ST. LOUIS CHILDREN'S HOSPITAL
PEDIATRIC EMPIRIC TREATMENT RECOMMENDATIONS FOR SELECT INFECTIONS

This document provides guidance on empiric treatment recommendations for select infections based upon current guidelines and local antibiogram data. Therapy should be modified based upon patient specific culture results once available.

BONE AND JOINT
- Open fracture prophylaxis / lawnmower accident
- Osteomyelitis, acute
- Septic arthritis

CENTRAL NERVOUS SYSTEM
- Brain abscess
- CSF shunt infections
- Meningitis (CSF pleocytosis present), patient ≤ 28 days of age
- Meningitis (CSF pleocytosis present), patient > 28 days of age
- Meningoencephalitis, Herpes Simplex Virus

GASTROINTESTINAL / ABDOMINAL
- Appendicitis
- Button battery ingestion prophylaxis
- Cholangitis
- *Clostridioides difficile* infection
- Diarrhea, infectious
- Intra-abdominal infection (community acquired)
- Necrotizing enterocolitis (NEC) / spontaneous intestinal perforation (SIP)
- Spontaneous bacterial peritonitis (SBP)

GENITOURINARY TRACT
- Bacterial vaginosis
- Epididymitis
- Genital herpes
- Pelvic inflammatory disease (PID)
- Sexually transmitted infection (STI)
  - *Neisseria gonorrhoeae*
  - *Chlamydia trachomatis*
  - Syphilis
  - Trichomoniasis
- Urinary tract infection

HEENT
- Acute otitis media
- Dental abscess
- Mandible fracture prophylaxis
- Mastoiditis
- Orbital cellulitis (post-septal)
- Periorbital cellulitis (pre-septal)
- Pharyngitis (GAS)
- Retro- or para-pharyngeal abscess
- Sinusitis, acute bacterial
- Tonsillar or peritonsillar abscess

RESPIRATORY TRACT
- Aspiration pneumonia
- Community acquired pneumonia (CAP), uncomplicated
- Community acquired pneumonia (CAP), complicated
- Hospital / Ventilator associated pneumonia (HAP/VAP)
- Influenza
- Tracheitis (intubated / tracheostomy)
- Tracheitis (non-intubated following croup-like illness)

SKIN AND SOFT TISSUE
- Cellulitis (nonpurulent)
- Cellulitis / abscess (purulent)
- Human bite / Animal bite
- Lymphadenitis, suppurative
- Necrotizing fasciitis
- Pyomyositis
- Staphylococcal scalded skin

MISCELLANEOUS
- Febrile neutropenia (hematology/oncology patients)
- Lemierre's syndrome
- R/O catheter-associated bloodstream infection (CLABSI)
- R/O sepsis 0-21 days (no central lines and no concern for meningitis)
- R/O sepsis > 21 days (no central lines and no concern for meningitis)
- Sickle cell disease with fever
- Tickborne infections
- Toxic shock syndrome

* Durations listed are based on the literature cited or has been agreed upon by the ID division. Some duration of therapies have large variability and are too dependent on clinical course to be specific. Doses provided assume normal renal and hepatic function. Some may require renal or hepatic dose adjustments.

** These recommendations do not establish a standard of care to be followed in every case. Each case is different and the individuals providing health care are expected to use their judgement in determining what is in the best interests of the patient based on the circumstances at the time.

Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Bone and Joint [1-6]					
Open fracture prophylaxis / Lawnmower accident	Polymicrobial	OPEN FRACTURES: Cefazolin 33 mg/kg/dose IV q8h (max: 2000 mg/dose) OR Cephalexin 25 mg/kg/dose q12h (max: 500 mg/dose) TYPE III OPEN FRACTURES OR THOSE WITH SIGNIFICANT CONTAMINATION: Cefazolin 33 mg/kg/dose IV q8h (max: 2000 mg/dose) **PLUS** Gentamicin 4 mg/kg/dose IV q12h OR tobramycin 4 mg/kg/dose IV q12h for *Pseudomonas aeruginosa* coverage (not usually required)	ALLERGY: OPEN FRACTURES: Clindamycin 13mg/kg/dose IV/PO q8h (max: 600 mg/dose) TYPE III OPEN FRACTURES OR THOSE WITH SIGNIFICANT CONTAMINATION: Clindamycin 13mg/kg/dose IV/PO q8h (max: 600 mg/dose) **PLUS** Gentamicin 4 mg/kg/dose IV q12h OR tobramycin 4 mg/kg/dose IV q12h for *Pseudomonas aeruginosa* coverage (not usually required)	Prophylaxis: 24 hours For Type III open fractures, may go up to 72 hours with delayed closure and repair Antibiotic prophylaxis should not extend >24 hours after skin closure for open fractures.	Consider ID Consult Verify tetanus vaccine status. See Appendix 2 below or the Red Book Tetanus Section, Table 3.68, for recommendations. Cultures for routine, fungal, and acid-fast pathogens are indicated **at the time an infection is suspected**.
Osteomyelitis, acute	*S. aureus* *S. pyogenes* (GAS) *K. kingae* (patients 3 months – 4 years)	Recommend ID Consult Cefazolin 33 mg/kg/dose IV q8h (max: 2000 mg/dose) RISK FACTORS FOR MRSA PRESENT: Vancomycin (see Appendix I) OR TMP/SMX 5 mg/kg/dose trimethoprim component PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. #2 double-strength tablets) IF TOXIC: Vancomycin (see Appendix I)	IN PATIENTS WITH SICKLE CELL DISEASE Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose)	3-4 weeks (based on clinical course in collaboration with ID consult and ortho)	Vancomycin trough goal 10-15 mcg/mL In clinically stable patients, consider delaying antibiotics if bone biopsy planned ORAL DOSING RECOMMENDATIONS FOR MSSA BONE/JOINT INFECTIONS: Cephalexin 40 mg/kg/dose PO q8h (max: 1500 mg/dose) OR Cefadroxil 40 mg/kg/dose PO q12h (max: 1500 mg/dose)

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Septic arthritis	*S. aureus* *S. pyogenes* (GAS) *S. pneumoniae* *N. gonorrhoeae* *K. kingae* (patients 3 months – 4 years)	Recommend ID Consult Cefazolin 33 mg/kg/dose IV q8h (max: 2000 mg/dose) RISK FACTORS FOR MRSA PRESENT: Vancomycin (see Appendix I) OR TMP/SMX 5 mg/kg/dose trimethoprim component PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. #2 double-strength tablets) IF TOXIC: Vancomcyin (see Appendix I)	IF GRAM-NEGATIVES SEEN ON GRAM STAIN: Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose) If gonorrhea is confirmed or strongly suspected, consider testing and treating for chlamydia. See Sexually Transmitted Infection Section	10 days-3 weeks (based on clinical course in collaboration with ID consult and ortho)	Vancomycin trough goal 10-15 mcg/mL ORAL DOSING RECOMMENDATIONS FOR MSSA BONE/JOINT INFECTIONS: Cephalexin 40 mg/kg/dose PO q8h (max: 1500 mg/dose) OR Cefadroxil 40 mg/kg/dose PO q12h (max: 1500 mg/dose)
Central Nervous System [7-9]					
Brain Abscess	*S. anginosus* group Gram-negatives Anaerobes *S. aureus*	Vancomycin (see Appendix I) **PLUS** Ceftriaxone 50mg/kg/dose IV q12h (max: 2000 mg/dose) **PLUS** Metronidazole 10 mg/kg/dose IV q8h (max: 500 mg/dose)	CEPHALOSPORIN ALLERGY: Vancomycin (see Appendix I) **PLUS** Meropenem 40 mg/kg/dose IV q8h (max: 2000 mg/dose)	At least 4 weeks	Recommend ID Consult Vancomycin trough goal 15-20 mcg/mL
CSF shunt infections	CoNS, *S. aureus*, aerobic Gram-negative bacilli (including *P. aeruginosa*), *Cutibacterium acnes*	Vancomycin (see Appendix I) **PLUS** Cefepime 50 mg/kg/dose IV q8h (max: 2000 mg/dose)	CEPHALOSPORIN ALLERGY: Vancomycin (see Appendix I) **PLUS** Meropenem 40 mg/kg/dose IV q8h (max: 2000 mg/dose)	See Shunt Protocol for shunt infections	Recommend ID Consult Vancomycin trough goal 15-20 mcg/mL

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Meningitis (CSF pleocytosis present), patient ≤ 28 days of age	*E. coli* *S. agalactiae* (GBS) *L. monocytogenes*	Ampicillin **PLUS** Ceftazidime OR Ceftriaxone* (see column to the right for use criteria) (see Neonatal Dosing Guide)	*Patients meeting the following criteria may receive Ampicillin PLUS Ceftriaxone: • ≥ 7 days of age • Corrected (current) gestational age ≥ 35 weeks • Not currently receiving calcium containing solutions or parenteral nutrition • Total Serum Bilirubin (Tbili) < 5 mg/dl [A] • Albumin within normal limits [A]	*N. meningitidis:* 7 days *H. influenzae:* 7 days *S. pneumoniae:*10-14 days *S. agalactiae* (GBS): 14-21 days Gram-negative bacilli: 14-21 days *L. monocytogenes:* ≥ 21 days Should be determined in conjunction with ID consult considering pathogen and clinical course.	Recommend ID Consult [A]In patients who qualify for ceftriaxone based on age and corrected GA, it is not always necessary to wait for Tbili and albumin to result before placing order. In most, the bilirubin-albumin binding capacity has matured, but clinical judgment is warranted. Recommend ID Consult Vancomycin trough goal 15-20 mcg/mL
Meningitis (CSF pleocytosis present), patient > 28 days of age	*S. pneumoniae* *N. meningitidis* *S. agalactiae* (GBS) *H. influenzae*	Ceftriaxone* 50 mg/kg/dose IV q12h (max: 2000 mg/dose) **PLUS** Vancomycin (see Appendix I)	CEPHALOSPORIN ALLERGY: Vancomycin (see Appendix I) **PLUS** Meropenem 40 mg/kg/dose IV q8h (max: 2000 mg/dose)		
Meningoencephalitis, Herpes Simplex Virus	HSV1 or HSV2	IN ADDITION TO EMPIRIC ANTIBIOTICS FOR MENINGITIS: < 3 months: Acyclovir 20 mg/kg/dose IV q8h 3 month – 11 years: Acyclovir 15 mg/kg/dose IV q8h ≥ 12 years: Acyclovir 10 mg/kg/dose IV q8h		For neonates: 21 days minimum (repeat HSV CSF PCR at end of treatment; if positive extend therapy by 1 week with repeat testing) Outside of neonatal period, duration can vary. Consult ID for recommendations.	Recommend ID Consult Ideal body weight (IBW) should be used for dosing in obese patients Neonatal HSV suppressive therapy: Acyclovir 300 mg/m^2/dose PO TID
Gastrointestinal/Abdominal [10-25]					
Appendicitis	Enteric Gram-negative bacilli *S. anginosus* group Anaerobes	Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose) **PLUS** Metronidazole 30 mg/kg/dose IV q24h (max: 1500 mg/dose)	ALLERGY: Ciprofloxacin 10 mg/kg/dose IV q12h (max: 400 mg/dose) PLUS Metronidazole 30 mg/kg/dose IV q24h (max: 1500 mg/dose)	Antibiotics are not indicated post-operatively for uncomplicated appendicitis.	

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Button battery ingestion prophylaxis	*S. pyogenes* (GAS) *S. anginosus* group *Haemophilus spp.* Oral anaerobes *S. aureus* Polymicrobial	***MOST BUTTON BATTERY INGESTIONS DO NOT REQUIRE ANTIMICROBIAL PROPHYLAXIS*** ANTIMICROBIAL PROPHYLAXIS MAY BE CONSIDERED FOR ADMITTED PATIENTS WITH EVIDENCE OF ESOPHAGEAL INJURY AND HIGH RISK FACTORS (SEE COMMENTS): Ampicillin/sulbactam 50mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR Amoxicillin/clavulanate 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL oral suspension (max: see adult doses)	ALLERGY: Clindamycin 13 mg/kg/dose IV/PO q8h (max: 600 mg/dose)	3-5 days	Would consider broad spectrum antibiotic coverage in those patients who have been identified in studies to have highest risk of developing significant complications: ○ Ingested large-diameter lithium cells ≥ 20mm ○ Esophageal exposure time >2 hours ○ Children < 4 years of age ○ Unwitnessed ingestions (unknown time of exposure) Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension
Cholangitis	Enteric Gram-negative bacilli *Enterococcus spp.* Anaerobes	Ceftazidime 50 mg/kg/dose IV q8h (max: 2000 mg/dose) +/- Metronidazole 10 mg/kg/dose IV q8h (max: 500 mg/dose) OR Piperacillin-Tazobactam 100 mg/kg/dose piperacillin component IV q6h (max: 4,000 mg/dose)	ALLERGY: Ciprofloxacin 10 mg/kg/dose IV q12h (max: 400 mg/dose) +/- Metronidazole 10 mg/kg/dose IV/PO q8h (max: 500 mg/dose)		

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Clostridioides difficile infection **Defining Disease Severity:** NON-SEVERE: Positive *C. difficile* test and diarrhea with no manifestations of severe disease. SEVERE: Positive *C. difficile* test and diarrhea with at least one of the following: • WBC ≥15,000 cells/mm^3 • Increase in serum creatinine >50% from baseline FULMINANT: Severe disease plus any of the following: • Hypotension or shock • Toxic megacolon • Ileus • Colonic ischemia **ID consult recommended RECURRENCE: typically defined as a relapse of *C. difficile* symptoms within 2-8 weeks of successful treatment of initial episode.	*C. difficile*	Refer to Peds C*diff* Focused order set in EPIC NON-SEVERE (INITIAL EPISODE): Vancomycin 10 mg/kg/dose PO q6h (max 125 mg/dose) SEVERE (INITIAL EPISODE): Vancomycin 10 mg/kg/dose PO q6h (max 500 mg/dose) FULMINANT: Vancomycin 10 mg/kg/dose PO q6h (max 500 mg/dose) - Ileus: Add rectal vancomycin as retention enema q6h [a] PLUS Metronidazole 10 mg/kg/dose IV q8h (max 500 mg/dose) [a] NON-SEVERE (1ST OR SUBSEQUENT RECURRENCE): Vancomycin 10 mg/kg/dose PO q6h (max 125 mg/dose) OR Vancomycin taper and pulse [c] OR Fidaxomicin [d] ≥6 months to 5 years: 16 mg/kg/dose PO BID (max 200 mg/dose) ≥6 years: 200 mg PO BID SEVERE (1ST OR SUBSEQUENT RECURRENCE): Vancomycin 10 mg/kg/dose PO q6h (max 500 mg/dose) OR Vancomycin taper and pulse [c] OR Fidaxomicin [d] ≥6 months to 5 years: 16 mg/kg/dose PO BID (max 200 mg/dose) ≥6 years: 200 mg PO BID		10 days for all therapies except the vancomycin taper and pulse regimen 6-14 weeks for vancomycin taper and pulse	[a] Vancomycin enema volumes are age dependent • 1-3 years: 250 mg in 50 mL normal saline q6h • 4-9 years: 375 mg in 75 mL normal saline q6h • ≥10 years: 500 mg in 100 mL normal saline q6h [b] Efficacy of IV metronidazole is unclear. It may be use as an adjunct in severe or fulminant disease, particularly in the setting of critical illness and/or ileus, but should not be used as primary agent for treatment of *C. difficile* [c] Vancomycin PO taper/pulse: 10 mg/kg/dose PO q6h (max 125 mg/dose) for 10-14 days, then 10 mg/kg PO q12h (max 125 mg/dose) for 7 days, then 10 mg/kg PO q24h (max 125 mg/dose) for 7 days, and then 10 mg/kg PO q2-3 days (max 125 mg/dose) for 2–8 weeks. [d] Fidaxomicin considerations (order a la carte): • Please call ID if you think your patient is a good candidate for fidaxomicin as any PO vancomycin prior to receiving fidaxomicin may eliminate the benefit of fidaxomicin (narrower spectrum, less dysbiosis) • Not indicated for fulminant disease • Restricted to certain use criteria and requires an ID consult and second-sign approval. Typically reserved for patients with multiple risk factors for recurrent CDI or upon a recurrent CDI infection. • Insurance coverage is challenging in children. If initiated, start outpatient approval process if expecting discharge prior to course completion.

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Diarrhea, infectious	*Aeromonas, Plesiomonas, Campylobacter, E. coli, Salmonella, Shigella, Yersinia* **Antibiotics should only be utilized for specific bacteria after a positive culture (see comments)**	<u>*SALMONELLA* <3 MONTHS OLD (WITHOUT MENINGITIS)</u>: Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)*	<u>ALLERGY</u>: Azithromycin PO: 10 mg/kg (max: 500 mg/dose) x 3 days If susceptible to ampicillin: Ampicillin 50 mg/kg/dose IV q6h (max: 2000 mg/dose) OR Amoxicillin 20 mg/kg/dose PO BID (max: 500 mg/dose)	7-10 days	Routine treatment for healthy children >3 months of age with uncomplicated gastroenteritis is not indicated except if caused by Shigella Routine antibiotic treatment of *E. coli* gastroenteritis is not indicated. Antimotility agents should not be used, because they have been shown to prolong symptomatology and may be associated with an increased risk of death. **Consult ID for antibiotic recommendations in patients < 1 month of age*
		<u>SHIGELLA</u>: Azithromycin 10 mg/kg PO daily (max: 500 mg/dose) OR Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)		3 days 2-5 days	
		<u>CAMPYLOBACTER if severe disease or immunocopromised</u>: Azithromycin 10 mg/kg/dose PO daily		3 days	
Intra-abdominal infection (Community-acquired)	Enteric Gram-negative bacilli Anaerobes	Ceftriaxone 50 mg/kg/dose IV q24h (max 2000 mg/dose) **PLUS** Metronidazole 10 mg/kg/dose IV q8h (max: 500 mg/dose)	<u>ALLERGY</u>: Ciprofloxacin 10 mg/kg/dose IV q12h (max: 400 mg/dose) **PLUS** Metronidazole 10 mg/kg/dose IV/PO q8h (max: 500 mg/dose)		

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Necrotizing enterocolitis (NEC) / Spontaneous intestinal perforation (SIP) See SLCH Necrotizing Enterocolitis Guideline in Policy Tech for proper staging and further management, which applies to neonates in NICU and Heart Center	Enteric Gram-negative bacilli, Polymicrobial, CoNS (very premature infants)	MODIFIED BELL'S STAGE IA/IB: Ampicillin PLUS Gentamicin STAGE IIA/IIB (Medical NEC): Ampicillin PLUS Gentamicin STAGE IIIA/IIIB (Surgical NEC): Ampicillin PLUS Cefepime PLUS Metronidazole (see Neonatal Dosing Guide)	IF H/O MRSA COLONIZATION/ INFECTION : Use Vancomycin in place of Ampicillin. De-escalate vancomycin to ampicillin after 24-48 hours if cultures are negative and clinical status is improving.	STAGE I: 48 hours (rule out) STAGE II: 7 days STAGE III: 10 days from source control (in coordination with surgical team)	If blood culture positive, a lumbar puncture is indicated and should be utilized in conjunction with organism identification to determine duration of antibiotic therapy.
Spontaneous bacterial peritonitis (SBP)	*S. pneumoniae* Enteric Gram-negative bacilli	Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)	ALLERGY: Piperacillin-Tazobactam 100 mg/kg/dose piperacillin component IV q6h (max: 4,000 mg/dose)		
Genitourinary Tract [26-33]					
Bacterial vaginosis	*G. vaginalis* *Ureaplasma* *Mycoplasma* Anaerobes	Metronidazole - Wt ≥45 kg: 500 PO BID - Wt <45 kg: 7.5 mg/kg PO BID (max: 500 mg/dose)		7 days	See CDC guidelines (2021)
Epididymitis	*N. gonorrhoeae* *C. trachomatis* Enteric Gram-negative bacilli (MSM)	Ceftriaxone - Wt ≤ 45 kg: 25-50 mg/kg IM/IV x1 dose (max: 250 mg/dose) - Wt > 45 kg and < 150 kg: 500 mg IM/IV x1 dose - Wt ≥ 150 kg: 1000 mg IM/IV x1 dose **PLUS** Doxycycline 2.2 mg/kg/dose PO q12h dose x 10 days (max: 100 mg/dose)			See CDC guidelines (2021)

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Genital Herpes	Herpes simplex virus (HSV)	ADOLESCENT/ADULT: FIRST EPISODE: Valacyclovir 20 mg/kg/dose PO BID (max: 1g/dose) OR Acyclovir 20 mg/kg/dose PO TID (max: 400 mg/dose) RECURRENT EPISODES: Valacyclovir 20 mg/kg PO daily (max: 1000 mg/dose) OR Acyclovir - < 12 years: 20 mg/kg/dose TID (max: 400 mg/dose) - ≥ 12 years: 800 mg PO BID		FIRST EPISODE: 7-10 days RECURRENT EPISODE: 5 days	See CDC guidelines (2021)
Pelvic inflammatory disease	*N. gonorrhoeae* *C. trachomatis* Enteric Gram-negative bacilli Anaerobes	OUTPATIENT: **Ceftriaxone** -Wt ≤45 kg: 25-50 mg/kg IM/IV x1 dose (max: 250 mg/dose) -Wt >45 kg and < 150 kg: 500 mg IM/IV x1 dose -Wt ≥150 kg: 1000 mg IM/IV x1 dose PLUS **Doxycycline** 2.2 mg/kg/dose PO q12h dose (max: 100 mg/dose) PLUS **Metronidazole** -Wt ≥45 kg: 500 PO BID -Wt <45 kg: 7.5 mg/kg/dose PO BID (max: 500 mg/dose) INPATIENT: Ceftriaxone 50 mg/kg IV q24h (max: 1000 mg/dose) PLUS Doxycycline 2.2 mg/kg PO q12h (max: 100 mg/dose) PLUS Metronidazole -Wt ≥45 kg: 500 PO BID -Wt <45 kg: 7.5 mg/kg PO BID (max: 500 mg/dose)	ALTERNATIVE FOR PATIENTS UNABLE TO TOLERATE METRONIDAZOLE DUE TO SEVERE NAUSEA/VOMITING: Cefoxitin 40 mg/kg/dose IV q6h (max: 2000 mg/dose) PLUS Doxycycline 2.2 mg/kg/dose PO q12h (max: 100 mg/dose) ALLERGY: Clindamycin 13 mg/kg/dose IV q8h (max: 900 mg/dose) PLUS Gentamicin (see Appendix I)	14 days	For inpatients, after clinical improvement, transition to oral therapy with doxycycline and metronidazole at doses indicated in previous column. See CDC guidelines (2021)

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Sexually transmitted infection (STI)	*N. gonorrhoeae*	**Ceftriaxone** -Wt ≤ 45 kg: 25-50 mg/kg IM/IV x1 dose (max: 250 mg/dose) -Wt > 45 kg and < 150 kg: 500 mg IM/IV x1 dose -Wt ≥ 150 kg: 1000 mg IM/IV x1 dose	SEVERE CEPHALOSPORIN ALLERGY: Gentamicin 240 mg IM x1 dose PLUS Azithromycin 2 g PO x1 dose	Single dose	See CDC guidelines (2021)
	C. trachomatis	NOT RECTAL: Recommended: Doxycycline 2.2 mg/kg (max dose 100 mg) PO BID x 7 days Alternative**: Azithromycin 1 g PO x1 RECTAL: Doxycycline 100 mg PO BID x 7 days Children <8 years: See CDC guidelines		Azithromycin: 1 day Doxycycline: 7 days	See CDC guidelines (2021) ** CDC recommends doxycycline x7 days first-line for *C. trachomatis*. Doxycycline has dramatically increased efficacy against rectal chlamydia (cure rate 100% vs. 74%). For non-rectal chlamydia, it is reasonable to offer either doxycycline x7 days or azithromycin x1 dose based on shared decision making.
	Syphilis	PRIMARY / SECONDARY / EARLY LATENT (<1 YR DURATION): Penicillin G Benzathine 50,000 units/kg/dose IM x 1 dose (max: 2.4 million units/dose) LATE LATENT / LATENT WITH UNKNOWN DURATION / TERTIARY WITH NORMAL CSF: Penicillin G Benzathine 50,000 units/kg/dose IM once weekly x 3 doses (max: 2.4 million units/dose) NEUROSYPHILIS/ OCULAR: Penicillin G (Aqueous/Parenteral) 50,000 units/kg/dose IV q4h (max: 4 million units/dose)	ALLERGY (IN NON-PREGNANT INDIVIDUALS): Doxycycline 100mg PO BID x 14 days	10 days	See CDC guidelines (2021)

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Sexually transmitted infection (STI)	Syphilis, continued	CONGENITAL SYPHILIS: Penicillin G (Aqueous/Parenteral) ≤ 7 days of age: 50,000 units/kg/dose IV q12h 8 – 28 days of age: 50,000 units/kg/dose IV q8h ≥ 1 month of age: 50,000 units/kg/dose IV q4-6h			
	Trichomoniasis	<45 kg: Metronidazole 15 mg/kg/dose PO TID x 7 days (max: 2000 mg/day) >/= 45 kg: Women: Metronidazole 500 mg PO BID x 7 days Men: Metronidazole 2000 mg PO x1 dose	For adolescent women with significant barriers to adherence, can consider metronidazole 2000 mg PO as a single dose		See CDC guidelines (2021)
Urinary tract infection See Guidelines for the Evaluation and Management of Urinary Tract Infections at SLCH on the Antimicrobial Guidebook	Enteric Gram-negative bacilli	Cephalexin Cystitis: 25 mg/kg PO BID (max dose 500 mg) Pyelonephritis: 25 mg/kg PO TID (max dose 500 mg) Cefazolin 25 mg/kg/dose IV q8h (max: 1000 mg/dose) Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)	Other considerations and alternative options discussed in the Guidelines for the Evaluation and Management of Urinary Tract Infections at SLCH on the Antimicrobial Guidebook	CYSTITIS: 5 days (If ciprofloxacin or TPM/SMX is chosen, a shorter duration of 3 days is appropriate for cystitis) PYELONEPHRITIS: 7 days	Empiric antibiotic choices should take into account previous urine cultures

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Head/Ears/Eyes/Nose/Throat (HEENT) Infections [34-41]					
Acute otitis media (AOM)	*S. pneumoniae* *M. catarrhalis* *H. influenzae* *S. pyogenes* (GAS)	**Consider watchful waiting^** **1st line:** Amoxicillin 45 mg/kg/dose PO q12h (max: 2000 mg/dose) **2nd line (received amoxicillin for AOM within past 30 days or if fails amoxicillin):** Amoxicillin/clavulanate 45 mg/kg/dose amoxicillin component PO q12h using the 600 mg/5 mL oral suspension only (max: see adult doses) **3rd line (if fails above):** Ceftriaxone 50 mg/kg IM/IV for 1 or 3 consecutive days (lack of clinical data suggesting 3 days is superior to single dose)	ALLERGY: **Cefdinir 7 mg/kg/dose PO q12h (max: 300 mg/dose)** OR Cefdinir 14 mg/kg/dose PO q24h (max: 600 mg/dose), if q12h dosing not feasible OR Ceftriaxone 50 mg/kg IM/IV for 1 dose (when using ceftriaxone for non-recurrent infection, no gained benefit to re-dosing based on serial ear exam)	< 2 yrs or severe symptoms (any age): 10 days ≥ 2 yrs with mild-moderate symptoms: 5 days PMID: 37855227	Maximum adult dose for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet OR the 400 mg/5 mL suspension ^see AAP Guideline on Diagnosis and management of AOM to identify patients who may benefit from watching waiting (e.g. in certain patients with a viral infection)
Dental abscess	*Viridans Streptococci, Eikenella* sp., oral anaerobes (i.e. *Peptostreptococcus, Actinomyces, Veillonella)* Amoxicillin and ampicillin alone cover the oral anaerobes of interest listed above	Amoxicillin 10 mg/kg/dose PO q8h hours (max: 500 mg/dose) OR Ampicillin 50 mg/kg/dose IV q6h (max: 2000 mg/dose) IF NO IMPROVEMENT ON AMOXICILLIN >48 HOURS: Amoxicillin/clavulanate 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL oral suspension (max: see adult doses) OR Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose)	ALLERGY: Clindamycin 13mg/kg/dose IV/PO q8h (max: 450-600 mg/dose) OR Azithromycin 10 mg/kg PO on day 1 (max: 500 mg/dose), followed by 5 mg/kg PO daily on days 2-5 (max: 250 mg/dose) OR IF NO SEVERE IgE-MEDIATED REACTION TO PENICILLINS can also use: Cephalexin 25 mg/kg/dose PO q12h (max: 500 mg/dose)	3-7 days total 10 days in the absence of source control (if that would have been necessary), or if source control is delayed until after treatment course completed	Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension Resource: Clinical practice guideline for urgent management of pulpal- and periapical-related dental pain and intraoral swelling – report from the ADA https://doi.org/10.1016/j.adaj.2019.08.020

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Mandible fracture prophylaxis	*Viridans Streptococci, Neisseria* spp., *Eikenella* spp., Anaerobes	INPATIENT: Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OUTPATIENT: Amoxicillin/clavulanate 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL oral suspension (max: see adult doses)	ALLERGY: Clindamycin 13mg/kg/dose IV/PO q8h (max: 600 mg/dose)	Antibiotic prophylaxis should not extend >24 hours after skin closure for open fractures.	RISK FACTORS FOR INFECTION: • Delayed repair (> 36 hours) • Comminuted mandible fracture • Unstable repair • Poor dentition / oral mucosal • More extensive intraoral mucosal or external (skin / subQ / muscle) exposure • Pathologic fracture • Radiation therapy • Immunocompromised
Mastoiditis	*S. pneumoniae* *S. pyogenes* (GAS) *H. influenzae* *S. aureus*	ACUTE MASTOIDITIS: Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose) OR Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR Amoxicillin/clavulanate 45 mg/kg/dose amoxicillin component PO q12h using the 600 mg/5 mL oral suspension only (max: see adult doses) CHRONIC MASTOIDITIS, RECURRENT AOM: Cefepime 50 mg/kg/dose IV q8h (max 2000 mg/dose) INTRACRANIAL EXTENSION: Ceftriaxone 50 mg/kg/dose IV q12h (max 2000 mg/dose) **PLUS** Vancomycin (see Appendix I)	ALLERGY: Clindamycin 13 mg/kg/dose IV q8h (max: 600 mg/dose) ALLERGY & INTRACRANIAL EXTENSION: Meropenem 40 mg/kg/dose IV q8h (max: 2000 mg/dose) **PLUS** Vancomycin (see Appendix I)		Consider ID consult Vancomycin trough goal 15-20 mcg/mL if concern for CNS extension Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg using **standard dosing**: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension Maximum adult doses for Amoxicillin/clavulanate in children weighing =/>40 kg using **high-dose regimen** (better S. pneumo target attainment potentially): 2000 mg/125 mg PO BID using the 1000 mg XR tablet or 600 mg/5 mL ES suspension

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Orbital cellulitis (post-septal)	*S. pneumoniae* *Haemophilus* spp. *S. pyogenes* (GAS) *S. aureus* Anaerobes	Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR Amoxicillin/clavulanate 45 mg/kg/dose amoxicillin component PO q12h using the 600 mg/5 mL oral suspension only (max: see adult doses) IF RISK FACTORS FOR MRSA PRESENT: Add vancomycin (see Appendix I) IF TOXIC, CONCERN FOR SIGHT-THREATENING INFECTION OR CNS EXTENSION: Ceftriaxone 50 mg/kg/dose IV q12h (max: 2000 mg/dose) PLUS Vancomycin (see Appendix I)	ALLERGY: Clindamycin 13mg/kg/dose IV/PO q8h (max: 600mg/dose) CONCERN FOR SIGHT-THREATENING INFECTION OR CNS EXTENSION & CEPHALOSPORIN ALLERGY: Meropenem 40 mg/kg/dose IV q8h (max: 2000 mg/dose) PLUS Vancomycin (see Appendix I)	14-21 days	Consider ID consult Vancomycin trough goal 15-20 mcg/mL if concern for CNS extension Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg: 2000 mg/125 mg PO BID using the 1000 mg XR tablet or 600 mg/5 mL ES suspension
Periorbital cellulitis (pre-septal) If orbital cellulitis is not ruled out, see section above for antimicrobial selection.	*S. pyogenes* (GAS) *S. aureus*	Cefazolin 33 mg/kg/dose IV q8h (max: 2 gm/dose) OR Cephalexin 25 mg/kg/dose PO q8h (max: 500 mg/dose) IF RISK FACTORS FOR MRSA PRESENT: TMP/SMX 5 mg/kg/dose trimethoprim component IV/PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. #2 double-strength tablets)	ALLERGY: Doxycycline 2.2 mg/kg/dose PO q12h dose (max: 100 mg/dose)	5-7 days Switch to oral therapy with 24 hours of clinical improvement	

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Group A Streptococcus Pharyngitis (GAS)	*S. pyogenes* (GAS)	Amoxicillin 50 mg/kg/dose PO once daily (max: 1000 mg/dose) **Penicillin G Benzathine is currently NOT recommended** for GAS pharyngitis – BJC is experiencing a critical shortage and supply should be reserved for the treatment of syphilis	ALLERGY: Cephalexin 20 mg/kg/dose twice daily (max: 500 mg/dose) if non-anaphylaxis reaction to amoxicillin/penicillin OR Clindamycin 7 mg/kg/dose three times daily (max: 300 mg/dose)	10 days	
Retro- or para- pharyngeal abscess	*S. pyogenes* (GAS) *S. anginosus* group *Haemophilus* spp. *S. aureus* Oral anaerobes Polymicrobial	Amoxicillin/clavulanate 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL oral suspension (max: see adult doses) OR Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) IF TOXIC: Vancomycin (see Appendix I) **PLUS** Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)	ALLERGY: Clindamycin 13mg/kg/dose IV q8h (max: 600 mg/dose)	10-14 days	Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Sinusitis, acute bacterial	*S. pneumoniae* *M. catarrhalis* *H. influenzae* *S. pyogenes* (GAS)	Amoxicillin 45mg/kg/dose PO q12h (max: 2000 mg/dose) OR Amoxicillin/clavulanate 45 mg/kg/dose amoxicillin component PO q12h using the 600 mg/5 mL oral suspension only (max: see adult doses)	ALLERGY OR TREATMENT FAILURE: Clindamycin 13 mg/kg/dose PO TID (max: 600 mg/dose) OR Levofloxacin 6 mo-4 years: 10 mg/kg/dose IV/PO q12h ≥ 5 years: 10 mg/kg/dose IV/PO q24h (max: 750 mg/dose)	5-7 days	Maximum adult doses for Amoxicillin/clavulanate in children weighing =/>40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension Guidelines: AAP: Pediatrics (2013) 132 (1): e262–e280. IDSA: Clinical Infectious Diseases, Volume 54, Issue 8, 15 April 2012, Pages e72–e112.
Tonsillar or peritonsillar abscess	*S. pyogenes* (GAS) *S. anginosus* group Oral anaerobes Polymicrobial	Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR Amoxicillin/clavulanate 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL oral suspension (max: see adult doses)	ALLERGY: Clindamycin 13mg/kg/dose PO/IV q8h (max: 600 mg/dose)	10-14 days Switch to oral therapy with 24 hours of clinical improvement	Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Respiratory Infections [8,42-47]					
Aspiration pneumonia* ***True aspiration pneumonia differs from aspiration pneumonitis.*** Aspiration pneumonitis is a chemical reaction that causes lung irritation. Patients can appear septic & initial chest imaging is often abnormal, but patients improve rapidly within 24-48 hours. Antibiotics are not indicated. Of note, aspiration of gastric contents is often sterile due to high acidity. Enteric anaerobes cannot survive in the aerophilic environment of the lungs unless it creates a walled-off abscess.	Oral flora, including oral anaerobes	OUTPATIENT: Amoxicillin/clavulanate 45 mg/kg/dose amoxicillin component PO q12h using the 600 mg/5 mL oral suspension (max: see adult doses) INPATIENT: Ampicillin/sulbactam 50 mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR Ceftriaxone 50 mg/kg IV q24h (max: 2000 mg/dose)	ALLERGY: Clindamycin 13mg/kg/dose PO/IV q8h (max: 600 mg/dose)	5-7 days	Maximum adult dose for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension
Community acquired pneumonia (CAP) (uncomplicated)	*S. pneumoniae* *Mycoplasma pneumoniae*	Amoxicillin 45 mg/kg/dose PO q12h (max: 2000 mg/dose) OR if cannot tolerate PO, Ampicillin 50 mg/kg/dose IV q6h (max: 2000 mg/dose) IF ATYPICAL PNEUMONIA SUSPECTED: ADD Azithromycin: 10 mg/kg PO on day 1 (max: 500 mg/dose), followed by 5 mg/kg PO daily on days 2-5 (max: 250 mg/dose)	ALLERGY: Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose) **OR** Clindamycin 13mg/kg/dose IV/PO q8h (max: 600 mg/dose) **OR** Levofloxacin 6 mo-4 years: 10 mg/kg/dose IV/PO q12h ≥ 5 years: 10 mg/kg/dose IV/PO q24h (max: 750 mg/dose) ALTERNATIVES FOR ATYPICA PNEUMONIA: Doxycycline 2.2 mg/kg/dose PO q12h **OR** Levofloxacin (dosing above)	5 days	Children receiving antibiotics outpatient that are being admitted for uncomplicated CAP should still be started on first-line amoxicillin or ampicillin Obtain MRSA nasal swab if initiating anti-MRSA therapy

