VUMC Antimicrobial Susceptibility Summary: Pediatric Patients 2025

Clinical Microbiology
Department of Pathology, Microbiology and Immunology

Preface

This booklet contains up-to-date information to assist in decisions concerning antimicrobial therapy.

Tables summarize susceptibility data obtained for organisms isolated in the VUMC Clinical Microbiology Laboratory between 1/1/25 to 12/31/25.

Guidelines for Interpretation of Minimum Inhibitory Concentrations (MICs)

MICs are interpreted as susceptible, intermediate, resistant, non-susceptible or susceptible dose dependent according to Clinical and Laboratory Standards Institute (CLSI) guidelines. When deciding whether the interpretation is meaningful, one should consider the antimicrobial pharmacokinetics, taking into account dosage and route of administration, the infecting organism and site of infection, and previous clinical experience.

For additional information, please call the microbiology laboratory, or the Antimicrobial Stewardship team.

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https://medsites.vumc.org/antimicrobial-stewardship-program

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General Antibiograms, 2025 Data

Table 1. Pediatrics – Most common Gram-negative Bacteria, Urine Isolates % Susceptible

Data represent first isolate per patient.

Organism	N	Ampicillin	Ampicillin/Sulbactam	Cefazolin[1]	Cefepime	Ceftazidime	Ceftriaxone	Ciprofloxacin	Ertapenem	Gentamicin	Levofloxacin	Meropenem	Nitrofurantoin[2]	Piperacillin/Tazobactam	Trimethoprim/Sulfamethoxazole
Escherichia coli	628	46	76	88	94	92	92	74	100	90	77	100	97	92	68
Klebsiella oxytoca	36	R	74	23	100	100	75	97	100	100	97	100	77	71	83
Klebsiella pneumoniae	105	R	79	90	93	91	90	84	100	91	85	100	15	89	80
Proteus mirabilis	37	89	97	97	97	97	97	97	100	95	97	97	R	100	78
Pseudomonas aeruginosa	45	R	R	R	89	91	R	86	R	R	77	91	R	77	R

R, intrinsic resistance; ND, not tested.

[1] Cefazolin is a surrogate for oral cephalosporin susceptibility

[2]Nitrofurantoin use is restricted to uncomplicated cystitis only.

ⓘ Urinary Tract Clinical Practices Guidelines are available here.
For empiric treatment of uncomplicated UTI, first line therapy in children is oral cephalexin.

Table 2. Pediatrics – Most common Gram-negative Bacteria, Non-Urine Isolates % Susceptible

Organism	N	Ampicillin	Ampicillin/Sulbactam	Cefazolin	Cefepime	Ceftazidime[1]	Ceftriaxone[1]	Ciprofloxacin	Ertapenem	Gentamicin	Levofloxacin	Meropenem	Piperacillin/Tazobactam	Trimethoprim/Sulfamethoxazole
Enterobacter cloacae	39	R	R	R	97	90	90	97	95	100	100	100	92	100
Escherichia coli	150	38	79	52	84	82	81	62	99	84	66	100	96	65
OP	11	46	91	82	91	82	82	55	100	82	55	100	91	64
IN	82	44	81	79	85	85	84	65	100	85	68	100	95	72
ICU	60	23	70	68	77	73	73	53	98	82	58	100	95	50
Klebsiella oxytoca	34	R	94	ND	97	97	94	100	100	100	100	100	97	100
Klebsiella pneumoniae	56	R	84	76	91	89	88	86	100	96	86	100	91	82
Pseudomonas aeruginosa	187	R	R	R	95	95	R	91	R	R	88	97	90	R
OP	35	R	R	R	94	97	R	86	R	R	83	100	94	R
IN	54	R	R	R	100	100	R	94	R	R	91	98	96	R
ICU	92	R	R	R	91	91	R	90	R	R	87	95	86	R
Serratia marcescens	58	R	R	R	100	100	98	88	100	100	90	100	ND	100

R, intrinsic resistance; ND, not tested

[1]*Enterobacter cloacae* may develop resistance during prolonged therapy with 3rd generation cephalosporins as a result of expression of AmpC beta-lactamase

Table 3. Pediatrics – *Staphylococcus sp*, % Susceptible

Data represent first isolate per patient.

