مدينة الملك سعود الطبية
KING SAUD MEDICAL CITY

Children's Hospital
Department of Pediatric Infecious Diseases

ANTIMICROBIAL GUIDELINES

2024

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Third Edition
2024

The Department of Pediatric Infectious Diseases

The Antimicrobial Guidelines
Third edition-2024

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INTRODUCTION

The majority of hospitalized patients receive antimicrobials for therapy or prophylaxis during their inpatient stay. It has been estimated that at least fifty percent of hospitalized patients receive antibiotics unnecessarily. Reasons include inappropriate prescribing for antibiotic prophylaxis, inappropriate choice of empiric antibiotics, continuation of empiric therapy despite negative cultures in a stable patient, and a lack of awareness of susceptibility patterns of common pathogens. Over-prescribing not only increases the cost of health care, but may result in emergence of resistant bacteria, superinfection with opportunistic fungi, as well as increase the likelihood of adverse drug reactions. On the other hand, not prescribing (when there is an urgent need) may also lead to serious consequences.

In this edition of the guideline we reveiwed the empirical and targeted therapy, management approaches of neonatal and pediatric infections and the recommended dosage. Approaches to prevention of some perinatal infections were added in this edition.

The recommendations in this guideline are based on the current local susceptibility pattern and Children hospital atibiogram. We will review these guidelines regularally and will adjust our antimicrobial choices according to the *in vitro* susceptibility data. Our mission is to provide the most cost-effective antimicrobial agents to our patients.

Antimicrobial stewardship

Definition (IDSA, SHEA, PIDS):

Coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting :

- **Selection of the optimal antimicrobial drug regimen**
- **Dose**
- **Route of administration**
- **Duration of therapy**

- **The Core Elements of Hospital Antibiotic Stewardship Program (CDC)**

- **Leadership commitment**
- **Accountability**
- **Drug expertise**
- **Action**
- **Tracking**
- **Reporting**
- **Education**

- **Antibiotic Stewardship Team**

1. **ID Consultant ± Fellow**
2. **Clinical Pharmacists :**
   ID + clinical pharmacist assigned in area
3. **Infection Control Practitioner**
4. **Treating physician**
5. **Advanced Nurse (assigned in area)**

Preauthorization

- Restricted and controlled antimicrobial policy
  - All restricted antibiotics **MUST** be approved by ID consultant or fellow
  - All controlled antibiotics **MUST** be approved by treating consultant
  - Written approval during working hours
  - Verbal approval after working hours, followed by written approval next working day

Prospective Audit with Feedback

- Daily assessment of all patients on Abs, and review microbiological results & recommend:

✓ Stop antibiotic if no evidence of infection

✓ Switch to narrower spectrum (De-escalate)

✓ Continue same regimen

✓ Switch to a broader regimen if needed

✓ Switch to oral therapy

✓ Outpatient parenteral therapy (OPAT)

ANTIBIOTIC TIME OUT

Automatic Stop at 72 hr

Metrics

- Appropriate specimens taken before starting antibiotics
- Antibiotics justified
- Empiric Antibiotic(s) appropriate
- Correct dose
- Proper adjustment according to c/s
- IV to oral switch considered
- Appropriate duration
- Consumption rates
- Antimicrobial resistance rates

Antimicrobial Susceptibility Report

Antibiogram (PICU, NICU & Hospitalwide) will be added and updated quarterly once it is available (refer to electronic edition)

INITIAL EMPIRICAL ANTIBIOTIC THERAPY IN CHILDERN

(Change to specific therapy depending on susceptibility if pathogen is identified)
(See pages 17-25 for specific therapy & pages 53-69 for dosage)

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
RESPIRATORY SYSTEM			
OROPHARYNGEAL INFECTIONS:			
Pharyngitis	• Viral • Grp A strep	• Symptomatic, No Abx • Penicillin V 50 mg/kg/ day PO ÷ bid or tid for 10 days	• See page 52 for more details • Amoxicillin 50 mg/kg/day PO OD or bid for 10 days • β-lactam allergic pts: Clindamycin 30 mg/kg/ day PO ÷ q8h or Azithromycin 12 mg/ kg/day PO OD for 5 days
Dental abscess	Mixed oral aerobes and anaerobes	Amoxicillin/Clavulanate 45 mg/kg/day PO ÷ q8h	• Clindamycin 30 mg/kg/ day PO ÷ q8h if MRSA is suspected
Peritonsillar abscess	Grp A strep, S. aureus, mixed oral flora including anaerobes	Clindamycin 30 mg/kg/ day PO ÷ q8h	• Surgical drainage required • Add Ceftriaxone if gram negative aerobes are suspected
Parapharyngeal or Retropharyngeal abscess	Mixed aerobic/anaerobic flora, including steptococci, S. aureus & oral anaerobes	Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg/ kg/ day IV ÷ q6h	• Consider surgical drainage • Adjust therapy according to pus c/s
Epiglottitis	S. pneumoniae, Gr A strep, S. aureus, H. influenzae	Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg/ kg/ day IV ÷ q6h	• Secure airways • Admit to PICU
Bacterial Tracheitis	S. aureus, Gr A strep, H. influenzae, S. pneumoniae	Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg/ kg/ day IV ÷ q6h	• May follow viral croup • Adjust therapy according to pus c/s
Ludwig's angina	Mixed oral aerobes and anaerobes	Clindamycin 40 mg/kg/ day IV ÷ q6h	• Add Ceftriaxone if GNR suspected • Surgical drainage usually needed

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
OROPHARYNGEAL INFECTIONS (continued):			
Lemierre syndrome (pharyngitis with internal jugular vein septic thrombosis)	Fusobacterium necrophorum, Arcanobacterium haemolyticum, Streptococci, other anaerobes, S. aureus	Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg/ kg/ day IV ÷ q6h	• Meropenem if CNS metastatic foci • Anticoagulation therapy often needed (consult hematology) • Consider surgical debridement and abscess drainage
LOWER RESPIRATORY TRACT INFECTIONS:			
Bronchitis/Bronchiolitis	Viral	Supportive	Antibiotics are not indicated
Neonatal pneumonia	GBS, GNR (e.g. E. coli), C. trachomatis, Listeria	Ampicillin + Gentamicin	See pages 66-67 for dosage
Community Acquired bacterial pneumonia	1-3 months: S. pneumoniae, C. trachomatis, B. pertussis, H. influenzae, S. aureus	Cefuroxime 100 mg/kg/ day IV ÷ q8h +/- Azithromycin10 mg/kg IV first day, then 5 mg/kg OD for 4 days*	• Cefotaxime 200 mg/kg/day IV ÷ q8h if sepsis/meningitis is suspected • * if C. trachomatis or B. pertussis are suspected • Clarithromycin or Erythromycin
	3 months – 5 years: S. pneumoniae, H. influenzae, S. aureus, M. pneumoniae	• Mild to moderate: Amoxicillin 80 mg/kg/ day PO ÷ q8h • Uncomplicated severe: - Vaccinated: Ampicillin 200 mg/kg/day IV ÷ q6h - Unvaccinated: Ceftriaxone 75 mg/kg IV OD	• Usually viral: no antibiotics Amoxicillin/Clavulanate • Complicated pneumonia: See below
	>5 years: M. pneumoniae S. pneumoniae, S. aureus, C. pneumoniae	• Mild : PO Azithromycin • Moderate: Amoxicillin ± Azithromycin • Uncomplicated severe: Ampicillin (IV) ± Azithromycin	• Usually viral: no antibiotics • Same doses above • Azithromycin if atypical pneumonia is suspected • Complicated pneumonia: See below • See page 55 for more details

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
LOWER RESPIRATORY TRACT INFECTIONS (continued):			
Necrotizing pneumonia	S. pneumoniae, S. aureus, H. influenzae, Gp A strep, enteric GNR	Ceftriaxone 75 mg/kg IV OD + Linezolid <12 yr: 30 mg/kg/ day ÷ q 8h; ≥12 yr: 600 mg q 12h	• Usually accompained by parapneumonic effusion or empyema
Empyema	S. pneumoniae, S. aureus, H. influenzae, Gp A strep, enteric GNB, TB, fungi	Ceftriaxone 75 mg/kg IV OD + Linezolid: <12 yr: 30 mg/kg/ day ÷ q 8h; ≥12 yr: 600 mg q 12h	• Consider closed drainage • Adjust therapy according to c/s • Consult pulmonology & ID
Lung abscess	S. aureus, Streptococci, Klebsiella pneumoniae, other GNR, anaerobes	Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg/ kg/ day IV ÷ q6h	• Conservative management is recommended • Consult ID
Aspiration	Neonate: Usually sterile	Empiric antibiotics not recommended	• If infection suspected, start: - Penicillin G + Gentamicin - Clindamycin + Gentamicin if severe
	Older children: Oral anaerobes, enteric GNB	• Mild-Moderate: Amoxicillin/Clavulanate 45 mg/kg/day PO ÷ q8h • Severe: Clindamycin 40 mg/ kg/ day IV ÷ q6h + Gentamicin 5 mg/kg IV OD	• Use Clindamycin if Penicillin-resistant organisms suspected • Clindamycin + Ceftriaxone • Hospital-associated: Piperacillin/Tazobactam
Sickle cell disease with pneumonia	S. pneumoniae, Mycoplasma pneumoniae, H. influenzae	Ceftriaxone 75 mg/kg IV OD ± Azithromycin10 mg/ kg IV first day, then 5 mg/kg OD for 4 days*	• Add vancomycin if seriously ill OR MRSA is suspected • Significant β-lactam allergy: Clindamycin or Levofloxacin • * If Mycoplasma or Chlamydia is suspected

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
LOWER RESPIRATORY TRACT INFECTIONS (continued):			
Hospital and ventilator associated pneumonia (HAP/VAP)	P aeruginosa, gram-negative enteric bacilli, S. aureus	Cefepime 150 mg/kg/day IV ÷ q8h	• Review previous cultures and sensitivity and unit antibiogram and select empirical therapy accordingly • Add Vancomycin if MRSA is suspected • Collect appropriate respiratory samples before starting Abx and adjust theapy once C/S is available
Immunocompromised patient with pneumonia	Any organism but particularly enteric GNB, S. aureus, PCP	Piperacillin/Tazobactam 240-300 mg (pip)/kg/day ÷ q6-8h +/- TMP/SMX (if PCP suspected)	• Cefepime • Add Vancomycin if MRSA is suspected • Evaluate and adjust therapy if CMV or fungi suspected.
EAR, SINUS & EYE			
Bacterial Otitis externa/ Swimmer's ear	Staphylococci, strept, pseudomonas, other GNR	• Cleaning + • Ofloxacin ± hydrocortisone drops	• Ciprofloxacin • Neomycin/polymixin B + hydrocortisone drops
Furuncle of external ear	S. aureus	Cephalexin 25-50 mg/kg/day ÷ q8h	• Clindamycin if MRSA is suspected • I & D may be necessary
Cellulitis of external ear	Grp A strep, S. aureus	Cephalexin 25-50 mg/kg/day ÷ q8h	Clindamycin if MRSA is suspected
Malignant otitis externa	Pseudomonas aeruginosa	Cefipime 150 mg/kg/day IV ÷ q8h	If improving , switch to Ciprofloxacin if susceptible
Fungal otitis externa	Candida	Fluconazole 6-10 mg/kg PO OD for 5-7 day	Canal depridement
Otitis Media (acute)	S. pneumoniae, H. influenzae, M. catarrhalis	High dose Amoxicillin (90 mg/kg/day) PO ÷ q8-12h	• Amox/Clav if with conjunctivitis or received amoxicillin within a month • Beta-Lactam allergic patients: Clindamycin or Azithromycin • See page 53 for more details

SYSTEM		SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
EAR, SINUS & EYE (continued)				
Otitis Media (chronic suppurative)		Pseudomonas aeruginosa, S. aureus	Ofloxacin or Ciprofloxacin ear drops	• Cleaning of canal • Adjust therapy according to pus c/s Avoid aminoglycoside containing formulations
Mastoiditis	**Acute**	• S. pneumoniae, Grp A strep, S. aureus, H. influenzae.	• Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg/ kg/ day IV ÷ q6h	• R/O intracranial extension • Adjust therapy according to C/S • Switch to oral therapy when clinically indicated
	Chronic (≥ 1 month duration)	• Often polymicrobial: S. aureus, P. aeruginosa, anaerobes	• Ofloxacin ear drop • Acute bacterial superinfection: Pip/Tazo 240 mg/kg/day IV ÷ q8h	• Daily cleansing of ear • Surgery indications: chronic drainage, evidence of osteomyelitis, evidence of spread to CNS
Sinusitis (acute)		S. pneumoniae, H. influenzae, M. catarrhalis.	Amoxicillin 90 mg/kg/day PO ÷ q8-12h	High dose Amoxicillin/Clavulanate (See page 54 for more details)
Conjunctivitis (Neonate):		• N. gonorrhoeae	• Cefotaxime 100 mg/kg IM/IV single dose + Azithromycin for 5 days	• Ceftriaxone 50 mg/kg IM/IV single dose + Azithromycin for 5 days • Treat mother and father
		• C. trachomatis	• Azithromycin10 mg/ kg IV first day, then 5 mg/kg OD for 4 days + ophthalmic ointment	
		• Pseudomonas spp.	• IV Cefepime 100 mg/kg/day IV ÷ q12h + Ofloxacin eye drops	• Adjust therapy according to C/S
		• Other bacterial	• Ophthalmic Ofloxacin (or Ciprofloxain)	• Ophthalmic Bacitracin-polymyxin B; Gentamicin; Adjust Rx based on C/S
		• Herpes simplex virus	• Acyclovir 60 mg/kg/day IV ÷ q8h + 1% Trifluridine ophthalmic	• 0.15% ganciclovir ophthalmic gel Consult ID & Opthalmology

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
EAR, SINUS & EYE (continued)			
Viral conjunctivitis (pink eye)	Adenovirus	No antimicrobials needed	If symptomatic, cold artificial tear may help
Suppurative conjunctivitis Infants & Children:	S. pneumoniae, H. influenzae, Staph. aureus	Ophthalmic Ofloxacin (or Ciprofloxain)	• Bacitracin-polymyxin B eye drops • Erythromycin ophthalmic ointment • Gentamicin eye drops (may cause punctate staining of cornea)
Hordeolum (sty) or chalazion		None	• Warm compresses • I & D when necessary
Dacryocystitis	S. pneumoniae, S. aureus, H. influenzae, GBS, CoNS	• Abx usually not needed • In more severe cases: Cefazolin 100-150 mg/ kg/ day IV ÷ q8-12h	• Warm compresses • May need surgical probing of nasolacrimal duct
Orbital Cellulitis	S. pneumoniae, S. aureus, H. influenzae, GAS, Anaerobes	Ceftriaxone 75 mg/kg IV OD + Clindamycin 40 mg /kg/day IV ÷ q6h	If intracranial extension: Ceftriaxone + Vancomycin + Metronidazole
Periorbital cellulitis/ Facial cellulitis	• Entry site lesion: S. aureus, Grp A strept • No lesion, febrile: H. influenzae , S. pneumoniae	• Clindamycin 40 mg/kg/ day IV ÷ q6h • Cefuroxime 100 mg/kg/ day IV ÷ q8h	• Cefazolin if MRSA is unlikely • Ceftriaxone R/O meningitis
Endophthalmitis	CoNS, Bacillus spp., S. aureus, Propionibacterium acnes, S. pneumoniae, N. meningitidis, GNR, Fungal	Cefepime 150 mg/kg/day IV ÷ q8h + Vancomycin 40 mg/kg/ day IV ÷ q6h	• Consult ophthalmology & ID • Subconjunctival/sub-tenon antibiotics are likely to be required • Adjust therapy according to C/S Add antifungal (Fluconazole, LAMB) if fungal infection is suspected

SYSTEM		SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
SKIN & SOFT TISSUE				
Cellulitis	Neonate Infants & children	• S. aureus, GBS, Gram negative organisms • Grp A strep, S. aureus	• Cefazolin 100-150 mg/ kg/day IV ÷ q8-12h ± Gentamicin 5 mg/kg OD • Non-purulent cellulitis: Mild: PO Cephalexin 25-50 mg/kg/day ÷ q 6-8h Mod-severe: Cefazolin 150 mg/kg/day IV ÷ q8h • Purulent cellulitis: Clindamycin 40 mg/kg/ day IV ÷ q6h	• Clindamycin if MRSA is suspected • Drain any abscess first (See page 56 for more details)
Erysipelas		Grp A strept, S. aureus	• Mild: PO Cephalexin 25-50 mg/kg/day ÷ q 6-8h • Mod-severe: Cefazolin 150 mg/kg/day IV ÷ q8h	
Impetigo		S. aureus, Grp A strept	• Mild: Topical Mupirocin • Moderate: Clindamycin 30 mg/kg/day PO ÷ q8h • Severe: Clindamycin 40 mg/kg/day IV ÷ q6h	Cephalexin if MRSA is unlikely
Infected wound		S. aureus, Grp A streptococci	Clindamycin 30 mg/kg/ day PO ÷ q8h	• Cephalexin if MRSA is unlikely • Adjust therapy according to c/s
Dog bite/cat bite		Pasteurella multocida, Streptococcus spp. , S. aureus, anaerobes	• Mild: Amoxicillin/ Clavulanate 45 mg/kg/ day PO ÷ q8h • Severe: Ampicillin 150 mg/kg/day IV ÷ q6h + Clindamycin 40 mg/kg /day IV ÷ q6h IV	• Wound care; Do not close open wound; Assess need for tetanus & rabies prophylaxis. • Penicillin allergic patients: Doxycycline + Clindamycin
Human bite		Streptococcus spp., S. aureus, oral anaerobes		