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
CAP (complicated) See SLCH Guideline for Complicated Pneumonia Evaluation and Management on the Antimicrobial Guidebook	*S. pneumoniae* *S. pyogenes* (GAS) *S. aureus*	Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)	Other considerations and alternative options discussed in the SLCH Guideline for Complicated Pneumonia Evaluation and Management on the Antimicrobial Guidebook		Recommend ID Consult Complicated as defined by parapneumonic effusion, empyema, lung abscess, or necrotizing pneumonia.
Hospital/Ventilator associated pneumonia (HAP/VAP)	Gram-negative organisms *S. aureus*	Cefepime 50 mg/kg/dose IV q8h (max: 2000 mg/dose)	IF TOXIC OR RISK FACTORS FOR MRSA PRESENT: **ADD** Vancomycin (see Appendix I)	7 days	For HAP in previously healthy patient, consider Ceftriaxone. Consider modifying empiric antibiotics to include coverage of previous tracheal aspirate cultures Consider obtaining MRSA nasal swab if initiating anti-MRSA therapy if unable to obtain tracheal aspirate culture

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Influenza	Influenza	TREATMENT: Oseltamivir Neonate: PMA < 38 weeks: 1 mg/kg PO q12h PMA 38-40 weeks: 1.5 mg/kg PO q12h PMA > 40 weeks: 3 mg/kg PO q12h Infants/Children < 1 year: 3 mg/kg PO q12h Children 1-12 years: ≤ 15 kg: 30 mg PO q12h 16-23 kg: 45 mg PO q12h 24-40 kg: 60 mg PO q12h >40 kg: 75 mg PO q12h >12 years: 75 mg PO BID PROPHYLAXIS: Oseltamivir 3 months-1 year: 3 mg/kg PO once daily Children 1-12 years: ≤ 15 kg: 30 mg PO once daily 16-23 kg: 45 mg PO once daily 24-40 kg: 60 mg PO once daily >40 kg: 75 mg PO once daily >12 years: 75 mg PO once daily		TREATMENT: 5 days PROPHYLAXIS: 7 days	Regardless of duration of symptoms, treatment is recommended for patients with severe influenza requiring hospitalization and for those at high risk of complications. Treatment may be considered for low-risk outpatients if initiated within 48 hours of illness onset. For more information, see the CDC guidance for healthcare professionals. PMA = Post Menstrual Age

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Tracheitis (intubated/tracheostomy patient)	Gram-negative organisms *S. aureus*	Cefepime 50 mg/kg/dose IV q8h (max: 2000 mg/dose)	ALLERGY: Ciprofloxacin 10-15 mg/kg/dose PO q12h (max: 500-750 mg/dose) IF TOXIC: ADD Vancomycin (see Appendix I)	5 days	Empiric antibiotics should take into consideration previous tracheal aspirate cultures
Tracheitis (non-intubated following croup-like illness)	*S. aureus* *S. pyogenes* (GAS) *S. pneumoniae* *H. influenzae*	Vancomycin (see Appendix I) **PLUS** Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose)			Recommend ID consult
Skin and Soft Tissue [48-55]					
Cellulitis (nonpurulent)	*S. pyogenes* (GAS) *S. aureus*	Cephalexin 25 mg/kg/dose PO q12h (max: 500 mg/dose) OR Cefazolin 33 mg/kg/dose IV q8h (max: 2 gm/dose)	ALLERGY: TMP/SMX 5 mg/kg/dose trimethoprim component IV/PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. #2 double-strength tablets) IF TOXIC: Vancomycin (see Appendix I)	5 days	
Cellulitis/Abscess (purulent)	*S. aureus* *S. pyogenes* (GAS)	Cephalexin 25 mg/kg/dose PO q12h (max: 500 mg/dose) OR Cefazolin 33 mg/kg/dose IV q8h (max: 2 gm/dose) IF RISK FACTORS FOR MRSA PRESENT: TMP/SMX 5 mg/kg/dose trimethoprim component IV/PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. #2 double-strength tablets)	ALLERGY: Doxycycline 2.2 mg/kg/dose PO q12h dose (max: 100 mg/dose) IF TOXIC: Vancomycin (see Appendix I)	5 days	*For purulent SSTI, incision and drainage (I&D) is indicated if able. If performed, send cultures. *When choosing an empiric antibiotic regimen, consider prior culture results and prior use of antibiotics, and see antibiogram for *S. aureus* susceptibility at SLCH. Clindamycin not recommended empirically given its lower susceptibility rate for MSSA, MRSA, and *S. pyogenes* unless other agents not indicated due to allergy/toxicity concerns.