Organism	N	Oxacillin	Clindamycin	Daptomycin	Doxycycline	Gentamicin	Linezolid	Nitrofurantoin[1]	Tetracycline	Trimethoprim/Sulfamethoxazole	Vancomycin
Staphylococcus epidermidis	119	39	45	100	91	77	100	100	82	50	100
Staphylococcus hominis	32	63	81	100	97	97	100	100	88	63	100
Staphylococcus aureus	690	70	94	100	99	97	100	100	94	92	100
MRSA	214	R	89	100	100	96	100	100	91	87	100
MSSA	489	100	96	100	100	97	100	100	95	94	100

[1] Nitrofurantoin should only be used for treatment of uncomplicated cystitis.

ⓘ Clindamycin susceptibility is high for MRSA and MSSA in all settings.

Table 4. Pediatrics – *Enterococcus* spp., % Susceptible by Location

Data represent first isolate per patient.

Organism	N	Ampicillin	Clindamycin	Daptomycin	Doxycycline	Linezolid	Nitrofurantoin[1]	Vancomycin
Enterococcus faecalis	182	100	R	74	35	99	100	99

[1] Nitrofurantoin should only be used for treatment of uncomplicated cystitis.

Table 5. Pediatrics – *Streptococcus pneumoniae*, % Susceptible

Data represent first isolate per patient.

Organism	N	Penicillin Meningitis	Penicillin Non-Meningitis	Ceftriaxone Meningitis	Ceftriaxone Non-Meningitis	Cefotaxime Meningitis	Cefotaxime Non-Meningitis	Levofloxacin	Erythromycin[1]	Linezolid	Vancomycin	Tetracycline
Streptococcus pneumoniae	54	57	91	89	94	83	94	100	52	100	100	80

[1] Predicts activity of azithromycin

ⓘ Macrolides are not preferred therapy for pneumococcal pneumonia due to reduced susceptibility.
Penicillin and amoxicillin susceptibility remains high and is preferred for infections outside the central nervous system.

ⓘ Clinical Practice Guidelines for Community Acquired Pneumonia in Children are available here.
Clinical Practice Guidelines for Bacterial Meningitis in Children are available here.

Table 6. Pediatrics – Most common Gram-positive Bacteria, % Susceptible

Data represent first isolate per patient.

Organism	N	Penicillin	Ampicillin	Oxacillin	Ceftriaxone	Cefotaxime	Clindamycin	Daptomycin	Doxycycline	Erythromycin[1]	Gentamicin	Levofloxacin	Linezolid	Nitrofurantoin[2]	Tetracycline	Trimethoprim-Sulfamethoxaz	Vancomycin
Staphylococcus epidermidis	119	R	R	39	ND	ND	45	100	91	ND	77	R	100	100	82	50	100
Staphylococcus hominis	32	R	R	63	ND	ND	81	100	97	ND	97	R	100	100	88	63	100
Staphylococcus aureus	690	R	R	70	ND	ND	94	100	99	ND	97	R	100	100	94	92	100
MRSA	214	R	R	R	ND	ND	89	100	100	ND	96	R	100	100	91	87	100
MSSA	489	R	R	100	ND	ND	96	100	100	ND	97	R	100	100	95	94	100
Enterococcus faecalis	182	ND	100	R	ND	ND	R	74	35	ND	ND	R	99	100	ND	R	99
Streptococcus pneumoniae																	
Meningitis	54	57	ND	ND	89	83	ND	ND	ND	52	ND	100	100	ND	80	ND	100
Non-meningitis	54	91	ND	ND	94	94	ND	ND	ND	52	ND	100	100	ND	80	ND	100

[1] Predicts activity of azithromycin

[2] Nitrofurantoin should only be used for treatment of uncomplicated cystitis.