

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/depd/topics/reportable/index.html](http://www.health.state.mn.us/divs/depd/topics/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*)
- Leptospirosis** (*Leptospira interrogans*)  
**Listeriosis** (*Listeria monocytogenes*) **a**  
**Lyme disease** (*Borrelia burgdorferi*)  
**Malaria** (*Plasmodium* spp.)  
**Meningitis** (caused by viral agents)  
**Mumps**  
**Neonatal sepsis, less than 7 days after birth** (bacteria isolated from a sterile site, excluding coagulase-negative *Staphylococcus*) **a, b**  
**Pertussis** (*Bordetella pertussis*) **a**  
**Psittacosis** (*Chlamydophila psittaci*)  
**Retrovirus infection**  
**Reye syndrome**  
**Rheumatic fever** (cases meeting the Jones Criteria only)  
**Rocky Mountain spotted fever** (*Rickettsia rickettsii*, *R. cananda*)  
**Salmonellosis**, including typhoid (*Salmonella* spp.) **a**  
**Shigellosis** (*Shigella* spp.) **a**  
**Staphylococcus aureus** (vancomycin-intermediate *S. aureus* [VISA], vancomycin-resistant *S. aureus* [VRSA], and death or critical illness due to community-associated *S. aureus* in a previously healthy individual) **a**  
**Streptococcal disease** (all invasive disease caused by Groups A and B streptococci and *S. pneumoniae*) **a, b**  
**Syphilis** (*Treponema pallidum*) **c**  
**Tetanus** (*Clostridium tetani*)  
**Toxic shock syndrome** **a**  
**Toxoplasmosis** (*Toxoplasma gondii*)  
**Transmissible spongiform encephalopathy**  
**Trichinosis** (*Trichinella spiralis*)  
**Tuberculosis** (*Mycobacterium tuberculosis* complex)  
(Pulmonary or extrapulmonary sites of disease, including laboratory confirmed or clinically diagnosed disease, are reportable. Latent tuberculosis infection is not reportable.) **a**  
**Typhus** (*Rickettsia* spp.)  
**Unexplained deaths and unexplained critical illness** (possibly due to infectious cause) **a**  
**Varicella-zoster disease** (1. Primary [chickenpox]: unusual case incidence, critical illness, or laboratory-confirmed cases. 2. Recurrent [shingles]: unusual case incidence or critical illness.) **a**  
**Vibrio** spp. **a**  
**Yellow fever**  
**Yersiniosis, enteric** (*Yersinia* spp.) **a**

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,  
2010



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<br>of Selected Pathogens, 2010                                                                                     |                               | <i>Campylobacter</i> spp. <sup>1‡</sup> | <i>Salmonella</i> Typhimurium <sup>2†</sup> | Other <i>Salmonella</i> serotypes<br>(non-typhoidal) <sup>2†</sup> | <i>Shigella</i> spp. <sup>†</sup> | <i>Neisseria gonorrhoeae</i> <sup>3</sup> | <i>Neisseria meningitidis</i> <sup>4§</sup> | Group A <i>Streptococcus</i> <sup>5§</sup> | Group B <i>Streptococcus</i> <sup>6§</sup> | <i>Streptococcus pneumoniae</i> <sup>7§</sup> | <i>Mycobacterium tuberculosis</i> <sup>8†</sup> |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------|---------------------------------------------|--------------------------------------------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------|--------------------------------------------|--------------------------------------------|-----------------------------------------------|-------------------------------------------------|
| Sampling Methodology<br>†+ all isolates tested<br>++ ~10% sample of statewide isolates received at MDH<br>‡ isolates from a normally sterile site |                               |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            |                                               |                                                 |
| Number of Isolates Tested                                                                                                                         |                               | 90                                      | 100                                         | 55                                                                 | 6                                 | 71                                        | 9                                           | 142                                        | 385                                        | 625                                           | 109                                             |
| % Susceptible                                                                                                                                     |                               |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            |                                               |                                                 |
| β-lactam antibiotics                                                                                                                              | amoxicillin                   |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            | 90                                            |                                                 |
|                                                                                                                                                   | ampicillin                    |                                         | 77                                          | 93                                                                 | 67                                |                                           | 89                                          | 100                                        | 100                                        |                                               |                                                 |
|                                                                                                                                                   | penicillin                    |                                         |                                             |                                                                    |                                   | 77                                        | 89                                          | 100                                        | 100                                        | 77                                            |                                                 |
|                                                                                                                                                   | cefixime                      |                                         |                                             |                                                                    |                                   | 100                                       |                                             |                                            |                                            |                                               |                                                 |
|                                                                                                                                                   | cefuroxime sodium             |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            | 86                                            |                                                 |
|                                                                                                                                                   | cefotaxime                    |                                         |                                             |                                                                    |                                   |                                           |                                             | 100                                        | 100                                        | 88                                            |                                                 |
