NEW YORK CITY ANTIBIOGRAM

2016 OUTPATIENT URINARY TRACT INFECTIONS

A PILOT TO PROMOTE REGIONAL SHARING OF ANTIBIOTIC SUSCEPTIBILITY DATA

NYC Health

ABOUT

This 2016 Outpatient Urinary Tract Infection New York City Antibiogram was produced by the NYC Department of Health, in consultation with experts at local health care systems. It is limited to outpatient populations from primary and specialty outpatient clinics, acute care hospitals, urgent care centers and other health care facilities that provide outpatient care in New York City. This report was generated to assist primary care clinicians with treatment decision-making, but also to promote judicious prescribing and facilitate antimicrobial stewardship efforts in the outpatient settings. Data were combined for 16 health facilities and results are reported as the number of isolates tested for each pathogen and the percentage of isolates susceptible for each pathogen-drug combination. All facilities that submitted data followed the most updated Clinical and Laboratory Standards Institute (CLSI) guidelines for antimicrobial susceptibility testing (CLSI M100-S27), and reports were generated using the first isolate per patient per year. Data were aggregated by organism to calculate the cumulative antimicrobial susceptibilities to each routinely tested antimicrobial. Aggregate data were then stratified by borough and analyzed for adult and pediatric populations for a one-year reporting period, January 2016 to December 2016.

Six key pathogens causing urinary tract infections were selected for inclusion. These pathogens were chosen because of their clinical relevance and frequency with which they were isolated in the participating outpatient care settings. Only species with results for ≥30 isolates per reporting period were displayed in this report.

Gram-negative organisms	*Enterobacter cloacae* *Escherichia coli* *Klebsiella pneumoniae* *Proteus mirabilis* *Pseudomonas aeruginosa*
Gram-positive organism	*Enterococcus faecalis*
Antibiotics*	Ampicillin (Amoxicillin), Ampicillin/sulbactam (Amoxicillin/clavulanate), Cefazolin (Cephalexin), Ciprofloxacin, Ceftriaxone, Levofloxacin, Nitrofurantoin, Trimethoprim-sulfamethoxazole

*Antibiotics listed as parenteral therapy option with oral equivalent in parentheses.

NOTES

1. The cumulative antimicrobial susceptibility report was generated according to recommendations presented in CLSI document M39-A4 and may not reveal some trends in emerging resistance.
2. This information cannot substitute for clinical judgment, including factors such as history, physical exam or the careful analysis of the laboratory and microbiological testing from an individual patient (e.g., antimicrobial susceptibility test).
3. This information cannot be used for emergence of resistance during therapy or empirical therapy of recurrent infections.

HOW CAN I USE THIS REPORT?	• The report provides data for the most common pathogens seen in urinary isolates citywide, by borough and by age group (adult vs. pediatrics). • It gives some estimate of the relative likelihood that pathogens cultured will be susceptible to common drugs available for outpatient prescribing. • It can be used in conjunction with other clinical data to inform potential empiric prescribing choices for uncomplicated urinary tract infections when no cultures data or when only the pathogen (before susceptibility testing) is available.
WHAT ARE THE LIMITATIONS OF THIS DATA?	• Data presented in this antibiogram only reflects data captured from 20% of health facilities in New York City and may not be representative of citywide resistance. • Data include only those patients in which a culture was collected and a pathogen was isolated. Data may not be generalizable to all patient populations or clinical scenarios (e.g., data may include more complex cases, such as pregnant females, transplant patients or patients with chronic urinary catheters). • Data are restricted to a one-year reporting period and may not establish a trend in resistance.
ASYMPTOMATIC BACTERIURIA*	• Asymptomatic bacteriuria is defined as isolation of a specific quantitative count of bacteria in an appropriately collected urine specimen from an individual **without** signs or symptoms of a urinary tract infection. • Avoiding treatment of asymptomatic bacteriuria is important for reducing the development of antibiotic resistance. • Treatment of asymptomatic bacteriuria is not appropriate for: women (premenopausal, non-pregnant), diabetics, the elderly, nursing home residents or patients with a spinal cord injury or indwelling urethral catheters. • Treatment of asymptomatic bacteriuria is appropriate for pregnant women and for patients undergoing urologic procedures in which mucosal bleeding is expected

* **1.** Gupta K, et al. International Clinical Practice Guidelines for the Treatment of Acute Uncomplicated Cystitis and Pyelonephritis in Women. CID; 2011:52(5):e103-120.
2. Nicolle LE, et al IDSA Guidelines for the Diagnosis and Treatment of Asymptomatic Bacteriuria in Adults. CID 2005:40:643-654.

INCLUDES 2016 OUTPATIENT URINARY TRACT INFECTION ANTIBIOGRAMS FOR THE FOLLOWING:

WHAT'S NEXT

In continued support of antimicrobial stewardship in outpatient setting, the Health Department would like more facilities to participate in the New York City Antibiogram for the upcoming year. If your outpatient facility would like your data to be included, email ARprevention@health.nyc.gov.

