

**Antimicrobial Susceptibilities
of Selected Pathogens, 2002**



Sampling Methodology

- † all isolates tested
- * ~1 isolate tested per week at MDH
- ‡ ~10% sample of statewide isolates received at MDH
- § isolates from a normally sterile site

	<i>Campylobacter</i> spp. ^{1*}	<i>Salmonella</i> Typhimurium ^{2*}	Other <i>Salmonella</i> serotypes (non-typhoidal) ^{2‡}	<i>Shigella</i> spp. ^{††}	<i>Neisseria gonorrhoeae</i> ³	<i>Neisseria meningitidis</i> ^{4§}	Group A <i>Streptococcus</i> ^{1§}	Group B <i>Streptococcus</i> ^{6§}	<i>Streptococcus pneumoniae</i> ^{6§}	<i>Mycobacterium tuberculosis</i> ^{7‡}
No. of Isolates Tested	55	128	47	20	123	36	133	264	527	187
% Susceptible										
b-lactam antibiotics	amoxicillin	/	/	/	/	/	/	/	95	/
	ampicillin	/	80	96	10	/	100	100	/	/
	penicillin	/	/	/	/	/	86	100	100	81
	cefuroxime sodium	/	/	/	/	100	/	/	/	85
	cefotaxime	/	/	/	/	/	/	100	100	87
	ceftriaxone	/	96	100	100	100	100	/	/	/
	meropenem	/	/	/	/	/	100	/	/	87
Other antibiotics	levofloxacin	/	/	/	/	/	/	/	/	99
	ciprofloxacin	82 ¹	100	100	100	96	100	/	/	/
	chloramphenicol	/	84	96	90	/	100	/	/	99
	clindamycin	/	/	/	/	/	/	99	84	96
	erythromycin	98	/	/	/	/	/	96	75	81
	gentamicin	98	/	/	/	/	/	/	/	/
	tetracycline	47	/	/	/	/	/	/	/	92
	trimethoprim/sulfamethoxazole	/	98	100	80	/	64	/	/	75
vancomycin	/	/	/	/	/	/	100	100	100	
TB antibiotics	ethambutol	/	/	/	/	/	/	/	/	96
	isoniazid	/	/	/	/	/	/	/	/	86
	pyrazinamide	/	/	/	/	/	/	/	/	95
	rifampin	/	/	/	/	/	97	/	/	96
	streptomycin	/	/	/	/	/	/	/	/	81
Trends, Comments and Other Pathogens										
1 <i>Campylobacter</i> spp.	Ciprofloxacin susceptibility was determined for all isolates (n=822). Only 38% of isolates from patients returning from foreign travel were susceptible to quinolones. Susceptibilities were determined using 2001 NCCLS breakpoints for <i>Enterobacteriaceae</i> . Susceptibility for erythromycin was based on an MIC < 4 µg/ml.									
2 <i>Salmonella</i> spp.	Antimicrobial treatment for enteric salmonellosis generally is not recommended.									
3 <i>Neisseria gonorrhoeae</i>	51 isolates comprise 2% of total cases reported in 2002. All were susceptible to cefixime, cefpodoxime, and spectinomycin. 3 were resistant to ciprofloxacin (MIC > 1 µg/ml). Among 217 MN isolates tested through another surveillance system (GISP), 1 was resistant to ciprofloxacin, penicillin, and tetracycline. No decreased susceptibility to azithromycin was detected in GISP isolates.									
4 <i>Neisseria meningitidis</i>	Provisional CDC breakpoints: MIC <0.06 mcg/ml considered susceptible, MIC of 0.12 - 0.5 mcg/ml considered 'less susceptible.' In 2002, 3 isolates had MIC of 0.12 and 2 had MIC of 0.25 for penicillin. 1 isolate was highly resistant to rifampin with MIC >32 (by E-test).									
5 Group B <i>Streptococcus</i> (GBS)	89% (24/27) of early-onset infant, 94% (17/18) of late-onset infant, 71% (10/14) of maternal, and 84% (213/253) of other invasive GBS cases were tested. 84% (43/51) of infant and maternal case isolates were susceptible to clindamycin and 75% (38/51) were susceptible to erythromycin. All 264 isolates had an MIC of <=0.5 µg/ml to ceftazolin.									
6 <i>Streptococcus pneumoniae</i>	2002 is the first year of statewide testing. The 527 isolates tested were 88% of 597 total cases. 7% (38/527) had intermediate susceptibility and 12% (64/527) were resistant to penicillin. Reported above is the proportion of 2002 case isolates susceptible by meningitis breakpoints for cefotaxime (intermediate=1.0 µg/ml, resistant > 2.0 µg/ml); by nonmeningitis breakpoints (intermediate=2.0 µg/ml, resistant > 4.0 µg/ml) 97% (512/527) of these isolates were susceptible. Isolates were screened for high-level resistance to rifampin at a single MIC; all were < 2 µg/ml.									
7 <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. Forty-six (88%) of the 52 drug-resistant TB cases reported in 2002 were in persons born outside the U.S., including 23 (88%) of 26 isoniazid (INH)-resistant cases and five (83%) of six multi-drug resistant cases (i.e., resistant to at least INH and rifampin).									
<i>Bordetella pertussis</i>	All 113 isolates received were susceptible to erythromycin using provisional CDC breakpoints.									
<i>Escherichia coli</i> O157:H7	Antimicrobial treatment for <i>E. coli</i> O157:H7 infection is not recommended.									
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	Of 136 community-associated MRSA isolates tested in 2001 (2002 results pending) 75% were susceptible to ciprofloxacin, 82% susceptible to clindamycin, 42% susceptible to erythromycin, 99% susceptible to gentamicin, 100% susceptible to TMP-SMX, 100% susceptible to rifampin, 94% susceptible to tetracycline and 100% susceptible to vancomycin. 36/45 of erythromycin resistant/clindamycin susceptible isolates had inducible clindamycin resistance and contained the <i>erm</i> gene.									