|                                                                                                                                                   | ceftriaxone                   |                                         | 95                                          | 96                                                                 | 100                               | 100                                       | 100                                         |                                            |                                            | 88                                            |                                                 |
|                                                                                                                                                   | meropenem                     |                                         |                                             |                                                                    |                                   |                                           | 100                                         |                                            |                                            | 87                                            |                                                 |
| Other antibiotics                                                                                                                                 | ciprofloxacin                 | 76                                      | 100                                         | 100                                                                | 83                                | 76                                        | 100                                         |                                            |                                            |                                               |                                                 |
|                                                                                                                                                   | levofloxacin                  |                                         |                                             |                                                                    |                                   |                                           | 100                                         | 100                                        | 99                                         | 99                                            |                                                 |
|                                                                                                                                                   | azithromycin                  | 99                                      |                                             |                                                                    |                                   | 97                                        | 100                                         |                                            |                                            |                                               |                                                 |
|                                                                                                                                                   | erythromycin                  | 97                                      |                                             |                                                                    |                                   |                                           |                                             | 85                                         | 57                                         | 73                                            |                                                 |
|                                                                                                                                                   | clindamycin                   |                                         |                                             |                                                                    |                                   |                                           |                                             | 97/89 <sup>5</sup>                         | 77/68 <sup>6</sup>                         | 88                                            |                                                 |
|                                                                                                                                                   | chloramphenicol               |                                         | 74                                          | 95                                                                 | 83                                |                                           |                                             |                                            |                                            | 99                                            |                                                 |
|                                                                                                                                                   | gentamicin                    | 98                                      |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            |                                               |                                                 |
|                                                                                                                                                   | spectinomycin                 |                                         |                                             |                                                                    |                                   | 100                                       |                                             |                                            |                                            |                                               |                                                 |
|                                                                                                                                                   | tetracycline                  | 47                                      |                                             |                                                                    |                                   | 23                                        |                                             | 87                                         |                                            | 87                                            |                                                 |
|                                                                                                                                                   | trimethoprim/sulfamethoxazole |                                         | 95                                          | 100                                                                | 83                                |                                           | 67                                          |                                            |                                            | 78                                            |                                                 |
|                                                                                                                                                   | vancomycin                    |                                         |                                             |                                                                    |                                   |                                           |                                             | 100                                        | 100                                        | 100                                           |                                                 |
