

### Report Immediately by Telephone

- Anthrax (*Bacillus anthracis*) a**
- Botulism (*Clostridium botulinum*)**
- Brucellosis (*Brucella* spp.) a
- Cholera (*Vibrio cholerae*) a
- Diphtheria (*Corynebacterium diphtheriae*) a
- Hemolytic uremic syndrome a
- Measles (rubeola) a
- Meningococcal disease (*Neisseria meningitidis*)
- (all invasive disease) a, b
- Orthopox virus a
- Plague (*Yersinia pestis*) a
- Polio myelitis a
- Q fever (*Coxiella burnetii*) a
- Rabies (animal and human cases and suspected cases)**
- Rubella and congenital rubella syndrome a
- Severe Acute Respiratory Syndrome (SARS)
- (1. Suspect and probable cases of SARS. 2. Cases of health care workers hospitalized for pneumonia or acute respiratory distress syndrome.) a
- Smallpox (variola) a
- Tularemia (*Francisella tularensis*) a
- Unusual or increased case incidence of any suspect infectious illness a

a Submission of clinical materials required. If a rapid, non-culture assay is used for diagnosis, we request that positives be cultured, and isolates submitted. If this is not possible, send specimens, enrichment broth, or other appropriate material. Call the MDH Public Health Laboratory at 651-201-4953 for instructions.

b Isolates are considered to be from invasive disease if they are isolated from a normally sterile site, e.g., blood, CSF, joint fluid, etc.

c Report on separate Sexually Transmitted Disease Report Card.

d Report on separate HIV Report Card.

e For criteria for reporting laboratory confirmed cases of influenza, see [www.health.state.mn.us/divs/idep/dtopics/reportable/index.html](http://www.health.state.mn.us/divs/idep/dtopics/reportable/index.html).

### Reportable Diseases, MN Rule 4605.7040

#### Report Within One Working Day

- Amebiasis (*Entamoeba histolytica/dispar*)
- Anaplasmosis (*Anaplasma phagocytophilum*)
- Arboviral disease (including, but not limited to, LaCrosse encephalitis, eastern equine encephalitis, western equine encephalitis, St. Louis encephalitis, and West Nile virus)
- Babesiosis (*Babesia* spp.)
- Blastomycosis (*Blastomyces dermatitidis*)
- Campylobacteriosis (*Campylobacter* spp.) a
- Cat scratch disease (infection caused by *Bartonella* spp.)
- Chancroid (*Haemophilus ducreyi*) c
- Chlamydia trachomatis* infection c
- Coccidioidomycosis
- Cronobacter (Enterobacter) sakazakii* (infants under 1 year of age) a
- Cryptosporidiosis (*Cryptosporidium* spp.) a
- Cyclosporiasis (*Cyclospora* spp.) a
- Dengue virus infection
- Diphyllobothrium latum* infection
- Ehrlichiosis (*Ehrlichia* spp.)
- Encephalitis (caused by viral agents)
- Enteric *E. coli* infection
- (*E. coli* O157:H7, other enterohemorrhagic [Shiga toxin-producing] *E. coli*, enteropathogenic *E. coli*, enteroinvasive *E. coli*, enterotoxigenic *E. coli*) a
- Giardiasis (*Giardia lamblia*)
- Gonorrhea (*Neisseria gonorrhoeae*) c
- Guillain-Barre' syndrome
- Haemophilus influenzae* disease
- (all invasive disease) a
- Hantavirus infection
- Hepatitis (all primary viral types including A, B, C, D, and E)
- Histoplasmosis (*Histoplasma capsulatum*)
- Human immunodeficiency virus (HIV) infection, including Acquired Immunodeficiency Syndrome (AIDS) a, d
- Influenza
- (unusual case incidence, critical illness, or laboratory confirmed cases) a, e
- Kawasaki disease
- Kingella* spp. (invasive only) a, b
- Legionellosis (*Legionella* spp.) a
- Leprosy (Hansen's disease) (*Mycobacterium leprae*)