Reportable Diseases, MN Rule #4605.7040

Foodborne, Vectorborne and Zoonotic Diseases

Amebiasis (*Entamoeba histolytica*)
Anthrax (*Bacillus anthracis*) **a**
Babesiosis (*Babesia* spp.)
Botulism (*Clostridium botulinum*)**a**
Brucellosis (*Brucella* spp.)**g**
Campylobacteriosis (*Campylobacter* spp.) **b**
Cat scratch disease (infection caused by *Bartonella* spp.)
Cholera (*Vibrio cholerae*) **a,b**
Cryptosporidiosis (*Cryptosporidium parvum*)
Dengue virus infection
Diphyllobothrium latum infection
Ehrlichiosis (*Ehrlichia* spp.)
Encephalitis (caused by viral agents)**g**
Enteric *E. coli* infection (*E. coli* O157:H7 and other pathogenic *E. coli* from gastrointestinal infections) **b**
Giardiasis (*Giardia lamblia*)
Hantavirus infection**g**
Hemolytic uremic syndrome
Leptospirosis (*Leptospira interrogans*)
Listeriosis (*Listeria monocytogenes*) **b**
Lyme disease (*Borrelia burgdorferi*)
Malaria (*Plasmodium* spp.)
Plague (*Yersinia pestis*)**g**
Psittacosis (*Chlamydia psittaci*)
Q fever (*Coxiella burnetii*)**g**
Rabies (animal and human cases and suspects) **a**
Rocky Mountain spotted fever (*Rickettsia* spp., *R. canada*)
Salmonellosis, including typhoid (*Salmonella* spp.) **b**
Shigellosis (*Shigella* spp.)**b**
Toxoplasmosis
Trichinosis (*Trichinella spiralis*)
Tularemia (*Francisella tularensis*)**g**
Typhus (*Rickettsia* spp.)
Yellow fever
Yersiniosis (*Yersinia* spp.)**b**

Invasive Bacterial Diseases

Haemophilus influenzae disease (all invasive disease) **b,c**
Meningitis (caused by *Haemophilus influenzae* **b**, *Neisseria meningitidis* **b,g**, *Streptococcus pneumoniae* **b**, or viral or other bacterial agents)
Meningococemia (*Neisseria meningitidis*) **b,g**
Streptococcal disease (all invasive disease caused by Groups A and B streptococci and *S. pneumoniae*) **b,c**
Toxic shock syndrome **b**

Vaccine Preventable Diseases

Diphtheria (*Corynebacterium diphtheriae*) **b**
Hepatitis (all primary viral types including A,B,C,D, and E)
Influenza (unusual case incidence or lab confirmed cases) **d**
Measles (Rubeola) **a**
Mumps **a**
Pertussis (*Bordetella pertussis*) **a,b**
Poliomyelitis **a,d**
Rubella and congenital rubella syndrome
Tetanus (*Clostridium tetani*)

Sexually Transmitted Diseases and Retroviral Infections

Chancroid (*Haemophilus ducreyi*) **a,e**
Chlamydia trachomatis infections **e**
Gonorrhea (*Neisseria gonorrhoeae*) **e**
Human immunodeficiency virus (HIV) infection, including Acquired Immunodeficiency Syndrome (AIDS) **f**
Retrovirus infection (other than HIV)
Syphilis (*Treponema pallidum*) **a,e**

Other Conditions

Agents of bioterrorism **g**
Blastomycosis (*Blastomyces dermatitidis*)
Histoplasmosis (*Histoplasma capsulatum*)
Increased incidence of any illness beyond expectations
Kawasaki disease
Legionellosis (*Legionella* spp.)**d**
Leprosy (*Mycobacterium leprae*)
Reye syndrome
Rheumatic fever (cases meeting the Jones Criteria only)
Staphylococcus aureus (only death or serious illness due to methicillin-resistant *S. aureus*) **b**
Vancomycin Intermediate/Resistant *Staphylococcus aureus* **d**
Unexplained deaths **b** and serious illness **d** (possibly due to infectious cause)
Tuberculosis (*Mycobacterium tuberculosis* and *M. bovis*) **b**

a Report immediately by telephone 612-676-5414 or 877-676-5414

b Submit isolates to the MDH. If a rapid, non-culture assay is used for diagnosis, we request that positives be cultured, and isolates submitted. If not possible, please send specimens, enrichment broth, or other appropriate material. Please call the MDH Public Health Laboratory at 612-676-5938 for instructions.

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

d Submission of isolates to MDH is requested, but not required by rule

e Report on separate Sexually Transmitted Disease Report Card

f Report on separate HIV Report Card

g Requested to report immediately by telephone; reporting rule change expected in 2004

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Minnesota Department of Health
717 Delaware Street SE
Minneapolis, MN 55414
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: 612-676-5414 or 1-877-676-5414 or fax form to 612-676-5743.

To Send an Isolate to MDH:

Send isolates by U.S. mail using approved containers to the above address. If using a courier, isolates should be sent to 717 Delaware Street SE, Minneapolis, MN 55414. To order pre-paid etiologic agent mailers, or for other assistance, call the Public Health Laboratory Specimen Handling Unit at: 612-676-5396.

The MDH Antibiogram is available on the MDH Web site (<http://www.health.state.mn.us>). Laminated copies can be ordered from: Antibiogram, Minnesota Dept. of Health, Acute Disease Investigation and Control Section, 717 Delaware St. SE, Minneapolis, MN 55414.