤ 24) months who was born to an HBsAg-positive mother) (070.20-070.23, 070.30-070.33, 070.42, 070.52, B16, B18.0, B18.1)
- Hepatitis C, acute (070.41, 070.51, B17.1)
- Hepatitis C, chronic (070.44, 070.54, B18.2)
- Hepatitis non-A, non-B, non-C (070.9, B19)
- Human immunodeficiency virus (HIV)-exposed newborn infant (i.e., newborn infant whose mother is infected with HIV)
- Human immunodeficiency virus (HIV) infection, as indicated by HIV antibody testing (reactive screening test followed by a positive confirmatory test), HIV antigen testing (reactive screening test followed by a positive confirmatory test), detection of HIV nucleic acid (RNA or DNA), HIV viral culture, or other testing that indicates HIV infection
- Human immunodeficiency virus (HIV) test results (including both positive and negative results) for children less than two (2) years of age whose mothers are infected with HIV
- Human immunodeficiency virus (HIV) viral load measurement (including nondetectable results)
- Hyperthermia
- Hypothermia
- Lead (blood) level less than forty-five micrograms per deciliter ($<45 \mu\text{g/dl}$) in any person equal to or less than seventy-two (≤ 72) months of age and any lead (blood) level in persons older than seventy-two (>72) months of age
- Legionellosis (482.84, A48.1, A48.2)
- Leptospirosis (100, A27)
- Listeriosis (027.0, 771.2, A32, P37.2)
- Lyme disease (088.81, A69.2)
- Malaria (084, B50-B54)
- Methemoglobinemia, environmentally-induced
- Mumps (072, B26)
- Mycobacterial disease other than tuberculosis (MOTT) (031, A31)
- Occupational lung diseases including silicosis, asbestosis, byssinosis, farmer's lung and toxic organic dust syndrome
- Pesticide poisoning
- Powassan virus neuroinvasive disease (063.8, A83.8)
- Powassan virus non-neuroinvasive disease (063.8, A92.8)
- Psittacosis (073, A70)
- Rabies Post-Exposure Prophylaxis (Initiated) (V01.5 V04.5)

- Respiratory diseases triggered by environmental contaminants including environmentally or occupationally induced asthma and bronchitis
- Rocky Mountain spotted fever (082.0, A77.0)
- Saint Louis encephalitis virus neuroinvasive disease (062.3, A83.3)
- Saint Louis encephalitis virus non-neuroinvasive disease (062.3, A92.8)
- Salmonellosis (003, A02.0)
- Streptococcal disease, invasive, Group A (041.01, 034.1, A40.0, A49.1, A38)
- *Streptococcus pneumoniae*, invasive in children less than five (5) years (038.2, 481, 482.3, A40.3, J13)
- Toxic shock syndrome, staphylococcal or streptococcal (785.5, A48.3)
- Trichinellosis (124, B75)
- Tuberculosis infection (795.5, R76.1)
- Varicella (chickenpox) (052.1, 052.7, 052.8, 052.9)
- Varicella deaths (052, B01)
- Vibriosis (non-cholera *Vibrio* species infections) (005.4, .8, A05.3, 8)
- West Nile virus neuroinvasive disease (066.41, 066.42, A92.3)
- West Nile virus non-neuroinvasive disease (066.40, 066.49, A92.3)
- Western equine encephalitis virus neuroinvasive disease (062.1, A83.1)
- Western equine encephalitis virus non-neuroinvasive disease (062.1, A92.8)
- Yersiniosis (008.44, A04.6)

4. Reportable weekly diseases or findings shall be reported directly to the Department of Health and Senior Services weekly. These diseases or findings are—

- Influenza, laboratory-confirmed (487, J10)

5. Reportable quarterly diseases or findings shall be reported directly to the Department of Health and Senior Services quarterly. These disease or findings are—

- Methicillin-resistant *Staphylococcus aureus* (MRSA), nosocomial
- Vancomycin-resistant enterococci (VRE), nosocomial

NOTE: Cancer is also a reportable disease. Please refer to [CSR 70-21.010](#) for complete information.

Isolates or specimens positive for the following reportable diseases or conditions must be submitted to the State Public Health Laboratory for epidemiological or confirmation purposes:

- Anthrax (*Bacillus anthracis*)
- Cholera (*Vibrio cholerae*)
- Diphtheria (*Corynebacterium diphtheriae*)
- *Escherichia coli* O157:H7
- *Haemophilus influenzae*, invasive disease
- Influenza Virus-associated pediatric mortality
- Listeriosis
- Malaria (*Plasmodium* species)
- Measles (rubeola)
- *Mycobacterium tuberculosis*
- *Neisseria meningitidis*, invasive disease
- Orthopoxvirus (Smallpox/cowpox-vaccinia/monkeypox)
- Other Shiga Toxin positive organisms
- Pertussis (*Bordetella pertussis*)
- Plague (*Yersinia pestis*)
- Salmonella species
- Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease
- Shigella species
- Tularemia, pneumonic
- Vancomycin-intermediate *Staphylococcus aureus* (VISA)
- Vancomycin Resistant *Staphylococcus aureus*

The reporting rule can be accessed at: http://www.sos.mo.gov/adrules/csr/current/19csr19c20_20.pdf
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Service provided on a nondiscriminatory basis

Figure 2: Reported Communicable Diseases in Boone County, Missouri 2014

Reported Cases of Selected Communicable Diseases Boone County, Missouri 2014	
DISEASE/CONDITION	Reported Cases
ANAPLASMA PHAGOCYTOPHILUM	1
ANIMAL BITES	267
CAMPYLOBACTERIOSIS	23
CHIKUNGUNYA	1
CRYPTOSPORIDIOSIS	8
E COLI SHIGA TOXIN POSITIVE	3
E. COLI O157 H7	1
EHRlichia CHAFFEENSIS	10
EHRlichiosis ANAPLASMOSIS UNDETERMINED	2
GIARDIASIS	11
HAEMOPHILUS INFLUENZAE, INVASIVE	3
HEPATITIS B (PREGANCY) PRENATAL	6
HEPATITIS B CHRONIC INFECTION	12
HEPATITIS C ACUTE	1
HEPATITIS C CHRONIC INFECTION	148
LEGIONELLOSIS	2
LYME	3
MOTT (MYCOBACTERIUM OTHER THAN TUBERCULOSIS)	40
PERTUSSIS	7
RABIES POST EXPOSURE PROPHYLAXIS	31
ROCKY MOUNTAIN SPOTTED FEVER	3
SALMONELLOSIS	11
SHIGELLOSIS	6
STREP DISEASE, GROUP A INVASIVE	1
STREP PNEUMONIAE, DRUG-RESISTANT	2
TUBERCULOSIS INFECTION	202
TYPHOID FEVER	1
VARICELLA (CHICKEN POX)	19
VIBRIOSIS	1
TOTAL	825

Figure 3: Confirmed Communicable Diseases in Boone County, Missouri 2010-2014 with 5 Year Mean (Excluding Influenza and Sexually Transmitted Diseases)

DISEASE/CONDITION	2010	2011	2012	2013	2014	5 YR Mean
ANAPLASMA PHAGOCYTOPHILUM	0	1	3	0	1	1
ANIMAL BITES	337	269	305	292	267	294
BRUCELLOSIS	0	0	0	1	0	0.2
CAMPYLOBACTERIOSIS	20	21	26	30	23	24
CHIKUNGUNYA	0	0	0	0	1	0.2
COCCIDIOIDOMYCOSIS	1	0	1	1	0	0.6
CREUTZFELDT-JAKOB DISEASE (CJD)	1	0	0	1	0	0.4
CRYPTOSPORIDIOSIS	8	16	9	3	8	8.8
DENGUE FEVER	0	0	0	1	0	0.2
E COLI SHIGA TOXIN POSITIVE	1	0	7	2	3	2.6
E. COLI O157 H7	0	7	13	6	1	5.4
EHRlichia CHAFFEENSIS	1	3	1	13	10	5.6
EHRlichia EWINGII	0	0	0	1	0	0.2
EHRlichiosis ANAPLASMOSIS UNDETERMINED	0	0	0	3	2	1
GIARDIASIS	22	26	13	6	11	15.6
HAEMOPHILUS INFLUENZAE, INVASIVE	3	1	3	3	3	2.6
HEMOLYTIC UREMIC SYNDROME	0	0	3	0	0	0.6
HEPATITIS A ACUTE	6	4	0	0	0	2
HEPATITIS B (PREGNANCY) PRENATAL	7	6	7	7	6	6.6
HEPATITIS B ACUTE	0	2	1	3	0	1.2
HEPATITIS B CHRONIC INFECTION	8	5	20	12	12	10.6
HEPATITIS C ACUTE	0	0	0	0	1	0.2
HEPATITIS C CHRONIC INFECTION	89	160	162	130	148	137.8
LEGIONELLOSIS	1	2	2	4	2	2.2
LEPTOSPIROSIS	1	0	0	1	0	0.4
LISTERIOSIS	1	0	0	0	0	0.2
LYME	0	0	0	0	3	0.6
MALARIA	3	1	0	0	0	0.8
MENINGOCOCCAL DISEASE	0	2	0	1	0	0.6
MOTT	10	20	32	31	40	26.6
NON NEUROINVASIVE ST LOUIS	0	1	0	0	0	0.2
PERTUSSIS	18	2	16	5	7	9.6
Q FEVER ACUTE	0	0	1	1	0	0.4
RABIES ANIMAL	6	0	2	2	0	2
RABIES POST EXPOSURE PROPHYLAXIS	30	10	15	15	31	20.2
ROCKY MOUNTAIN SPOTTED FEVER	6	1	4	7	3	4.2
SALMONELLOSIS	22	16	40	18	11	21.4
SHIGELLOSIS	22	3	1	2	6	6.8
STREP DISEASE, GROUP A INVASIVE	2	4	2	3	1	2.4
STREP PNEUMONIAE, <5 YEARS, INVASIVE	0	3	0	0	0	0.6
STREP PNEUMONIAE, DRUG-RESISTANT	2	0	1	3	2	1.6
TB DISEASE	4	2	4	8	0	3.6
TB INFECTION	140	174	145	431	202	218.4
TOXIC SHOCK (STREP) SYNDROME	1	0	0	0	0	0.2
TULAREMIA	0	0	2	0	0	0.4
TYPHOID FEVER	0	0	0	0	1	0.2
VARICELLA (CHICKENPOX)	17	14	5	21	19	15.2
VIBRIOSIS	0	0	0	0	1	0.2
YERSINIOSIS	1	0	1	0	0	0.4

Figure 4: Summary of Disease Outbreaks in 2014 for Boone County, Missouri

Summary of Disease Outbreaks Investigated In Boone County 2014			
Month	Setting	Agent/Condition	Ill/Exposed
March	Healthcare Facility/Long Term Care	Acute Gastrointestinal Illness	4/29
April	Childcare	Varicella (Chickenpox)	8/110
May	Restaurant/Food Service	Acute Gastrointestinal Illness	10/14
December	Healthcare Facility/Long Term Care	Influenza	20/278
December	Healthcare Facility/Long Term Care	Influenza	8/91