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Human bite	*E. corrodens* Oral anaerobes Polymicrobial *Streptococcus* spp. *S. aureus*	Amoxicillin/clavulanate <3 months: 15 mg/kg/dose amoxicillin component PO q12h using the 250 mg/5 mL oral suspension only ≥ 3 months: 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL suspension or 400 mg chewable tablet (max: see adult doses) OR Ampicillin/sulbactam 50mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose)	ALLERGY: Clindamycin 13 mg/kg/dose PO q8h (max: 450 mg/dose) PLUS TMP/SMX 5 mg/kg/dose trimethoprim component PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, consider max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. double-strength tablet)	Prophylaxis: 3 days Infected: 5-7 days PROPHYLAXIS INDICATIONS: - Moderate or severe bite wounds, especially if edema or crush injury is present - Puncture wounds, especially if penetration of bone, tendon sheath, or joint has occurred - Deep or surgically closed facial bite wounds - Hand and foot bite wounds - Genital area bite wounds - Wounds in immunocompromised and asplenic patients - Cat bite wounds	Verify tetanus vaccine status. See the Red Book Tetanus Section, Table 3.68, for recommendations For animal bites, assess rabies risk Maximum adult doses for amoxicillin/clavulanate: 875 mg/125 mg PO BID OR 500 mg/125 mg PO TID
Animal bite	*P. multocida* Oral anaerobes *E. corrodens* *Capnocytophaga* spp. *Streptococcus* spp. *S. aureus*				
Lymphadenitis, suppurative	*S. aureus* *S. pyogenes* (GAS)	Cephalexin 25 mg/kg/dose PO q12h (max: 500 mg/dose) OR Cefazolin 33 mg/kg/dose IV q8h (max: 2 gm/dose) IF RISK FACTORS FOR MRSA PRESENT: TMP/SMX 5 mg/kg/dose trimethoprim component IV/PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, consider max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. double-strength tablet)	ALTERNATIVE: Amoxicillin/clavulanate 20 mg/kg/dose amoxicillin component PO q12h using the 400 mg/5 mL suspension or 400 mg chewable tablet (max: see adult doses) OR Ampicillin/sulbactam 50mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR	7 days	Bilateral infection likely to be a viral process Maximum adult doses for Amoxicillin/clavulanate in children weighing =/> 40 kg: 875 mg/125 mg PO BID using the 875 mg tablet or 400 mg/5 mL suspension OR 500 mg/125 mg PO TID using the 500 mg tablet or 250 mg/5 mL suspension

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Necrotizing fasciitis	*S. pyogenes* (GAS) *S. aureus* Polymicrobial	Vancomycin (see Appendix I) **PLUS** Cefepime 50 mg/kg/dose IV q8h (max: 2000 mg/dose) **PLUS** Clindamycin 13mg/kg/dose IV q8h (max: 600-900 mg/dose)			Obtain Infectious Diseases and Surgery Consults
Pyomyositis	*S. aureus* *S. pyogenes* (GAS)	Cefazolin 33 mg/kg/dose IV q8h (max: 2000 mg/dose) RISK FACTORS FOR MRSA PRESENT: Vancomycin (see Appendix I) OR TMP/SMX 5 mg/kg/dose trimethoprim component PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. #2 double-strength tablets) IF TOXIC: Vancomycin (see Appendix I)			
Staphylococcal scalded skin	Predominantly MSSA, or rarely MRSA	Cefazolin 33 mg/kg/dose IV q8h (max: 2000 mg/dose) OR Cephalexin 25 mg/kg/dose PO q12h (max: 500 mg/dose)	IF RISK FACTORS FOR MRSA PRESENT: TMP/SMX 5 mg/kg/dose trimethoprim component PO q12h (max: 800 mg SMX/160 mg TMP per dose) If BMI ≥ 30 in adolescents and adults, consider max dose of 1600 mg SMX/ 320 mg TMP/dose (i.e. double-strength tablet)	5-7 days	

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Miscellaneous [9,56,57]					
Febrile neutropenia (hematology/oncology patients) Does not apply to non-hematology/oncology patients who are febrile and neutropenic for other reasons (e.g. viral infection)	Gram-positive pathogens (including *S. aureus*, CoNS, *Streptococcus* spp.) Enteric Gram-negative bacilli (including *P. aeruginosa*)	Cefepime 50mg/kg/dose IV q8h (max: 2000 mg/dose)	IF TOXIC, SEVERE PNEUMONIA, SEVERE MUCOSITIS, OR CELLULITIS WITH RISK FACTORS FOR MRSA: Add Vancomycin (see Appendix I) IF ABDOMINAL SYMPTOMS/TYPHLITIS: Add Metronidazole 10 mg/kg/dose IV/PO q8h (max: 500 mg/dose)		
Lemierre's Syndrome	*Fusobacterium necrophorum* *Bacteroides* spp. *Peptostreptococcus* *S. aureus* *Streptococcus* spp.	Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose **PLUS** Metronidazole 10 mg/kg/dose IV q8h (max: 500 mg/dose) IF TOXIC: **ADD** Vancomycin (see Appendix I)			Recommend ID Consult
Catheter-associated blood stream infection (CLABSI)	*S. aureus* Coagulase-negative *Staphylococcus* (CoNS) Enteric Gram-negative bacilli	Cefepime 50 mg/kg/dose IV q8h (max: 2000 mg/dose)	IF TOXIC OR RISK FACTORS FOR MRSA PRESENT: **ADD** Vancomycin (see Appendix I)		Recommend ID Consult

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
R/O Sepsis 0-21 days (no central lines and no concern for meningitis) If concerned for meningitis, refer to meningitis section	*S. agalactiae (GBS)* *E. coli* *L. monocytogenes*	Admission from community: Ampicillin PLUS Ceftazidime OR Ceftriaxone* (see column to the right) NICU: Ampicillin PLUS Gentamicin (see Neonatal Dosing Guide)	*Patients meeting the following criteria may receive Ampicillin PLUS Ceftriaxone: • ≥ 7 days of age • Corrected (current) gestational age ≥ 35 weeks • Not currently receiving calcium containing solutions or parenteral nutrition • Total Serum Bilirubin (Tbili) < 5 mg/dL [A] • Albumin within normal limits [A]		**In all settings, ceftazidime or ceftriaxone preferred to gentamicin in children with known or suspected structural kidney disease.** [A] In patients who qualify for ceftriaxone based on age and corrected GA, it is not always necessary to wait for Tbili and albumin to result before placing order. In most, the bilirubin-albumin binding capacity has matured, but clinical judgment is warranted.
R/O Sepsis > 21 days (no central lines and no concern for meningitis) If concerned for meningitis, refer to meningitis section	*S. agalactiae* (GBS) *S. pneumoniae* *E. coli* *N. meningitidis* *S. pyogenes* (GAS)	Ceftriaxone 50 mg/kg/dose q24h (max: 2000 mg/dose)	IF TOXIC OR H/O MRSA COLONIZATION/ INFECTION: ADD Vancomycin (see Neonatal Dosing Guide) IF TOXIN-MEDIATED INFECTION SUSPECTED: ADD Clindamycin 13mg/kg/dose IV q8h (max: 600 mg/dose)		
Sickle Cell Disease with Fever	*S. pneumoniae* Enteric Gram-negative organisms Salmonella *S. aureus* *Mycoplasma*	Ampicillin/sulbactam 50mg/kg/dose ampicillin component IV q6h (max: 2000 mg/dose) OR **Ceftriaxone 50 mg/kg/dose IV q24h (max: 2000 mg/dose) **(see comments section)**	IF ACUTE CHEST SYNDROME SUSPECTED: **ADD** Azithromycin: 10 mg/kg PO on day 1 (max: 500 mg/dose), followed by 5 mg/kg PO daily on days 2-5 (max: 250 mg/dose) IF TOXIC OR RISK FACTORS FOR MRSA PRESENT: **ADD** Vancomycin (see Appendix I)		****Ceftriaxone may increase the risk of severe hemolysis in patients with sickle cell disease**
Tickborne Infections	*Ehrlichia* *Rickettsia*	Doxycycline 2.2 mg/kg/dose PO q12h (max: 100 mg/dose)			

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Diagnosis	Common Pathogens	Preferred Empiric Drug(s)	Alternative Drug(s) for Allergy or Clinical Severity	Duration*	Comments
Toxic shock syndrome	*S. pyogenes* (GAS) *S. aureus*	Vancomycin (see Appendix I) **PLUS** Ceftriaxone 50 mg/kg/dose IV q12h (max: 2000 mg/dose) **PLUS** Clindamycin 13 mg/kg/dose IV q8h (max: 600 mg/dose)			Recommend ID Consult

WRITTEN BY/EFFECTIVE DATE: Christine Lockowitz, PharmD, BCIDP; Evan Facer, DO; Valerie Yuenger, PharmD, BCIDP
Revision/PD&T Approval Date: 5/1/2025

APPENDIX 1: PEDIATRIC DOSING RECOMMENDATIONS FOR VACOMYCIN AND AMINOGLYCOSIDES

For neonate-specific dosing recommendations, see Neonatal Dosing Guide

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Vancomycin Pediatric Dosing and Goal Troughs:

VANCOMYCIN EMPIRIC PEDIATRIC DOSING RECOMMENDATIONS (Patients previously therapeutic on vancomycin should be restarted on that dose as appropriate)	
1–3 months	15 mg/kg/dose q8h
4–11 months	15 mg/kg/dose q6h
1–8 years	20 mg/kg/dose q6h
9–13 years	20 mg/kg/dose q8h
≥14 years	15 mg/kg/dose q8h

- Exclusions to this dosing: Patients with renal or cardiac insufficiency, and patients receiving calcineurin inhibitors (i.e. cyclosporine, tacrolimus)
- Patients receiving ECMO: Increase empiric dosage by 5 mg/kg/dose, to be given at the indicated frequency based on age and renal function. Clinical judgment warranted.
- Vancomycin in Hemodialysis:
  - First dose: 15 mg/kg (max: 1000 mg)
  - Typical maintenance dose: 7.5-10 mg/kg (administer AFTER dialysis ends)
  - Consider increasing the dose 25% when there is more than one day between HD sessions (example: for a patient on chronic MWF HD, increase the Friday post-dialysis dose by 25% as compared to the Monday and Tuesday doses)
  - Note: HD dialyzer at SLCH is high permeability
  - Monitoring: obtain pre-dialysis random level

- Maximum: most children generally do not require >2,000 mg/dose, >3,600 mg/day or >100 mg/kg/day
- The above dosing recommendations are based on internal SLCH data and existing literature in children. See 2020 guidelines for therapeutic monitoring of vancomycin, endorsed by ASHP, IDSA, PIDS, and SIDP, for additional information.

Goal vancomycin concentrations:

VANCOMYCIN GOAL TROUGH CONCENTRATIONS	
Central Nervous System Infections	15-20 mcg/mL
All other infections	10-15 mcg/mL
VANCOMYCIN PRE-HEMODIALYSIS CONCENTRATION	
All infections	15-20 mcg/mL

Additional considerations when adjusting vancomycin dosing in response to levels:

- For troughs near the desired trough range (i.e., 8-9 mcg/mL in a patient with a goal trough of 10-15 mcg/mL), strongly consider not increasing the dose, especially in patients at risk for further accumulation of vancomycin, after clinically evaluating the patient's status, microbiology data, etc. Clinical judgment warranted.
- The goal vancomycin pharmacodynamic (PD) target of AUC/MIC 400-600 is largely derived from studies of patients with MRSA bacteremia. In children, PK/PD data show that troughs as low as 7 mcg/mL correlate with AUC/MIC ratios of 400-600.
- In children, troughs >15 mcg/mL should generally be avoided (with CNS infections being an exception). Troughs >15 mcg/mL have not shown to improve outcomes in children with MRSA infections, but it is an independent risk factor for acute kidney injury (AKI).

Aminoglycoside Use in Pediatrics:

Gentamicin Synergy Dosing for Staphylococcus or Enterococcus bacteremia/endocarditis:

Indication:
- As synergy with another cell-wall active antibiotic in the treatment of *Staphylococcus* or *Enterococcus* bacteremia/endocarditis

Dose: **Dosed based on adjusted body weight for obese patients**
Infants, children, adolescents: 1.5 mg/kg/dose IV q12h

Monitoring:
- Only need to obtain troughs to assess safety/clearance of gentamicin

Extended Interval Dosing for Gentamicin (for Enterobacterales) and Tobramycin (for Pseudomonas or Enterobacterales):

Indication:
- Preferred dosing for **critically ill patients** with concern for multidrug resistant gram-negative organisms (tobramycin often used empirically due to concern for Pseudomonas in this population)

Dose: **Dosed based on adjusted body weight for obese patients**
Neonates 35-44 weeks PMA: 5 mg/kg/dose IV q24h
Infants ≥45 weeks PMA, children, adolescents: 7 mg/kg/dose q24h
Infants ≥45 weeks PMA, children, and adolescents with CrCl 30 to <50 or CVVHDF: 7 mg/kg IV x1
- Patients with CrCl <30 ml/min, receiving intermittent hemodialysis or peritoneal dialysis: consult pharmacist to weigh risks vs. benefits, and to discuss appropriate dosing on a case-by-case basis.

Monitoring:
- Check 24-hour peak level 30 minutes AFTER the END of the infusion of the 1st dose and a random level 12-18 hours after the 1st dose
- Goal peak levels=20-30, goal trough level <0.5 mcg/mL

Conventional Dosing for the Treatment of Enterobacterales (gentamicin/tobramycin) and Pseudomonas (tobramycin):

Indication:
- Treatment of non-severe infections
- Open-fracture prophylaxis (gentamicin or tobramycin)
- Non-critically ill patients with CrCl <30ml/min

Dose: **Dosed based on adjusted body weight for obese patients**
4 mg/kg/dose IV q12h
- For neonate-specific dosing recommendations, see Neonatal Dosing Guide

Monitoring:
- Check peak and trough with the 3rd dose generally, or earlier if warranted based on renal function.

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This document provides guidance on empiric treatment recommendations for select infections based upon current guidelines and local antibiogram data. Therapy should be modified based upon patient specific culture results once available.

APPENDIX 2: TETANUS PROPHYLAXIS IN ROUTINE WOUND MANAGEMENT

History of Adsorbed Tetanus Toxoid (Doses)	Clean, Minor Wounds		All Other Wounds[a]	
	DTaP or Tdap[b]	TIG[c]	DTaP or Tdap[b]	TIG[c]
Fewer than 3 or unknown	Yes	No	Yes	Yes
3 or more	No if <10 y since last tetanus-containing vaccine dose	No	No[d] if <5 y since last tetanus-containing vaccine dose	No
	Yes if ≥10 y since last tetanus-containing vaccine dose	No	Yes if ≥5 y since last tetanus-containing vaccine dose	No

a – Such as, but not limited to, wounds contaminated with dirt, feces, soil, and salvia (eg, following animal bites); puncture wounds; avulsions; and wounds resulting from missiles, crushing, burns, and frostbite.
b – DTaP is used for children younger than 7 years. Tdap is used for children 7 years and older.
c – Immune Globulin Intravenous should be used when TIG is not available
d – More frequent boosters are not needed and can accentuate adverse effects

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