| TB antibiotics                                                                                                                                    | ethambutol                    |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            |                                               | 100                                             |
|                                                                                                                                                   | isoniazid                     |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            |                                               | 95                                              |
|                                                                                                                                                   | pyrazinamide                  |                                         |                                             |                                                                    |                                   |                                           |                                             |                                            |                                            |                                               | 94                                              |
|                                                                                                                                                   | rifampin                      |                                         |                                             |                                                                    |                                   |                                           | 100                                         |                                            |                                            |                                               | 99                                              |

| Trends, Comments, and Other Pathogens                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <sup>1</sup> <i>Campylobacter</i> spp.                             | Ciprofloxacin susceptibility was determined for all isolates (n=906). Only 32% of isolates from patients returning from foreign travel were susceptible to quinolones. Most susceptibilities were determined using 2009 CLSI breakpoints for <i>Campylobacter</i> . Susceptibilities for gentamicin were based on an MIC ≤ 4µg/ml and azithromycin were based on an MIC ≤ 2µg/ml.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <sup>2</sup> <i>Salmonella enterica</i> (non-typhoidal)            | Antimicrobial treatment for enteric salmonellosis generally is not recommended.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <sup>3</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. Isolates (n = 71) were received from the Red Door Clinic in Minneapolis. Numbers do not include two samples missing susceptibility results. Resistance criteria for cefixime, ceftriaxone, cefpodoxime, and azithromycin have not been established; data reflect reduced susceptibility using provisional breakpoints (minimum inhibitory concentration ≥ 0.5 µg/ml, ≥ 0.5 µg/ml and ≥ 2.0 µg/ml, respectively). Also, the number of gonorrhea isolates submitted for testing decreased from 128 in 2009 to 73 in 2010.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <sup>4</sup> <i>Neisseria meningitidis</i>                         | In 2010, 1 case-isolate demonstrated intermediate susceptibility to penicillin and ampicillin. Three cases demonstrated resistance to trimethoprim/sulfamethoxazole. There were no 2010 case-isolates with ciprofloxacin resistance. In 2008, 2 isolates obtained from cases occurring in northwestern Minnesota had nalidixic acid MICs > 8 µg/ml and ciprofloxacin MICs of 0.25 µg/ml, indicative of resistance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <sup>5</sup> Group A <i>Streptococcus</i>                          | The 142 isolates tested represent 90% of 158 total cases. Among 18 erythromycin-resistant, clindamycin-susceptible isolates, 12 (67%) had inducible resistance to clindamycin by D-test for a total of 89% that were susceptible to clindamycin and D-test negative (where applicable).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <sup>6</sup> Group B <i>Streptococcus</i>                          | 100% (31/31) of early-onset infant, 100% (14/14) of late-onset infant, 43% (3/7) of maternal, and 85% (337/396) of other invasive GBS cases were tested. Among 78 erythromycin-resistant, clindamycin-susceptible isolates, 37 (47%) had inducible resistance to clindamycin by D-test. Overall, 68% (260/385) were susceptible to clindamycin and were D-test negative (where applicable). 71% (34/48) of infant and maternal cases were susceptible to clindamycin and were D-test negative (where applicable).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <sup>7</sup> <i>Streptococcus pneumoniae</i>                       | The 625 isolates tested represent 96% of 649 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), 92% (573/625) of isolates were susceptible to cefotaxime and ceftriaxone. By nonmeningitis breakpoints (intermediate = 4.0 µg/ml, resistant ≥ 8.0 µg/ml), 90% (565/625) 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, 20% (125/625) of isolates were resistant to two or more antibiotic classes and 15% (96/625) 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>8</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 12 drug-resistant TB cases reported in 2010, 10 (83%) were in foreign-born persons. There were no multidrug-resistant (MDR-TB) cases (i.e., resistant to at least isoniazid and rifampin) reported in 2010. 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) reported in 2010.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Invasive methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) | 232 cases of invasive MRSA infection were reported in 2010 in Ramsey and Hennepin Counties, of which 158 (68%) were from blood. 79% (183/232) had an isolate submitted and antimicrobial susceptibility testing conducted. Of cases with an isolate, 89% (163/183) were epidemiologically classified as healthcare-associated. Susceptibilities were as follows: 100% to linezolid, minocycline, and vancomycin; 99% to gentamicin, daptomycin, doxycycline, trimethoprim/sulfamethoxazole; 98% to tetracycline; 95% to rifampin; 94% to mupirocin (MIC ≤ 4 ug/mL); 13% to levofloxacin; 8% to erythromycin. 33% were susceptible to clindamycin by broth microdilution; however, an additional 17 isolates (10%) exhibited inducible clindamycin resistance (23% susceptible and negative for inducible clindamycin resistance). For community-associated (CA) cases (76% of 25 cases had isolates submitted), susceptibilities were as follows: 100% to daptomycin, doxycycline, gentamicin, linezolid, minocycline, rifampin, tetracycline, trimethoprim/sulfamethoxazole, vancomycin; 95% to mupirocin (MIC ≤ 4 ug/mL); 40% to levofloxacin; 20% to erythromycin. 63% were susceptible to clindamycin by broth microdilution; however, 1 additional isolate (5%) exhibited inducible clindamycin resistance (58% susceptible and negative for inducible clindamycin resistance). In addition to invasive MRSA surveillance, MDH received 2 reports of isolates (1 MRSA and 1 MSSA) with intermediate resistance to vancomycin (MIC 4-8 µg/ml). |
| Carbapenem-resistant <i>Enterobacteriaceae</i> (CRE)               | Of <i>Enterobacteriaceae</i> submitted to the MDH Public Health Laboratory because of an elevated MIC to at least one carbapenem, 18 tested positive for <i>bla</i> <sub>KPC</sub> by PCR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Escherichia coli</i> O157:H7                                    | Antimicrobial treatment for <i>E. coli</i> O157:H7 infection is not recommended.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |