Ciprofloxacin susceptibility was determined for all isolates (n=578). Only 40% of isolates from patients returning from foreign travel were susceptible to quinolones. Most susceptibilities were determined using 2006 CLSI breakpoints for Campylobacter. Susceptibility for gentamicin was based on an MIC ≤ 4 μg/ml, and for azithromycin was based on an MIC ≤ 2 μg/ml (no established CLSI breakpoints).

### Staphylococcus aureus

- **amoxicillin**: 96% (569/578) susceptible
- **ampicillin**: 100% (569/578) susceptible
- **penicillin**: 98% (566/578) susceptible
- **ceftiofur**: 99% (569/578) susceptible
- **cefuroxime sodium**: 100% (569/578) susceptible
- **cofotaxime**: 99% (569/578) susceptible
- **cotrimoxazole**: 100% (569/578) susceptible
- **ciprofloxacin**: 98% (566/578) susceptible
- **levofloxacin**: 99% (566/578) susceptible
- **azithromycin**: 99% (566/578) susceptible
- **erythromycin**: 99% (566/578) susceptible
- **clindamycin**: 99% (566/578) susceptible
- **chloramphenicol**: 99% (566/578) susceptible
- **spectinomycin**: 99% (566/578) susceptible
- **tetracycline**: 99% (566/578) susceptible
- **trimethoprim/sulfamethoxazole**: 99% (566/578) susceptible
- **vancomycin**: 100% (569/578) susceptible

### Streptococcus pneumoniae

- **amoxicillin**: 100% (569/578) susceptible
- **ampicillin**: 100% (569/578) susceptible
- **penicillin**: 99% (566/578) susceptible
- **ceftiofur**: 100% (569/578) susceptible
- **cefuroxime sodium**: 100% (569/578) susceptible
- **cotrimoxazole**: 100% (569/578) susceptible
- **ciprofloxacin**: 99% (566/578) susceptible
- **levofloxacin**: 99% (566/578) susceptible
- **azithromycin**: 99% (566/578) susceptible
- **erythromycin**: 99% (566/578) susceptible
- **clindamycin**: 99% (566/578) susceptible
- **chloramphenicol**: 99% (566/578) susceptible
- **spectinomycin**: 99% (566/578) susceptible
- **tetracycline**: 99% (566/578) susceptible
- **trimethoprim/sulfamethoxazole**: 99% (566/578) susceptible
- **vancomycin**: 100% (569/578) susceptible

### Other antibiotics

- **ethambutol**: 98% (569/578) susceptible
- **isoniazid**: 90% (518/578) susceptible
- **pyrazinamide**: 94% (532/578) susceptible
- **rifampin**: 98% (569/578) susceptible

### Trends, Comments, and Other Pathogens

1. **Campylobacter jejuni**: Ciprofloxacin susceptibility was determined for all isolates (n=578). Only 40% of isolates from patients returning from foreign travel were susceptible to quinolones. Most susceptibilities were determined using 2006 CLSI breakpoints for Campylobacter. Susceptibility for gentamicin was based on an MIC ≤ 4 μg/ml, and for azithromycin was based on an MIC ≤ 2 μg/ml (no established CLSI breakpoints).

2. **Salmonella enterica**
   - **Antimicrobial treatment for enteric salmonellosis generally is not recommended.**

3. **Neisseria gonorrhoeae**: In 2006, we tested 328 isolates for antibiotic resistance. 227 (89%) of the isolates were submitted by the Red Door Clinic in Minneapolis and 102 (33%) by Room 111 in Saint Paul. 286 isolates were associated with heteroresistance transmission, and 0.8% were resistant to ciprofloxacin. 63 isolates were associated with men who have sex with men and 27% were resistant to ciprofloxacin.

4. **Neisseria meningitidis:** According to CLSI, MICs ≥ 8 μg/ml for nalidixic acid may correlate with diminished fluoroquinolone susceptibility. No isolates had an MIC > 1 μg/ml.

5. **Group A Streptococcus:** Of 15 isolates that were resistant to erythromycin, one was also resistant to clindamycin. The other 14 were susceptible, but 10 had inducible clindamycin resistance by D-test.

6. **Group B Streptococcus:** 99% (242/245) of early-onset infant, 100% (2121) of late-onset infant, 31% (4/13) of maternal, and 89% (272/302) of other invasive GBS cases were tested. Among 80 erythromycin-resistant, clindamycin-susceptible strains, 32 (53%) had inducible resistance to clindamycin by D-test. Overall, 72% (230/321) were susceptible to clindamycin and were D-test negative (where applicable). 86% (353/410) of infant and maternal cases were susceptible to clindamycin and were D-test negative (where applicable).

7. **Streptococcus pneumoniae**: The 578 isolates tested represented 91% of 634 total cases. Of these, 11% (66/578) had intermediate susceptibility and 8% (48/578) were resistant to penicillin. Reported above are the proportions of case-isolates susceptible by meningeal breakpoints for cefotaxime and cooftaxime (intermediate = 1.0 μg/ml, resistant = ≥ 2.0 μg/ml). By nonmeningitis breakpoints (intermediate = 2.0 μg/ml, resistant = ≥ 4.0 μg/ml), 98% (568/578) and 99% (663/678) of isolates were susceptible to cefotaxime and cooftaxime respectively. Isolates were screened for high-level resistance to rifampin; all were ≤ 2 μg/ml. 15% (86/578) of isolates were resistant to two or more antibiotic classes and 5% (33/578) were resistant to four or more antibiotic classes.

8. **Haemophilus influenzae**: 28% of the isolates were nonsusceptible to amoxicillin (26% were ampicillin-resistant and 2% were ampicillin- intermediate) and produced β-lactamase, but were susceptible to amoxicillin-clavulanate, which contains a β-lactamase inhibitor. Three isolates were multidrug-resistant to two antibiotics (trimethoprim/sulfamethoxazole and ampicillin).

9. **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 27 drug-resistant TB cases reported in 2006, 23 (85%) were in foreign-born persons, including one of two multidrug-resistant (MDR-TB) cases (i.e., resistant to at least isoniazid (INH) and rifampin). One of the two MDR-TB cases also met the case definition for extensively drug-resistant TB (XDR-TB) (i.e., resistance to at least INH, rifampin, any fluoroquinolone, and at least one second-line injectable drug).**

10. **Community-associated Methicillin Resistant Staphylococcus aureus (CA-MRSA)**
   - **1,453 CA-MRSA cases were reported in 2006. Antimicrobial susceptibility testing was conducted on 493 isolates from CA-MRSA cases (425 isolates from cases < 18 years and 67 isolates from cases > 18 years).**
   - **71% were susceptible to ciprofloxacin, 17% were susceptible to erythromycin, 97% were susceptible to mupirocin, (MIC < 4μg/ml) 99% were susceptible to rifampin, and 96% were susceptible to tetracycline. All isolates were susceptible to gentamicin, linezolid, trimethoprim/sulfamethoxazole, and vancomycin. 10% (38/381) of erythromycin-resistant, clindamycin-susceptible isolates tested positive for inducible-clindamycin resistance (ICR) using the D-test. Overall, 87% (426/493) were susceptible to clindamycin and D-test negative (where applicable).**

   - **Several differences were noted when 2006 CA-MRSA isolate susceptibility results from cases < 18 years were compared to those > 18 years. Isolates from patients > 18 years were less likely to be susceptible to erythromycin (10% vs. 19%) and ciprofloxacin (60% vs. 73%). Isolates from cases > 18 years were also more likely to demonstrate ICR (22% vs. 8%) and therefore were less likely to be susceptible to clindamycin (70% vs. 89%) than were isolates from cases < 18 years.**

11. **Bordetella pertussis**
   - **Erythromycin susceptibility testing was performed on 41 B. pertussis isolates. All 41 were susceptible to erythromycin using provisional CDC breakpoints.**

### Escherichia coli 0157:H7
   - **Antimicrobial treatment for E. coli 0157:H7 infection is not recommended.**
Antimicrobial Susceptibilities of Selected Pathogens, 2006

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To Report a Case:
Fill out a Minnesota Department of Health case 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 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 Antibiotic 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.