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
SKIN & SOFT TISSUE (continued)			
Rat-bite fever	Streptobacillus moniliformis, Spirillum minus	• Mild: Amoxicillin/Clavulanate 45 mg/kg/ day PO ÷ q8h • Severe: Penicillin G 150,000 U/ kg/day IV ÷ q8h	• High rate of associated endocarditis • If endocarditis: add Gentamicin
Staphylococcal scalded skin syndrome	S. aureus	Cloxacillin100-200 mg/kg /day IV ÷ q 6h	• Cefazolin IV • Clindamycin IV if MRSA is suspected
Abscess	S. aureus, Grp A streptococci	I & D ± Clindamycin30 mg/kg/ day PO ÷ q8h	• I & D alone is enough if small (< 5cm) superficial abscesses • Adjust therapy according to c/s
Necrotizing Fasciitis (Predisposing conditions: Varicella, Surgery, Trauma)	Grp A Strep, Staph. aureus GNR, anaerobes	Cefepime 150 mg/kg/day IV ÷ q8h + Clindamycin 40 mg/kg/day IV ÷ q6h IV	• Aggressive debridement is an emergency and life-saving • Add Vancomycin if MRSA suspected • Grp A strep: Pen G + Clindamycin • Consider IVIG for Grp A strep
Pyomyositis	S. aureus	Vancomycin 40 mg/kg/ day IV ÷ q6h + Clindamycin 40 mg/kg/ day IV ÷ q6h	• Adjust therapy according to c/s • If MSSA: Cloxacillin + Clindamycin • Surgical debridement is usually required
Lymphangitis	Gr A streptococci, S. aureus	Cefazolin 150 mg/kg/day IV ÷ q8h	Clindamycin in MRSA is suspected
Lymphadenitis (pyogenic)	S. aureus, Gr A streptococci, anaerobes	Clindamycin30 mg/kg/ day PO ÷ q8h	Cephalexin if MRSA is unlikely
Parotitis	Acute bacterial parotitis: S. aureus, Streptococci, GNR Others: Mumps, EBV, HIV, Enterovirus , TB & Sjögren syndrome	Cefazolin 150 mg/kg/day IV ÷ q8h	Clindamycin if MRSA is suspected

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS	
SKELETAL INEFCTIONS (Osteomyelitis and/or Septic arthritis)				
Neonate	Staphylococcus aureus, Gr B streptococcus, Gm neg enteric bacilli	Cloxacillin* 100-200 mg/ kg /day IV ÷ q 6h + Cefotaxime 150 mg/kg/ day IV ÷ q8h	• Cloxacillin + Gentamicin • *Vancomycin if MRSA or CoNS is suspected	• Consult ID & Orthopedics • Consider surgical intervention if sepsis, rapidly progressive infection, or abscess > 2 cm • Adjust therapy according to c/s • Switch to PO if improving clinically with ↓ CRP • Total duration: - Septic arthritis: 3 wks - Osteomyelitis: Acute: 4 wks Subacute: 2-3months Chronic: 6 months
Infant 1-3 mo	S. aureus, H. influenzae, Gr B strep, GNR	Cloxacillin* 200 mg/kg/ day IV ÷ q 6h + Cefotaxime 200 mg/kg/ day IV ÷ q8h	* Clindamycin if MRSA is likely	
Unvaccinated (HIB) Child 3 mo – 5 yr	Staph aureus, H. influenzae, K. kingae, Gr A strep, S. pneumoniae	Cefuroxime150 mg/kg/ day IV ÷ q8h ± Clindamycin* 40 mg/kg/ day IV ÷ q6h	* if MRSA is likely	
Vaccinated 3 mo – 5 yr	S. aureus, Kingella kingae, Gr A strep, S. pneumoniae	Clindamycin40 mg/kg/ day IV ÷ q6h ± Ampicillin 200 mg/kg/day IV ÷ q 6h	• Cefazolin (if MRSA is unlikely) • If K. kingae is likely	
Children > 5yr	S. aureus, Gr A strep, S. pneumoniae	Clindamycin40 mg/kg/ day IV ÷ q6h	Cefazolin if MRSA is unlikely	
Sickle cell disease	S. aureus, Salmonella spp., S. pneumoniae	Ceftriaxone 100 mg/kg q24h + Clindamycin* 40 mg/kg/ day IV ÷ q6h	* Cloxacillin if MRSA is unlikely	
Puncture wound of foot	Pseudomonas aeruginosa, Staphylococcus aureus	Cefepime 150 mg/kg/ day IV ÷ q8h	• Ciprofloxacin if β-lactam allergy • Add Clindamycin if MRSA is likely	

SYSTEM		SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
SEPTICEMIA/BACTEREMIA (excluding meningitis)				
Neonates (early onset)		GBS, enteric GNR (e.g. E. coli, Kleb. Spp.), Listeria	Ampicillin + Gentamicin	• See pages page 57 for pathway and pages 66-70 for dosages
Neonates (late onset)	**Outpatient**	GBS, enteric GNR, Enterococcus, Listeria	Ampicillin + Gentamicin	Ampicillin + Cefotaxime if associated with meningitis
	Inpatient (Hospital acquired)	Gram-negative bacilli, CoNS, Staph. Aureus, Candida spp	Cloxacillin* + Gentamicin**	* Vancomycin if MRSA is suspected ** Amikacin if received Gentamicin recently or colonized with Gentamicin-resistant Amikacin-sensitive GNR
1-3 months		Includes organisms seen in neonates or older children	Ampicillin 200 mg/kg/day IV ÷ q 6h + Cefotaxime 200 mg/kg/day IV ÷ q8h	
>3 months	**Community acquired**	S. pneumoniae, S. aureus, N. meningitidis, H. influenzae (unvaccinated)	Ceftriaxone 100 mg/kg/day ÷ q12-24h	Add vancomycin if MRSA is suspected
	Intra-abdominal or biliary	Enterobacteriaceae, anaerobes, Enterococci	Ampicillin 200 mg/kg/day IV ÷ q 6h + Gentamicin 5 mg/kg OD+ Metronidazole 30 mg/kg/day IV ÷ q8h	Pip/Tazo if colonized with a resistant GNR
	Hospital acquired	GNR, S. aureus	Cefepime 150 mg/kg/day IV ÷ q8h	If ESBL producing organis is suspected use Meropenem
Febrile neutropenia		Gram-negative bacilli, gram-positive cocci, anaerobes, Fungi	Pip/Tazo 240-300 mg (piperacillin)/kg/day ÷ q6-8h	• Cefepime • Add Gentamicin if high risk • See febrile neutropenia guidelines for more details
Sickle cell disease with fever		S. pneumoniae, H. influenzae, N. meningitidis, Salmonella	Ceftriaxone 75 mg/kg/day ÷ q24h	• 100 mg/kg/day ÷ q 12-24h if septic • Add vancomycin if seriously ill • See SCD with fever guidelines for more details

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
CARDIOVASCULAR INFECTIONS			
Endocarditis	Viridians streptococci, S. aureus, HACEK group	Ceftriaxone 100 mg/kg/ day ÷ q12-24h + Vancomycin 40 mg/kg/ day IV ÷ q6h	Adjust therapy according to c/s
Myocarditis	Mostly viral (Enteroviruses, adenovirus, Parvovirus B19, CMV, EBV, HCV, HHV-6, HIV, SARS-CoV-2)	Supportive	• IVIG for severe myocarditis • Steroid for systemic myocarditis (e.g., MIS-C) refractory to IVIG • Pleconaril is an investigational drug for enteroviral myocarditis
Purulent pericarditis	S. aureus, Gr A strep, pneumococcus, meningococcus, Hib (if unvaccinated)	Ceftriaxone75 mg/kg/day ÷ q24h + Vancomycin 40 mg/kg/ day IV ÷ q6h	• Adjust therapy according to c/s • Pericardiocentesis is essential to establish diagnosis • Surgical drainage of pus with pericardial window or pericardiectomy is required
MISCELLANEOUS SYSTEMIC INFECTIONS			
Typhoid fever	S. typhi	Ceftriaxone75 mg/kg/day ÷ q24h	• Azithromycin 20 mg/kg OD for 5 days • Cefotaxime, Cefixime • Narrow therapy according to c/s: Ampicillin or TMP/SMX if susceptible • Duration: 7-10 days
Tuberculosis	Mycobacterium tuberculosis	See M. tuberculosis in page	
Kawasaki disease		No antibiotics	IVIG 2 g/kg for 1-2 doses, Aspirin ± steroids

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
MISCELLANEOUS SYSTEMIC INFECTIONS (continued)			
Brucellosis	B. melitensis, B. abortus	◆ ***Uncomplicated*** - Children ≥ 8yr: Doxycycline 4.4 mg/kg (max 200 mg)/day PO ÷ q12h + Rifampicin 15–20 mg/ kg/day PO ÷ q12h - Children < 8 yr: TMP/SMX 10 mg (TMP)/kg/day PO ÷ q12h + Rifampicin15–20 mg/ kg/day PO ÷ q12h ◆ ***Complicated*** • Osteomyelitis: Same Abx for uncomplicated • Endocarditis or Neurobrucellosis: - Children ≥ 8yr: Doxycycline + TMP/ SMX + Rifampicin - Children < 8 yr: TMP/SMX + Rifampicin + Ciprofloxacin	• Hospitalized patients: add gentamicin for 5-7days • Usual duration: 6 weeks • Add Streptomycin or Gentamicin for the first 2 weeks Duration: 3-6 months • Consider Ceftriaxone for meningitis for the first 2-4 weeks Duration: 4-12 months

SYSTEM		SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
CENTRAL NERVOUS SYSTEM				
Meningitis	Neonate	GBS, enteric GNR (e.g., E. coli, Klebsiella), Listeria	Ampicillin + Cefotaxime	• Adjust therapy according to c/s e.g. Ampicillin ± Gentamicin for GBS, Listeria, or enterococcus.
	1-3 months	Includes organisms seen in neonates or older children	Ampicillin 300 mg/kg/day IV ÷ q6h + Cefotaxime 200 -300 mg/kg/day IV ÷ q6-8h	• Cefotaxime + Vancomycin if S. Pneumoniae is highly suspected
	Older children	S. pneumoniae, N. meningitidis, H. influenzae (if unvaccinated < 4 yr)	Ceftriaxone 100 mg/kg/ day ÷ q12-24h	• Add Vancomycin if S. Pneumoniae is suspected (See page 58 for more details)
Meningitis post basal skull fracture		S. pneumonia, H. influenzae, grp A Strep	Ceftriaxone 100 mg/kg/ day ÷ q12-24h + Vancomycin 60 mg/kg/ day IV ÷ q6h	
post penetrating head trauma		Staph. Aureus, CoNS, GNB	Vancomycin 60 mg/kg/ day IV ÷ q6h + Cefepime 150 mg/kg/ day IV ÷ q8h	Vancomycin + Ceftazidime
Meningitis post neurosurgery		GNB, CoNS, Staph. aureus	Vancomycin 60 mg/kg/ day IV ÷ q6h + Cefepime 150 mg/kg/ day IV ÷ q8h	Vancomycin + Ceftazidime
VP shunt infection		CoNS, S. aureus, GNR	Vancomycin 60 mg/kg/ day IV ÷ q6h + Ceftriaxone 100 mg/kg/ day ÷ q12-24h	Vancomycin + Cefepime
Ventriculitis (Usually complicates meningitis, brain abscess or neurosurgery)		Any of the above causes of meningitis	Vancomycin 60 mg/kg/ day IV ÷ q6h + Cefepime 150 mg/kg/ day IV ÷ q8h	• Adjust therapy according to CSF c/s • Continue Abx until no more evidence of ventriculitis • The usual duration is 6-8 weeks

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
CENTRAL NERVOUS SYSTEM (continued)			
Brain Abscess	Streptococci (60-70%), Bacteroides spp. (20-40), GNR (25-33%), S. aureus (10-15%, more likely if endocarditis, or post-op or trauma)	Ceftriaxone 100 mg/kg/ day IV ÷ q12-24h + Vancomycin 60 mg/kg/ day IV ÷ q6h + Metronidazole 30 mg/kg /day IV ÷ q8h	• Use cefepime instead of ceftriaxone if secondary to chronic otitis externa • Consider surgical drainage if there is evidence of mass effect • Repeat enhanced CT/MRI • The usual duration is 4-8 weeks (the shorter duration for drained abscesses)
Encephalitis	Herpes simplex virus	Acyclovir IV < 4 month: 60 mg/kg/day ≥ 4 month: 45 mg/kg/day	See page 50 for more details
GASTROINTESTINAL			
Diarrhea	- Viruses (rotavirus) are the most frequent causes - Salmonella spp - Shigella spp - Verotoxin-producing E. coli (including 0157:H7) - Campylobacter jejuni/coli - Yersinia enterocolitica - Toxin-producing C. difficile - E. histolytica	Empiric therapy is generally not indicated except for certain pathogens and selected situations: • ill looking child with features of colitis pending culture result: Ceftriaxone 50 mg/kg IV q24h • If antibiotics are indicated (see comments) in non-septic child: Azithromycin 10 mg/kg PO OD for 3 days	• Based on c/s, antibiotics indicated for: 1. Shigella dysenteriae & enteroinvasive E. coli 2. Salmonella in severe infections or at-risk patients including <3 months old or immunocompromised patients 3. Yersinia infections in presence of terminal ileitis or mesenteric adenitis. 4. severe Campylobacter infections 5. Toxin-producing C. difficile. 6. Enteric infection with sepsis. • Antibiotics are NOT indicated for: Verotoxin-producing E. coli, uncomplicated Yersinia, Salmonella, or Campylobacter infections

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
GASTROINTESTINAL (continued)			
Traveler's diarrhea	E coli, Campylobacter, Salmonella, Shigella, Giardia	• Mild diarrhea: Antibiotis are not recommended • Moderate-severe: Azithromycin 10 mg/kg PO OD for 1-3 days	Ciprofloxacin 30 mg/kg/day PO ÷ q12h for 3 days
Necrotizing enterocolitis	GNR, anaerobes, CoNS	Ampicillin + Gentamicin ± Metronidazole	• Metronidazole for perforation, peritonitis and/or rapidly advancing sepsis • Consider Piperacillin/Tazobactam ± Gentamicin if resistant GNR • See pages 56-58 for neonatal dosage
Primary peritonitis	S. pneumonia, group A streptococcus, E. coli	Ceftriaxone 50 mg/kg IV q24h	e.g., in nephotic syndrome, cirrhosis
Secondary peritonitis e.g., Perforated appendix	Enteric GNR, anaerobes	Gentamicin 6-7.5 mg/kg IV q24h + Metronidazole 50 mg/kg IV ÷ q8h +/- Ampicillin 150 mg/kg IV ÷ q6h	• Source control • Pip/Tazo in septic patients • Duration: - 5 days for patients with adequate source control - 7–10 days or longer if suspicion of persisting intra-abdominal abscess
Peritonitis in peritoneal dialysis	Staphylococci, GNR, Yeast	Cefazolin + Gentamicin IP	• See page 86 for dosage • Vancomycin if MRSA suspected • Use IV Abx in septic patients
Perirectal abscess	Anaerobes, enteric bacilli, and *S aureus*	Clindamycin 40 mg/kg/ day IV ÷ q6h + Gentamicin 5 mg/kg IV q24h	Adjust therapy according to c/s

SYSTEM	SUSPECTED MICROBIAL AGENT	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
GENITOURINARY			
Urinary Tract infection			
Urinary Tract infection in < 3 months of age	E. coli, Klebsiella spp., GBS, P. mirabilis, Enterococcus spp	Ampicillin 150 mg/kg IV ÷ q6h + Gentamicin 5 mg/kg IV q24h	• Adjust therapy according to C/S • Duration: 7-10 days • If bacteremia documented, rule out meningitis and treat for 14 days
Urinary Tract infection in ≥ 3 months of age	E. coli, Klebsiella spp., P. mirabilis, P. aeruginosa, Enterococcus spp	• Cystitis: Cephalexin 50–75 mg/kg/day PO ÷ q8h for 3-5 days • Pyelonephritis: Gentamicin 5 mg/kg IV q24h for 7-10 days	• Adjust therapy according to C/S: - Amoxicillin, Amox/Clav, or TMP/SMX if susceptible - Cefixime or Ciprofloxacin if resistant to other agents - Gentamicin 5 mg/kg IV/IM q24h (OPAT) if resistant to oral agents • Adjust therapy according to C/S Switch to oral therapy or OPAT (if not susceptible to oral agents) following clinical improvement
Renal abscess			
Renal abscess	Hematogenous: S. aureus Secondary to UTI: E. coli, Klebsiella, Proteus, , Enterococcus spp	Ceftriaxone 50-75 mg/kg IV q24h + Vancomycin 40 mg/kg/ day IV ÷ q6h	• Adjust therapy according to C/S • Drainage if not responding or evidence of obstruction • Switch to oral therapy following clinical improvement • The usual duration is 21 days

Amox/Clav : Amoxicillin/Clavulanate ; C. trachomatis : Chlamydia trachomatis; C. pneumoniae : Chlamydophila pneumoniae; C. difficile : Clostridium difficile; CoNS : Coagulase-negative staphylococci; Gr A strep : Group A streptococci; GBS : Group B streptococci; GNR : Gram-negative rods; E. Coli : Escherichia coli; ESBL : Extended spectrum beta-lactamase; H. influenzae : Haemophilus influenzae; M. pneumoniae **:** Mycoplasma pneumoniae **;** N. meningitides : Neisseria meningitides; P. aeruginosa : Pseudomonas aeruginosa; P. mirabilis : Proteus : mirabilis; S. aureus : Staphylococcus aureus; S. pneumoniae : Streptococcus pneumoniae; S. typhi : Salmonella typhi; TMP/SMX: Trimethoprim/Sulfamethoxazole

RECOMMENDED TARGETED THERAPY FOR SPECIFIC BACTERIAL INFECTIONS

(See pages 53-69 for dosage)

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Acinetobacter baumannii	• Cefepime	• Meropenem if resistance to Cefepime is anticipated • Narrow spectrum according to c/s • Polymyxin E if resistant to all other antibiotics • Consider combination therapy for lifethreatening Infection • Consult ID if MDRO
Aggregatibacter (Actinobacillus) actinomycetemcomitans	Ampicillin	• Add gentamicin if endocarditis • Ceftriaxone if beta-lactamase-positive strains are suspected
Aggregatibacter (Haemophilus) aphrophilus	Ceftriaxone	Ampicillin (if susceptible)
Actinomyces israelii and other spp. (Actinomycosis)	Penicillin G	• Ampicillin IV until improvement, then switch to Amoxicillin PO • Surgerical debridement as indicated • Penicillin allergy : Doxycycline, Clindamycin • Total duration: 6-12 months
Aeromonas spp.	• Diarrhea- - Mild: no treatment, - Mod-Severe: TMP/SMX • Skin infection: TMP/SMX • Sepsis: Cefepime ± Gentamicin	• Ciprofloxacin if TMP/SMX resistant • Cefepime if TMP/SMX resistant • Meropenem if Cefepime resistant
Bacillus anthracis (Anthrax)	Ciprofloxacin	30 mg/kg/day PO ÷ q12h Doxycycline; Penicillin G (if susceptible)

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Bacillus cereus **Bacillus subtilis**	Vancomycin	Clindamycin
Bacteroides fragilis	Metronidazole	Clindamycin (if susceptible), Pip/Tazo, Meropenem
Bacteroides, other spp.	Clindamycin	Penicillin G, Metronidazole
Bartonella bacilliformis (Bartonellosis)	Doxycycline	Chloramphenicol Macrolides
Bartonella henselae (Cat-scratch disease)	• Painful adenitis: Needle aspiration • Invasive CSD: Doxycycline + Rifampicin	• Avoid I & D and excision • Azithromycin 12 mg/kg/day for 5 days may shortens adenopathy duration • Gentamicin, TMP/SMX & Rifampicin
Bartonella quintana (Bacillary angiomatosis)	• Mild-mod.: Macrolide • Severe: Doxycycline + Rifampicin	
BCG related infections	• BCGitis + BCG adenitis: supportive • BCGosis (Disseminated BCGitis): INH+ Rifampicin + Ethambutol + Moxifloxacin	
Bordetella pertussis (pertussis)	Azithromycin 10 mg/kg IV first day, then 5 mg/kg OD for 4 days	Clarithromycin, Erythromycin TMP/SMX
Borrelia spp. (Relapsing fever, Lyme dis.)	Doxycycline	Penicillin G; Ceftriaxone
Brucella spp.	See Brucellosis treatment in page 14	
Burkholderia cepacia	Ceftazidime, TMP/SMX, Doxycycline If MDRO : Meropenem + TMP/SMX	
Burkholderia pseudomallei (Melioidosis)	Meropenem for 10-14 days followed by TMP/SMX for 3-6 months	IV Ceftazidime PO Doxycycline
Campylobacter fetus	• Meropenem	• Causing sepsis and meningitis in neonates • Switch to Ampicillin if susceptible • Gentamicin, Erythromycin, Ciprofloxacin

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Campylobacter jejuni and coli	• Mild gastroenteritis (GE): No antibiotics • Moderate to severe GE : Azithromycin	• Rehydration is the mainstay of treatment • Erythromycin, Doxycycline, Ciprofloxacin
Capnocytophaga spp.	Amox/Clav	Clindamycin, Ciprofloxacin, Meropenem
Chlamydia trachomatis	Azithromycin	• Erythromycin • Inclusion conjunctivitis of newborn, pneumonia of infants, trachoma
Chlamydophila pneumoniae	Azithromycin	Erythromycin, Doxycycline, Ciprofloxacin
Chlamydophila psittaci (Psittacosis)	Doxycycline	Azithromycin, Clarithromycin, Levofloxacin
Chromobacterium violaceum	TMP/SMX + Ciprofloxacin IV for 2-3 weeks, followed after improvement by TMP/SMX PO for 1-3 months	• Chloramphenicol + Gentamicin, Meropenem • Doxycycline PO • Avoid Erythromycin even if susceptible • R/O CGD, Relapse is common
Citrobacter spp.	• Sepsis, Meningitis : Meropenem • Milder infections : Cefepime	Pip/Tazo, Ciprofloxacin, Ceftriaxone + Gentamicin
Clostridium botulinum	• Infant botulism : Human botulism immune globulin for infants (BabyBIG) • Wound or foodborne botulism : Equine-derived heptavalent botulinum antitoxin • No antibiotic treatment	• Meticulous supportive care • Active against botulinum toxin A & B • Active against all botulinum toxins (A-G) • Do not use antibiotics, especially aminoglycosides
Clostridioides difficile	***First episode & First recurrence:*** • Mild to moderate : Metronidazole • Severe : Vancomycin PO • Severe & complicated : Vancomycin PO+ Metronidazole IV ***Second recurrence:*** Pulsed or prolonged Vancomycin PO	• Duration : 10 days • Fidaxomicin for children ≥ 6 months of age if available • Add Vancomycin 500 mg/100 mL NS enema if ilues or toxic colitis • 1 wk on/1 wk off for 3–4 cycles

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Clostridium perfringens & other spp.	• Food poisoning : Antibiotics are not indicated • Myonecrosis (Gas Gangrene)/necrotizing • Fasciitis/sepsis: Penicillin G 250 mg/kg/day IV ÷ q6h + Clindamycin 40 mg/kg/day IV ÷ q6h + Surgery	• Supportive care • Clindamycin, metronidazole • Supportive care and complete surgical excision of necrotic tissue and removal of foreign material are essential • Hyperbaric oxygen may be beneficial
Clostridium tetani	Human tetanus immune globulin (TIG) 500–6,000 U IM, with part injected into the wound + Metronidazole 30 mg/kg/day IV ÷ q8h for 10-14 days	• Wound care • IVIG 200–400 mg/kg if TIG not available • Penicillin G • Tentanus prophylaxis: - None: if received ≥ 3 doses of tetanus toxoid (TT) & last dose given < 5 yrs - TT: if < 3 doses and clean minor wounds, ≥ 3 doses & last dose given > 10 yrs in clean minor wounds or > 5 yrs in other wounds - TT & TIG (250 U): if received < 3 doses and the wound is deep or direty
Corynebacterium diphtheriae	Diphtheria equine antitoxin + Erythromycin	• Tests for sensitivity before administration of antitoxin • Penicillin G
Corynebacterium jeikeium & C. minutissimum	Bacteremia, sepsis, endocarditis: Vancomycin	Penicillin G + Gentamicin, Linezolid
Coxiella burnetii (Q fever)	• Acute infection: doxycycline (all ages) • Chronic infection: TMP/SMX + Doxycycline	• TMP/SMX • Levofloxacin + Rifampin
Ehrlichia chaffeensis, E. muris, E. ewingii (Ehrlichiosis)	Doxycycline	• Rifampicin • Duration: 7-14 days, and afebrile for ≥3 days
Eikenella corrodens	• Human bite wounds: Amox/clav • Meningitis, Endocarditis: Ceftriaxone	• Penicillin, TMP/SMX • Ciprofloxacin