Note: Individual facility-level results will not be publicly reported.

NEW YORK CITY ANTIBIOGRAM

2016 BRONX OUTPATIENT URINARY TRACT INFECTIONS

ADULTS (≥21 YEARS)

Bacterial Isolates		Percent Susceptible							
	# Isolates Identified	Amoxicillin	Ampicillin/sulbactam*	Cefazolin	Ceftriaxone	Ciprofloxacin	Levofloxacin	Nitrofurantoin	Trimethoprim-sulfamethoxazole
Gram-Negative Organisms									
Escherichia coli	**9140**	46	55	85	92	78	80	97	68
Klebsiella pneumoniae	**1612**	0	80	93	92	89	92	46	86
Proteus mirabilis	**762**	79	85	90	99	87	89	0	89
Enterobacter cloacae	**198**	0	20	0	79	82	82	34	81
Pseudomonas aeruginosa	**85**	-	0	-	0	80	81	0	0
Gram-Positive Organism									
Enterococcus faecalis	**560**	100	0	-	-	-	81	99	0

Key % Susceptible

- ≥90%
- 89-60%
- <60%

NOTES

*Oral equivalent amoxicillin/clavulanate.

1. Adult data include **seven** hospital facilities and represent only outpatients.
2. Number of isolates may vary with each antimicrobial; "-" denotes drug not tested or not indicated.
3. For uncomplicated UTIs due to *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis,* cefazolin results predict results for the oral agents cefaclor, cefdinir, cefpodoxime, cefprozil, cefuroxime, cephalexin and loracarbef.
4. Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility testing were applied.
5. Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism encountered on a given patient.

NYC Health

NEW YORK CITY ANTIBIOGRAM

2016 BROOKLYN OUTPATIENT URINARY TRACT INFECTIONS

ADULTS (≥21 YEARS)

Bacterial Isolates		Percent Susceptible							
	# Isolates Identified	Amoxicillin	Ampicillin/sulbactam*	Cefazolin	Ceftriaxone	Ciprofloxacin	Levofloxacin	Nitrofurantoin	Trimethoprim-sulfamethoxazole
Gram-Negative Organisms									
Escherichia coli	**1048**	46	25	72	88	70	74	96	70
Klebsiella pneumoniae	**274**	1	65	73	73	77	88	33	68
Pseudomonas aeruginosa	**213**	-	-	-	-	72	93	-	-
Proteus mirabilis	**155**	66	85	80	81	65	83	0	77
Enterobacter cloacae	**47**	13	25	6	79	94	100	29	85
Gram-Positive Organism									
Enterococcus faecalis	**116**	98	-	-	-	59	75	87	-

Key % Susceptible

- ≥90%
- 89-60%
- <60%

NOTES

*Oral equivalent amoxicillin/clavulanate.

1. Adult data include **two** hospital facilities and represent only outpatients.
2. Number of isolates may vary with each antimicrobial; "-" denotes drug not tested or not indicated.
3. For uncomplicated UTIs due to *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis,* cefazolin results predict results for the oral agents cefaclor, cefdinir, cefpodoxime, cefprozil, cefuroxime, cephalexin and loracarbef.
4. Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility testing were applied.
5. Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism encountered on a given patient.

NYC Health

NEW YORK CITY ANTIBIOGRAM

2016 MANHATTAN OUTPATIENT URINARY TRACT INFECTIONS

ADULTS (≥21 YEARS)

Bacterial Isolates		Percent Susceptible							
	# Isolates Identified	Amoxicillin	Ampicillin/sulbactam*	Cefazolin	Ceftriaxone	Ciprofloxacin	Levofloxacin	Nitrofurantoin	Trimethoprim-sulfamethoxazole
Gram-Negative Organisms									
Escherichia coli	**10276**	43	51	74	84	68	78	95	63
Klebsiella pneumoniae	**1943**	43	74	83	83	87	93	38	78
Proteus mirabilis	**890**	73	88	89	92	77	86	0	75
Pseudomonas aeruginosa	**550**	-	-	-	-	76	80	-	-
Enterobacter cloacae	**261**	0	25	0	71	87	95	30	74
Gram-Positive Organism									
Enterococcus faecalis	**1779**	98	-	-	-	66	86	99	-

Key % Susceptible

- ≥90%
- 89-60%
- <60%

NOTES

*Oral equivalent amoxicillin/clavulanate.

1. Adult data include **five** hospital facilities and represent only outpatients.
2. Number of isolates may vary with each antimicrobial; "-" denotes drug not tested or not indicated.
3. For uncomplicated UTIs due to *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis,* cefazolin results predict results for the oral agents cefaclor, cefdinir, cefpodoxime, cefprozil, cefuroxime, cephalexin and loracarbef.
4. Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility testing were applied.
5. Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism encountered on a given patient.

NYC Health

NEW YORK CITY ANTIBIOGRAM

2016 QUEENS OUTPATIENT URINARY TRACT INFECTIONS

ADULTS (≥21 YEARS)

Bacterial Isolates		Percent Susceptible							
	# Isolates Identified	Amoxicillin	Ampicillin/sulbactam*	Cefazolin	Ceftriaxone	Ciprofloxacin	Levofloxacin	Nitrofurantoin	Trimethoprim-sulfamethoxazole
Gram-Negative Organisms									
Escherichia coli	**2202**	39	48	78	84	61	69	95	66
Klebsiella pneumoniae	**442**	0	74	81	83	76	89	45	82
Proteus mirabilis	**257**	74	86	90	91	71	74	0	77
Pseudomonas aeruginosa	**107**	-	-	-	-	64	60	-	-
Enterobacter cloacae	**39**	-	-	0	80	83	96	46	85
Gram-Positive Organism									
Enterococcus faecalis	**465**	99	-	-	-	68	81	99	-

Key % Susceptible
≥90%
89-60%
<60%

NOTES

*Oral equivalent amoxicillin/clavulanate.

1. Adult data include **two** hospital facilities and represent only outpatients.
2. Number of isolates may vary with each antimicrobial; "-" denotes drug not tested or not indicated.
3. For uncomplicated UTIs due to *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis,* cefazolin results predict results for the oral agents cefaclor, cefdinir, cefpodoxime, cefprozil, cefuroxime, cephalexin and loracarbef.
4. Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility testing were applied.
5. Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism encountered on a given patient.

NYC Health

NEW YORK CITY ANTIBIOGRAM

2016 CITYWIDE OUTPATIENT URINARY TRACT INFECTIONS

ADULTS (≥21 YEARS)

Bacterial Isolates		Percent Susceptible							
	# Isolates Identified	Amoxicillin	Ampicillin/sulbactam*	Cefazolin	Ceftriaxone	Ciprofloxacin	Levofloxacin	Nitrofurantoin	Trimethoprim-sulfamethoxazole
Gram-Negative Organisms									
Escherichia coli	**22666**	44	51	79	87	72	76	96	66
Klebsiella pneumoniae	**4271**	23	75	87	86	86	92	41	81
Proteus mirabilis	**2064**	74	87	89	93	79	86	0	80
Pseudomonas aeruginosa	**955**	-	0	-	0	76	78	0	0
Enterobacter cloacae	**545**	2	25	0	75	85	89	33	79
Gram-Positive Organism									
Enterococcus faecalis	**2920**	99	0	-	-	65	84	99	0

Key % Susceptible
≥90%
89-60%
<60%

NOTES

*Oral equivalent amoxicillin/clavulanate.

1. Adult data include **16** hospital facilities and represent only outpatients.
2. Number of isolates may vary with each antimicrobial; "-" denotes drug not tested or not indicated.
3. For uncomplicated UTIs due to *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis,* cefazolin results predict results for the oral agents cefaclor, cefdinir, cefpodoxime, cefprozil, cefuroxime, cephalexin and loracarbef.
4. Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility testing were applied.
5. Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism encountered on a given patient.

NYC Health

NEW YORK CITY ANTIBIOGRAM

2016 CITYWIDE OUTPATIENT URINARY TRACT INFECTIONS

PEDIATRICS (<21 YEARS)

Bacterial Isolates		Percent Susceptible							
	# Isolates Identified	Amoxicillin	Ampicillin/sulbactam*	Cefazolin	Ceftriaxone	Ciprofloxacin	Levofloxacin	Nitrofurantoin	Trimethoprim-sulfamethoxazole
Gram-Negative Organisms									
Escherichia coli	**2552**	44	52	84	93	84	84	98	67
Klebsiella pneumoniae	**319**	0	78	86	91	86	91	52	85
Proteus mirabilis	**225**	85	94	91	97	93	97	0	91
Pseudomonas aeruginosa	**39**	-	0	-	0	88	89	0	0
Enterobacter cloacae	**24**	0	25	0	66	94	95	47	95
Gram-Positive Organism									
Enterococcus faecalis	**207**	100	51	-	-	100	96	100	0

Key % Susceptible

- ≥90%
- 89-60%
- <60%

NOTES

*Oral equivalent amoxicillin/clavulanate.

1. Adult data include **11** hospital facilities and represent only outpatients.
2. Number of isolates may vary with each antimicrobial; "-" denotes drug not tested or not indicated.
3. For uncomplicated UTIs due to *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis,* cefazolin results predict results for the oral agents cefaclor, cefdinir, cefpodoxime, cefprozil, cefuroxime, cephalexin and loracarbef.
4. Clinical and Laboratory Standards Institute (CLSI) performance standards for antimicrobial susceptibility testing were applied.
5. Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism encountered on a given patient.

NYC Health