In 2009, 1 case-isolate demonstrated intermediate susceptibility to penicillin and ampicillin, as well as resistance to trimethoprim/sulfamethoxazole. There were no 2009 case-isolates with ciprofloxin resistance. In 2009, 2 isolates obtained from cases occurring in northwestern Minnesota had nalidixic acid MICs >6 μg/ml and ciprofloxacin MICs of 0.25 μg/ml, indicative of resistance.

### 1. Campylobacter spp.

Ciprofloxacin susceptibility was determined for all isolates (n=823). Only 30% of isolates from patients returning from foreign travel were susceptible to quinolones. Most susceptibilities were determined using 2009 CLSI breakpoints for Campylobacter. Susceptibilities for gentamicin and azithromycin have not been established; data reflect reduced susceptibility using provisional breakpoints (minimum inhibitory concentration (MIC) >5 μg/ml, >0.5 μg/ml, and ≥0.25 μg/ml, respectively).

### 2. Salmonella enterica

Antimicrobial treatment for enteric salmonellosis generally is not recommended.

### 3. Neisseria gonorrhoeae

Routine testing resistance for Neisseria gonorrhoeae by MDH PHL was discontinued in 2008. Susceptibility results were obtained from the CDC Regional Laboratory in Cleveland, Ohio, and are 7% were penicillin-resistant. Interpreted through the Gonococcal Isolate Surveillance Program. Isolates (n=122) were received from the Red Door Clinic in Minneapolis. 85% were susceptible to ceftriaxone, 0% were resistant to ceftriaxone, and azithromycin and ciprofloxacin MICs have not been established; data reflect reduced susceptibility using provisional breakpoints (minimum inhibitory concentration (MIC)>16 μg/ml, ≥8 μg/ml, and ≥0.5 μg/ml, respectively).

### 4. Neisseria meningitidis

In 2009, 1 case-isolate demonstrated intermediate susceptibility to penicillin and ampicillin, as well as resistance to trimethoprim/sulfamethoxazole. There were no 2009 case-isolates with ciprofloxin resistance. In 2009, 2 isolates obtained from cases occurring in northwestern Minnesota had nalidixic acid MICs >6 μg/ml and ciprofloxacin MICs of 0.25 μg/ml, indicative of resistance.

### 5. Group A Streptococcus

The 170 isolates tested represented 90% of 189 total cases. Among 19 erythromycin-resistant, clindamycin-susceptible isolates, 11 (58%) had inducible resistance to clindamycin by D-test.

### 6. Group B Streptococcus

100% (16/16) of early-onset infant, 100% (21/21) of late-onset infant, 50% (5/10) of maternal, and 90% (36/41) of other invasive GBS cases were tested. Among 71 erythromycin-resistant, clindamycin-susceptible isolates, 36 (51%) had inducible resistance to clindamycin by D-test. Overall, 46% (27/59) were susceptible to clindamycin and were D-test negative (where applicable). 75% (30/40) of infant and maternal cases were susceptible to clindamycin and were D-test negative (where applicable).

### 7. Streptococcus pneumoniae

The 639 isolates tested represented 93% of 686 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 > 2.0 μg/ml), 52% (590/1169) of isolates were susceptible to cefsulfomethoxazole and ceftriaxone. By nonmeningitis breakpoints (intermediate = 4.0 μg/ml, resistant > 5.0 μg/ml), 50% (579/1169) of isolates were susceptible to penicillin. Isolates were screened for high-level resistance to rifampin at a single MIC; all were ≤ 2 μg/ml. 21% (136/639) of isolates were resistant to two or more antibiotic classes and 17% (111/639) were resistant to three or more antibiotic classes. (CLSI also has breakpoints for oral penicillin; refer to the most recent guidelines for recommendations for antimicrobial treatment.)

### 8. Mycobacterium tuberculosis (TB)

National guidelines recommend initial four-drug therapy for TB disease, at least until first-line drug susceptibility results are known. Of the 20 drug-resistant TB cases reported in 2009, 17 (85%) were in foreign-born persons, including 2 of the 3 multidrug-resistant (MDR-TB) cases for 2009 (i.e., resistant to at least isoniazid (INH) and rifampin). 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).

### 9. Invasive meningococcal-resistant (Staphylococcus aureus (MRSA))

3,401 cases of MRSA infection were reported in 2009 through 12 sentinel sites, of which 206 (6%) were invasive (blood isolates were 77% of 206). Of these invasive cases, 72% (145/200) had an isolate submitted and antimicrobial susceptibility testing conducted. Of invasive cases with an isolate, 77% were epidemiologically classified as healthcare-associated. Susceptibilities were as follows: 100% to daptomycin, doxycycline, linezolid, minocycline, quinupristin/dalfopristin, and vancomycin; 99% to gentamicin, meropenem, rifampin, tetracycline, trimethoprim/ sulfamethoxazole; 25% to levofloxacin; 9% to erythromycin. 74% were susceptible to clindamycin by broth microdilution; however, an additional 4 isolates (17%) were positive for inducible clindamycin resistance by D-test (62% susceptible and D-test negative).

In addition to sentinel reporting, MDH received reports of 3 case isolates (1 MRSA and 2 MSSA) with intermediate resistance to vancomycin (MIC >4 μg/ml).

### 10. Borrelia pertussis

In 2009 no cases of pertussis were tested for susceptibility in Minnesota. Nationally, only 11 erythromycin-resistant B. pertussis cases have been identified to date.

### 11. Escherichia coli

Antimicrobial treatment for E. coli O157:H7 infection is not recommended.
Report Immediately by Telephone

Anthrax (Bacillus anthracis) a Botulism (Clostridium botulinum) Brucellosis (Brucella spp.) a Cholera (Vibrio cholerae) a Dengue chikungunya fever (Alphavirus) d Malaria (Plasmodium spp.) a, b Merced fever (Borrelia burgdorferi) a, b Meningitis (caused by viral agents) Mumps (Parvovirus b19) a, b Neonatal sepsis, less than 7 days after birth (bacteria isolated from all invasive disease) a Staphylococcus aureus, b Campylobacteriosis (Campylobacter spp.) a Hepatitis B (HBV) a, b Hepatitis C (HCV) a, b Hepatitis D (HDV) a, b Hepatitis E (HEV) a, b Influenza a Infectious mononucleosis (Epstein-Barr virus) a, b Lyme disease (Borrelia burgdorferi) a Listeriosis (Listeria monocytogenes) a, b Meningococcal disease (Neisseria meningitidis) a, b Strep pneumoniae, b Pertussis (Bordetella pertussis) a, b Psittacosis (Chlamydia psittaci) a, b Syphilis (Treponema pallidum) a, b Tetanus (Clostridium tetani) a, b Typhus (Rickettsia typhi) a, b Yersiniosis, enteric (Yersinia spp.) a, b

Antimicrobial Susceptibilities

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 651-201-2435.

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 55164-0975.

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.

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For reporting laboratory confirmed cases of influenza, see www.health.state.mn.us/divs/idepc/dtopics/reportable/index.html.

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