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Elizabethkingia meningoseptica	Levofloxacin	• TMP/SMX • Meningitis: Vancomycin + Rifampicin
Enterobacter spp.	• Sepsis, meningitis: Meropenem • Other infections: Cefepime	Ceftriaxone AND Gentamicin
Enterococcus spp.	• Ampicillin susceptible: Ampicillin ± Gentamicin • Ampicillin resistant: Vancomycin ± Gentamicin • VRE: - Sepsis, Endocarditis: Daptomycin - Other infections: Linezolid	• Add Gentmicin in invasive infections if sensitive in synergy test • If Gentamicin resistant: use Streptomycin or other aminoglycoside if susceptible
Escherichia coli	• UTI: - Non-ESBLs: Cephlexin • ESBLs: Gentamicin if susceptible • Diarrhea: Antibiotics not recommended except in Enteroinvasive or Entertoxigenic (Travellers diarrhea): Azithromycin • Invasive infections: - Non-ESBLs: Ceftriaxone or Cefotaxime - ESBLs: Meropenem - CRE: Colistin	• Ampicillin or TMP/SMX if susceptible • Amikacin (if Gent resistant) • Nitrofurantoin in Cystitis only • TMP/SMX (if susceptible), Cefixime • Ceftazidime/avibactam (if susceptible) • Consult ID
Francisella tularensis (Tularemia)	Gentamicin	• Doxycycline, Ciprofloxacin • Clinical failure with 3rd generation Cephalosporins
Fusobacterium spp. (Soft tissue infection, Lemierre syndrome, sepsis)	• Mild infections: Clindamycin • Severe infections: Ceftriaxone + Clindamycin	• TMP/SMX • Metronidazole • Pip/Tazo • Intrinsically resistant to gentamicin, Quinolones, and Macrolides

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Haemophilus influenzae	• Non-invasive infections: - β-lactamase negative: Amoxicillin PO - β-lactamase positive: Amox/Clav PO • Invasive infections: - β-lactamase negative: Ampicillin IV - β-lactamase positive: Ceftriaxone or Cefotaxime	• Penicillin allergy: Azithromycin or Levofloxacin • Cefuroxime PO • Invasive Hib infection: Consider Rifampicin prophylaxis if unimmunized household contact < 4 years of age
Helicobacter pylori (Peptic ulcer)	Clarithromycin + Amoxicillin + PPI	Add Metronidazole for suspected resistance to Clarithromycin
Kingella kingae (Skeletal infection, Endocarditis)	• Empirical therapy: Cefazolin or Cefuroxime • Penicillin susceptible: Penicillin G or Ampicillin	• Ceftriaxone in invasive infections • Penicillin allergy: Ciprofloxacillin Usually resistant to Cloxacillin, Clindamycin and Vancomycin
Klebsiella spp.	• UTI: - Non-ESBL: Cephalexin (if susceptible) - ESBL: Cystitis- TMP/SMX (if susceptible) Pyelonephritis- Gentamicin • Pneumonia, Sepsis, Meningitis: - Non-ESBL: Ceftriaxone - ESBL: Meropenem - Carpabenem resistant:: Ceftazidime/Avibactam (if susceptible)	- Cefuroxime, Cefixime - Nitrofurantoin (if susceptible), Ciprofloxacin - Amikacin (if Gentamicin resistant) - Add Aztreonam if novel metallo β lactamase (NDM) is suspected • Consult ID
Legionella spp. (Legionnaires disease)	Azithromycin	Levofloxacin, Clarithromycin, TMP/SMX, Doxycycline
Leptospira spp. (Leptospirosis)	• Mild disease: Doxycycline PO Severe disease: Penicillin G IV	• Amoxicillin, Azithromycin • Ceftriaxone IV
Listeria monocytogenes	Ampicillin ± Gentamicin (if severe infection or meningitis)	Ampicillin + (TMP/SMX or Linezolid, or levofloxacin)
Moraxella catarrhalis	Amox/clav	Cefuroxime, Ceftriaxone, Azithromycin
Morganella morganii	Cefepime	Meropenem (If ESBL-producer)

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Mycobacterium avium complex	• Cervical adenitis: Surgical excision alone is curative in most cases • Pneumonia: Clarithromycin or Azithromycin + Rifampin + Ethambutol	Add Amikacin in disseminated disease
Mycobacterium bovis	Isoniazid + Rifampicin + Ethambutol	Add Streptomycin in severe diseases
Mycobacterium Tuberculosis	• Latent TB infection: See page 54 • TB disease: INH + Rifampicin + Pyrazinamide + Ethambutol	• INH + Rifampicin + Pyrazinamide if index case is pansensitive • MDR-TB: consult ID
Mycoplasma hominis	Doxycycline	Moxifloxacin
Mycoplasma pneumoniae	Azithromycin	Erythromycin ; Clarithromycin, Doxycycline, Levofloxacin
Neisseria gonorrhoeae	Ceftriaxone + Azithromycin	Ceftriaxone + Doxycycline
Neisseria meningitides	Ceftriaxone	Penicillin G if susceptible
Nocardia asteroides or brasiliensis	• Non-invasive disease: TMP/SMX • Invasive disease: Meropenem + TMP/SMX	• Levofloxacin, linezolid Duration : 6-12 weeks • Meropenem + Amikacin Duration : 6-12 months
Pasteurella multocida	Penicillin G	Ampicillin; ; Amoxicillin; Amox/clav; TMP/SMX
Peptostreptococcus	Penicillin G	Clindamycin
Prevotella (formerly Bacteroides) spp.	• Respiratory: Clindamycin • GI/GU: Metronidazole	Clindamycin
Propionibacterium acnes	Penicillin G	Vancomycin; Ceftriaxone, doxycycline, clindamycin
Proteus mirabilis	• Mild infection (e.g., UTI): Amox/clav if susceptible • Severe infection (sepsis, meningitis): Meropenem (if ESBL producing strain is suspected)	• TMP/SMX; Ciprofloxacin • Ceftriaxone if susceptible

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Proteus vulgaris, other spp.	• Mild infection (e.g., UTI): Gentamicin • Severe infection (sepsis, meningitis): Meropenem	• AmpC (± ESBL) producer • Cefepime • Colistin resistant
Providencia spp.	Cefepime	• Meropenem • Colistin and Tigecycline resistant
Pseudomonas aeruginosa	• UTI: - cystitis- Ciprofloxacin PO - Pyelonephritis: Gentamicin • Severe infections: Cefepime ± Gentamicin*	* Combination therapy if septic shock or MDR strains
Rickettsia (Rocky Mountain spotted fever, Q fever, typhus, rickettsialpox)	Doxycycline	
Salmonella, non-typhi	• Diarrhea: Abx not required except in high risk patients* • Severe or invasive diseases: Ceftriaxone	• Azithromycin, Cefixime, Ciprofloxacin, TMP/SMX or Ampicillin • * immunocompromised; < 3 months; focal infection or bacteremia
Salmonella typhi	Ceftriaxone	Azithromycin, Cefixime, Ciprofloxacin, TMP/SMX or Amoxicillin if susceptible
Serratia marcescens	• Uncomplicated UTI: TMP/SMX • Severe infections : Cefepime	• Ciprofloxacin, Gentamicin • Meropenem if ESBL
Shigella spp.	Ceftriaxone	Azithromycin; Cefixime ; Ciprofloxacin; TMP/SMX

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Staphylococcus aureus	**MSSA:** • Mild-Moderate: Cephalexin PO • Severe: Cefazolin (Excluding CNS infections) • Endocarditis: Cloxacillin ± Gentamicin or Rifampicin • Necrotizing fasciitis: Cloxacillin + Clindamycin **MRSA:** • Mild-Moderate: Clindamycin • Severe: Vancomycin (if MIC ≤ 1 mg/l) • Endocarditis: Vancomycin (if MIC ≤ 1 mg/l) ± Gentamicin or Rifampicin • Necrotizing fasciitis and/or TSS: Vancomycin + Clindamycin	• I & D alone for small skin abscesses • Cloxacillin IV • Also in Toxic shock syndrome • TMP/SMX • Linezolid; Clindamycin (if susceptible) • Daptomycin (if Vancomycin MIC > 1 mg/l) • DO NOT use Daptomycin for • pneumonia (inactivated by surfactant)
Coagulase negative Staphylococci (CoNS)	Vancomycin	• Linezolid; Clindamycin (if susceptible) • Daptomycin if Endocarditis & Vancomycin MIC ≥ 2 mg/l
Stenotrophomonas maltophilia	TMP/SMX	Levofloxacin
Streptococcus, group A	• Mild-Moderate: Penicillin V PO • Severe: Penicillin G IV • Necrotizing fasciitis and/or TSS: Penicillin G + Clindamycin IV	Amoxicillin
Streptococcus, group B	Penicillin G ± Gentamicin IV	Gentamicin for the first few days in severe infections
Streptococcus, milleri/ anginosus group	Mild-Moderate: Penicillin G Severe: Penicillin G + Gentamicin IV	
Streptococcus pneumoniae	• Mild-Moderate: (Sinusitis, otitis, CAP): Amoxicillin PO, high-dose • Severe: (severe CAP, skeletal, sepsis, meningitis): Ceftriaxone	• (90 mg/kg/day div bid for URTI & tds for CAP) • Switch to Penicillin G if susceptible

ORGANISM	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Viridians streptococci (S. sanguinis, S. oralis [mitis], S. salivarius, S. mutans, S. morbillorum)	Penicillin G ± Gentamicin IV	Ceftriaxone; Vancomycin
Treponema pallidum (Syphilis)	Penicillin G IV	
Ureaplasma urealyticum	Azithromycin	
Vibrio cholera (Cholera)	Azithromycin	Doxycycline; Ciprofloxacin (if susceptible)
Vibrio vulnificus	Ceftriaxone + Doxycycline	• Ceftriaxone + Ciprofloxacin • Prompt surgical débridement
Yersinia enterocolitica	Mild: no Abx Moderate: TMP/SMX Severe: Ceftriaxone	Ciprofloxacin
Yersinia pestis (Plague)	Gentamicin	Streptomycin; Doxycycline; Levofloxacin, ciprofloxacin
Yersinia pseudotuberculosis	TMP/SMX	Ciprofloxacin; Ceftriaxone, Gentamicin, Doxycycline

RECOMMENDED ANTIVIRAL THERAPY FOR SPECIFIC VIRAL INFECTIONS

VIRUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Adenovirus	No antiviral therapy for immunocompetant patients.	Severe immunosuppression: consult ID; IV Ribavirin & Cidofovir are active in vitro
Cytomegalovirus (CMV): ▪ Normal host ▪ Congenital CMV ▪ Imunocompromised	• Supportaive (No antivirals) • Valganciclovir for moderately and severely symptomatic • Ganciclovir	• Consult ID • Foscarnet, Cidofovir for Ganciclovir resistant strains
COVID-19 (SARS-CoV-2) ▪ Acute COVID-19 infection ▪ Cytokine Storm Syndrome (CSS) OR Multisystem Inflammatory Syndrome in Children (MIS-C)	• Mild-Moderate: supportive • Severe/critical: Remdesivir + Corticosteroids • IVIG 2 g/kg + Methylprednisolone bolus of 15 to 30 mg/kg/d daily for 3 days	• Remdesivir dose: <40 kg: 5 mg/kg IV load, then 2.5 mg/kg q24h; ≥40kg: 200 mg IV load, then100 mg IV q24h. • Duration: 5 days in moderate cases and 10 days in severe/critical cases • IVIG 2 g/kg + methylprednisolone at 0.8 to 1 mg/kg every 12 hours (maximum of 30 mg for 12 hours) for 5 days (See KSMC pediatric COVID-19 guidelines)
Epstein-barr virus (EBV): ▪ Normal host ▪ Imunocompromised host	• No Rx • Ganciclovir	• Decrease immunosuppressive therapy
Enterovirus	• Supportive • No currently available antiviral therapy • Consider IVIG for invasive neonatal diseases and infections in immunocompromised hosts	• Pleconaril and Pocapavir PO are currently under investigation for invasive neonatal diseases and infections in immunocompromised hosts

VIRUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Hemorrhagic fevers virus infections: ▪ Lassa fever, Congo-Crimean, Hemorrhagic fever with renal syndrome ▪ Rift Valley fever, Dengue and dengue hemorrhagic fever, Ebola/Marburg HF, West Nile virus, Yellow fever	• Ribavirin • Supportive therapy	• Supportive therapy • Ribavirin increases incidence of encephalitis in Rift Valley fever
Hepatitis A	No therapy recommended	
Hepatitis B	• Acute: No therapy • Chronic INF-α 2b OR Entecavir	• Indications for treatment of chronic HBV: 1. evidence of ongoing HBV viral replication, as indicated by serum HBV DNA (≥ 20,000 without HBeAg positivity or ≥2,000 IU/mL with HBeAg positivity) for >6 month and persistent elevation of serum transaminase levels for >6 month 2. evidence of chronic hepatitis on liver biopsy • Refer to gastroenterology
Hepatitis C	• Genotype 1,4, 5 or 6: Ledipasvir /Sofosbuvir • Genotype 2 or 3: Sofosbuvir plus Ribavirin	• Treatment is recommended for all children >3 yr of age with chronic HCV infection • Refer to gastroenterology
Herpes simplex virus: ▪ **Gingivostomatitis in normal host** ▪ **Gingivostomatitis in immunocompromised pts** ▪ **Encephalitis** ▪ **Neonatal HSV**	• Rx usually not indicated • Acyclovir IV for 7-10 days • Acyclovir IV for 21 days or more • Acyclovir IV	• Po Acyclovir or valacyclovir for sevre infection • 60 mg/kg/day ÷ q 8h for < 4 months, and 45 mg/kg/day ÷ q8h for ≥ 4 month of age; Repeat CSF HSV-PCR at the end 3 wks, and continue if still positive • 60 mg/kg/day ÷ q8h for 14 days for SEM disease and 21 days for disseminated and/or CNS disease

VIRUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Human herpesvirus 6 (HHV-6) ▪ Normal host ▪ Imunocompromised host	• No Rx • Ganciclovir	
Human immunodeficiency virus (HIV)	• < 14 days of age: Zidovudine and Lamivudine PLUS either Nevirapine or Raltegravir • ≥ 14 days-1 month of age: Zidovudine and Lamivudine either Lopinavir/Ritonavir if postmenstrual age ≥ 42 wk and a postnatal age of at least 14 days) or Raltegravir • 1 month-6 yr: Abacavir and Lamivudine PLUS Dolutegravir or Raltegravir • > 6 yr & ≥ 25 kg: Elvitegravir, Cobicistat, Emtricitabine, and Tenofovir Alafenamide fixed combination tablet	(See page 55 for more details) • One tablet daily with food. Is Indicated in ART-naive patients or to replace the current ART regimen in patients who have been virologically suppressed (HIV RNA <50 copies/mL) on a stable ART regimen for at least 6 months with no treatment failure and no known mutations associated with resistance to any of the components
Influenza A & B	Oseltamivir	
Measles	No antiviral therapy	Vitamin A 200,000 IU if > 1 yr; 100,000 if 6-11 month, 50,000 if <6 month PO for 2 days
Parvovirus B19	No antiviral therapy	Consider IVIG for acute profound anemia in pts with hemoglobinopathy, or immunodeficiency

VIRUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Respiratory Syncytial virus (RSV)	No Rx	Ribavirin is active in vitro, but its clinical efficacy is doubtful, may be considered for immunocompromised pts
Rhinovirus (common cold)	No antiviral therapy	Symptomatic therapy
Varicella-Zoster virus (VZV): ▪ **Chickenpox or H. Zoster in normal host** ▪ **Chickenpox or disseminated H. Zoster in immunocompromised host** ▪ **Varicella encephalitis** ▪ **Post-Varicella cerebellar ataxia**	• Rx generally not indicated, Acyclovir PO or Valacyclovir for children with chronic cutaneous or pulmonary disease, on chronic Salicylate therapy, or > 12 yrs • V Acyclovir • IV Acyclovir • No Rx	- Acyclovir 80 mg/kg/day ÷ q 6h