#### Sentinel Surveillance (at sites designated by the Commissioner)

- Methicillin-resistant *Staphylococcus aureus* (invasive only) a, b
- Clostridium difficile* a
- Carbapenem-resistant *Enterobacteriaceae* spp. (CRE) and carbapenem-resistant *Acinetobacter* spp. a

Antimicrobial Susceptibilities  
of Selected Pathogens,  
2011



Minnesota Department of Health  
625 North Robert Street  
PO Box 64975  
St. Paul, MN 55164-0975  
[www.health.state.mn.us](http://www.health.state.mn.us)

#### To Report a Case:

Fill out a Minnesota Department of Health case report form and mail to the above address. For diseases that require immediate reporting, or for questions about reporting, call the Acute Disease Investigation and Control Section at: 651-201-5414 or 1-877-676-5414 or fax form to 651-201-5743.

#### To Send an Isolate to MDH:

If you are sending an isolate by U.S. mail, use regulatory compliant transport packaging and send to: PO Box 64899, St. Paul, MN 55164. If you are using a courier, use transport packaging appropriate for the specific courier and send to: 601 North Robert Street, St. Paul, MN 55155. To request pre-paid transport labels (both mail and courier) and packaging, or for other assistance, call the Public Health Laboratory Specimen Handling Unit at: 651-201-4953.

The MDH Antibiogram is available on the MDH web site (<http://www.health.state.mn.us>). Laminated copies can be ordered from: Antibiogram, Minnesota Department of Health, Acute Disease Investigation and Control Section, 625 North Robert Street, PO Box 64975, St. Paul, MN 55164-0975.

Antimicrobial Susceptibilities  
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Sampling Methodology  
+ all isolates tested  
++ ~10% sample of statewide isolates received at MDH  
@@ isolates from a normally sterile site

	<i>Campylobacter</i> spp. <sup>1†</sup>	<i>Salmonella</i> Typhimurium <sup>2†</sup>	Other <i>Salmonella enterica</i> serotypes (non-typhoidal) <sup>2†</sup>	<i>Shigella</i> spp. <sup>3‡</sup>	<i>Neisseria gonorrhoeae</i> <sup>4</sup>	<i>Neisseria meningitidis</i> <sup>5§</sup>	Group A <i>Streptococcus</i> <sup>6§</sup>	Group B <i>Streptococcus</i> <sup>7§</sup>	<i>Streptococcus pneumoniae</i> <sup>8§</sup>	<i>Haemophilus influenzae</i> <sup>9§</sup>	<i>Mycobacterium tuberculosis</i> <sup>10†</sup>
Number of Isolates Tested	91	105	50	9	47	15	206	473	560	62	101

		% Susceptible												
β-lactam antibiotics	amoxicillin											91		
	ampicillin		79	94	89		93	100	100				65	
	penicillin					0	87	100	100	76				
	cefixime					98	100							
	cefepodoxime					94								
	cefuroxime sodium									87	100			
	cefotaxime							100	100	90	100			
	ceftriaxone		100	100	100	100	100			90				
	meropenem						100			90	100			
Other antibiotics	ciprofloxacin	73 <sup>1</sup>	100	100	100	72	100					100		
	levofloxacin						100	99	99	99				
	azithromycin	99				100	100					97		
	erythromycin	99						91	50	66				
	clindamycin							99/94 <sup>6</sup>	72/59 <sup>7</sup>	89				
	chloramphenicol		83	98	100					99	98			
	gentamicin	99												
	spectinomycin					100								
	tetracycline	58				21		96		86	97			
	trimethoprim/sulfamethoxazole (SXT)		99	98	0		47			77	84			
	vancomycin							100	100	100				
TB antibiotics	ethambutol													98
	isoniazid													88
	pyrazinamide													87
	rifampin						100					100		97

Trends, Comments, and Other Pathogens

<sup>1</sup> <i>Campylobacter</i> spp.	Ciprofloxacin susceptibility was determined for all isolates (n=910). Only 19% of isolates from patients returning from foreign travel (n=150) were susceptible to quinolones. Susceptibilities were determined using CLSI 2012 standards for <i>Campylobacter</i> , or <i>Enterobacteriaceae</i> where <i>Campylobacter</i> standards were unavailable.
<sup>2</sup> <i>Salmonella enterica</i> (non-typhoidal)	Antimicrobial treatment for uncomplicated gastroenteritis due to <i>Salmonella</i> is not generally recommended.
<sup>3</sup> <i>Shigella</i> spp.	The number of isolates tested in 2011 was very low. In 2010, 83% of 6 isolates were susceptible to SXT. For cases in which treatment is required and susceptibility is unknown or an ampicillin and SXT-resistant strain is isolated, parenteral ceftriaxone, a fluoroquinolone (such as ciprofloxacin), or azithromycin should be given. (2012 Red Book)
<sup>4</sup> <i>Neisseria gonorrhoeae</i>	Routine resistance testing for <i>Neisseria gonorrhoeae</i> by MDH PHL was discontinued in 2008. Susceptibility results were obtained from the CDC Regional Laboratory in Cleveland, Ohio, and are for isolates obtained through the Gonococcal Isolate Surveillance Program. The 47 isolates tested were received from the Red Door Clinic in Minneapolis. Resistance criteria for cefixime, ceftriaxone, cefepodoxime, and azithromycin have not been established; data reflect reduced susceptibility using CLSI and CDC provisional breakpoints (minimum inhibitory concentration ≥ 0.5 µg/ml, ≥ 0.5 µg/ml, ≥ 1.0 µg/ml, and ≥ 2.0 µg/ml, respectively). Also, the number of <i>N. gonorrhoeae</i> isolates submitted for testing decreased from 72 in 2010 to 47 in 2011.
<sup>5</sup> <i>Neisseria meningitidis</i>	In 2011, 1 case-isolate was intermediate to penicillin and ampicillin, as well as resistant to SXT. One additional case-isolate was intermediate to penicillin. Seven case-isolates were resistant to SXT. There were no case-isolates with ciprofloxacin resistance. In 2008, 2 isolates from cases occurring in northwestern MN had nalidixic acid MICs >8 µg/ml and ciprofloxacin MICs of 0.25 µg/ml indicative of resistance.
<sup>6</sup> Group A <i>Streptococcus</i>	The 206 isolates tested represent 89% of 231 total cases. Among 18 erythromycin-resistant, clindamycin-susceptible or intermediate isolates 13 (72%) had inducible resistance to clindamycin for a total of 94% that were susceptible to clindamycin and did not exhibit inducible clindamycin resistance.
<sup>7</sup> Group B <i>Streptococcus</i>	100% (21/21) of early-onset infant, 91% (10/11) of late-onset infant, 67% (2/3) of maternal, and 88% (440/500) of other invasive GBS cases were tested. Among 109 erythromycin-resistant, clindamycin susceptible or intermediate isolates 66 (61%) had inducible resistance to clindamycin for a total of 59% (277/473) that were susceptible to clindamycin and did not exhibit inducible clindamycin resistance. 52% (17/33) of infant and maternal cases were susceptible to clindamycin and did not exhibit inducible clindamycin resistance.
<sup>8</sup> <i>Streptococcus pneumoniae</i>	The 560 isolates tested represent 96% of 582 total cases. Reported above are the proportions of case-isolates susceptible by meningitis breakpoints for cefotaxime, ceftriaxone (intermediate = 1.0 µg/ml, resistant ≥ 2.0 µg/ml), and penicillin (resistant ≥ 0.12 µg/ml). By nonmeningitis breakpoints (intermediate = 2.0 µg/ml, resistant ≥ 4.0 µg/ml), 93% (519/560) of isolates were susceptible to cefotaxime and ceftriaxone. By nonmeningitis breakpoints (intermediate = 4.0 µg/ml, resistant ≥ 8.0 µg/ml), 93% (519/560) of isolates were susceptible to penicillin. Isolates were screened for high-level resistance to rifampin at a single MIC; all were ≤ 2 µg/ml. Using meningitis breakpoints, 26% (144/560) of isolates were resistant to two or more antibiotic classes and 16% (90/560) were resistant to three or more antibiotic classes. (CLSI also has breakpoints for oral penicillin V; refer to the most recent CLSI recommendations for information).
<sup>9</sup> <i>Haemophilus influenzae</i>	In 2011, 22 (36%) of the case-isolates were resistant to ampicillin and produced β-lactamase, but (all) were susceptible to amoxicillin-clavulanate, which contains a β-lactamase inhibitor.
<sup>10</sup> <i>Mycobacterium tuberculosis</i> (TB)	National guidelines recommend initial four-drug therapy for TB disease, at least until first-line drug susceptibility results are known. Of the 22 drug-resistant TB cases reported in 2011, 21 (95%) were in foreign-born persons, including the three multidrug-resistant (MDR-TB) cases (i.e., resistant to at least isoniazid and rifampin) reported in 2011. There were no cases of extensively drug-resistant TB (XDR-TB) (i.e., resistance to at least INH, rifampin, any fluoroquinolone, and at least one second-line injectable drug).
Invasive methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	301 cases of invasive MRSA infection were reported in 2011 in Ramsey and Hennepin Counties, of which 202 (67%) were from blood. 80% (241/301) had an isolate submitted and antimicrobial susceptibility testing conducted. Of cases with an isolate, 79% (207/241) were epidemiologically classified as healthcare-associated. Additional susceptibilities were as follows: 100% to linezolid and telavancin; 99% to daptomycin, doxycycline, gentamicin, minocycline, vancomycin; 98% rifampin, SXT; 97% to tetracycline; 21% to levofloxacin; 10% to erythromycin. Isolates were screened for mupirocin resistance with 2% exhibiting high-level resistance (MIC >256 µg/ml). 52% (107/207) were susceptible to clindamycin by broth microdilution; however, 40 of 86 isolates that were clindamycin susceptible or intermediate and erythromycin resistant were found to have inducible resistance to clindamycin (32% susceptible and negative for inducible clindamycin resistance). For community-associated (CA) cases (34/38 with isolates), susceptibilities were as follows: 100% to daptomycin, doxycycline, gentamicin, linezolid, minocycline, mupirocin, rifampin, tetracycline, telavancin, vancomycin; 97% to SXT; 38% to levofloxacin; 18% to erythromycin. 88% (30/34) were susceptible to clindamycin by broth microdilution; however, 1 of 24 isolates that were clindamycin susceptible or intermediate and erythromycin resistant were found to have inducible clindamycin resistance (85% susceptible and negative for inducible clindamycin resistance). In addition to invasive MRSA surveillance, MDH received 5 reports of isolates (3 MRSA and 2 MSSA) with intermediate resistance to vancomycin (MIC 4-8 µg/ml).
<i>Bordetella pertussis</i>	In 2011 no cases of pertussis were tested for susceptibility in Minnesota. Nationally, only 11 erythromycin-resistant <i>B. pertussis</i> cases have been identified to date.
Carbapenem-resistant <i>Enterobacteriaceae</i> (CRE)	Of 41 CRE isolates submitted from 40 cases, 21 (51%) were <i>bla</i> <sub>KPC</sub> positive by PCR including 11 (52%) <i>E. cloacae</i> , 9 (43%) <i>K. pneumoniae</i> , and 1 (5%) <i>C. freundii</i> . 11 (52%) were residents of the 7-county metro area. Two submitted isolates were positive for <i>bla</i> <sub>NDM-1</sub> by PCR: 1 <i>E. coli</i> and 1 <i>K. pneumoniae</i> from the same case. The definition of CRE is based on 2011 CLSI breakpoints and includes <i>Enterobacteriaceae</i> that are nonsusceptible to a carbapenem (excluding ertapenem) and resistant to all tested third generation cephalosporins. Due to their intrinsic resistance to imipenem, additional criteria apply for all species of <i>Proteus</i> , <i>Providencia</i> , and <i>Morganella</i> .
<i>Escherichia coli</i> O157:H7	Antimicrobial treatment for <i>E. coli</i> O157:H7 infection is not recommended.