RECOMMENDED ANTIFUNGAL THERAPY FOR SPECIFIC FUNGAL INFECTIONS

FUNGUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Aspergillosis:		
▪ **Allergic bronchopulmonary**	• Corticosteroids ± Itraconazole or Voriconazole	- Itraconazole or Voriconazole may be of benefit, can be considered for selected cases
▪ **Allergic fungal sinusitis**	• Surgical debridement + corticosteroids	- Antifungal (Itraconazole) for relapsed or invasive disease
▪ **Aspergilloma**	• Voriconazole	- Surgery if massive hemoptysis
▪ **Invasive pulmonary or extrapulmonary aspergillosis in immunocompromised pts**	• Voriconazole 18 mg/kg/day IV ÷ q12h for 1 day, then 16 mg/kg/day IV ÷ q12h	- Posaconazole or Isavuconazole - Liposomal Amphotericin B 3-5 mg/kg OD - Consult ID
Blastomycosis:		
▪ **Asymptomatic infection**	• No Rx	
▪ **Mild-Moderate infection**	• Itraconazole 5-10 mg/kg OD for 6 months	• Voriconazole instead of fluconazole • Consult ID
▪ **Severe infection**	• Liposomal Amphotericin B 3-5 mg/kg OD for 6 weeks, then Itraconazole 5-10 mg/kg OD to complete 6-12 month	
▪ **CNS infection**	• Liposomal Amphotericin B 5 mg/kg IV OD for 6 weeks, then Fluconazole 10-12 mg/kg OD to complete 6-12 months	
▪ **Bone infection**	• Liposomal Amphotericin B 3-5 mg/kg OD, then Itraconazole 5-10 mg/kg OD to complete 12 months	

FUNGUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Oral candidiasis (thrush): ▪ **Normal host** ▪ **Immunocompromised pts**	• Nystatin 200,000 u 3-4 x/day • Miconazole gel 25 mg 2-4 x/day • Clotrimazole • Fluconazole 6 mg/kg PO OD for 7-14 days	• Avoid in premature babies • More effective than Nystatin • Equivalent to Miconazole • Fluconazole 6 mg/kg (max 200 mg) single dose for refractory case • Fluconazole unresponsive: Fluconazole 10 mg/kg OD Amphotericin B 0.5 mg/kg IV OD
Candidal esophagitis in immunocompromised pts	Fluconazole 6-12 mg/kg PO OD for 14-21 days	• Fluconazole unresponsive: Voriconazole PO; Liposomal Amphotericin B
Cutaneous candidiasis (including paronychia)	Topical clotrimazole, Miconazole, econazole, or Nystatin	• 3-4x daily for 7-14 days
Chronic mucocutaneous candidiasis	Fluconazole 6 mg/kg OD for 3-9 months	• Consult ID
Asymptomatic candiduria	Treatment is NOT recommended in asymptomatic candiduria in normal host	• Consider treatment if high risk for dissemination: neutropenic low birth weight neonate (<1,500 g); or patients going for urologic manipulation • Remove urethral catheter
Candida Cystitis	Fluconazole 6 mg/kg PO OD for 7 days	• Amphotericin B bladder irrigation with 5 mg/100 ml sterile water tid for 5 days • Ampho B 0.5 mg/kg IV single dose • Remove urethral catheter
Candida pyelonephritis: ▪ C. albicans and other fluconazole responsive candida ▪ C. krusei, C. glabrata & other fluconazole resistant species	• Fluconazole 12 mg/kg OD IV for 2 wks • Amphotericin B 0.6 mg/kg IV for 2 wks	• If poor response, R/O renal fungus ball • If + fungus balls: Treat for 3 weeks; Consider nephrostomy tube and surgical removal of fungus ball if obstructing

FUNGUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Neonatal candidiasis	Liposomal Amphotericin B 5 mg/kg IV OD ± Flucytosine 100 mg/kg/day PO ÷ q6h	• Caspofungin • Fluconazole if susceptible
Bloodstream and/or systemic candidiasis	Caspofungin 70 mg/m² IV loading dose on day 1 (max dose 70 mg), followed by 50 mg/m² IV (max dose 70 mg) on subsequent days	• Anidulafungin • Liposomal Amphotericin B 3-5 mg/kg IV OD • Remove infected IV catheter or any devices • Switch to fluconazole once stable if susceptible • Duration: 2 wks after negative culture in non-disseminated infection, and until lesions resolve on repeated imaging in chronic disseminated candidiasis
CNS candidiasis	Liposomal Amphotericin B 5 mg/kg IV OD ± Flucytosine 100 mg/kg/day PO ÷ q6h	If clinically responding, can step-down to fluconazole 25 mg/kg/day loading dose, then 12 mg/kg/day
Coccidioidomycosis: • Uncomplicated primary pulmonary in normal host • Complicated disease or immunocompromised pts	• No antifungal Rx • Liposomal Amphotericin B 3-5 mg/kg IV OD for 4 wks, then Fluconazole (25 mg/kg/day loading dose, then 12 mg/kg/day)	• Treat if not resolved within several weeks to 2 months or complications • Total duration of antifungal therapy: 6-12 months; lifelong for meningitis • Refractory cases: Voriconazole; Posaconazole

FUNGUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Cryptococcosis: ▪ Non-meningeal	• Fluconazole (loading dose 25 mg/kg/day, then 12 mg/kg/day with max dose 400 mg) for 6–12 mo	• Voriconazole; Posaconazole; Isavuconazole
▪ Meningitis	• Liposomal Amphotericin B 5 mg/kg IV OD + Flucytosine 100 mg/kg/day PO ÷ q6h until afebrile & culture negative, Then Consolidation therapy with Fluconazole (loading dose 25 mg/kg/ day, then 12 mg/kg/day with max dose 400 mg) for a minimum of 8 wk, Then Maintenance Fluconazole therapy (6 mg/kg/day) for 6–12 mo	• Amphotericin B 1 mg/kg IV OD • Follow flucytosine levels • Fluconazole alone for selected pts • HIV+/AIDS: Initiate ART 2–10 wk after starting antifungals to avoid immune reconstitution inflammatory syndrome, and continue fluconazole maintenance therapy indefinitely • Relapse: restart induction therapy, and repeat CSF cultures every 2 wks until sterile (~ 4 to 10 wks) •
Fusariosis	Voriconazole 18 mg/kg/day IV ÷ q12h for 1 day, then 16 mg/kg/day IV ÷ q12h	• Posaconazole; Isavuconazole • Monitor Voriconazole trough serum concentrations
Histoplasmosis: ▪ **Minimal pulmonary disease in Immunocompetent child**	• No Rx	• Treat if not resolving within a month
▪ **Moderate pulmonary disease**	• Itraconazole PO 10 mg/kg/day ÷ q12h	• For 6-12 wks duration
▪ **Severe pulmonary disease**	• Liposomal Amphotericin B 3-5 mg/kg IV OD x 1-2 wk, then Itraconazole PO 10 mg/kg/day ÷ q12h	• Total duration: 12 wks • Consider steroids for 1-2 wk if respiratory distress, pericarditis or hemodynamic instability.
▪ **Progressive disseminated histoplasmosis**	• Liposomal Amphotericin B 5 mg/kg IV OD x 2 wk, followed by Itraconazole PO 10 mg/kg/day ÷ q12h	• Total duration: 12 month

FUNGUS/DISEASE	ANTIMICROBIAL OF CHOICE	ALTERNATIVE THERAPY OR COMMENTS
Mucormycosis	Liposomal Amphotericin B 5 mg/kg IV OD for 3-4 wks, then Posaconazole + Aggressive surgical debridement	• Control underlying illness • The usual duration is 2-6 month • CNS disease: Liposomal Amphotericin B 10 mg/kg IV OD for 4 wks, then Isavuconazole 10 mg/kg q8h on days 1 & 2 then OD
Onychomycosis (Tinea unguium)	Terbinafine PO 62.5 mg/day (<20 kg), 125 mg/day (20–40 kg), or 250 mg/day (>40 kg) for 6 wk (fingernails) or 12–16 wk (toenails)	• Itraconazole; Fluconazole PO • Topical therapy: adding to PO Ciclopirox olamine 8% nail lacquer solution; Amorolfine; Efinaconazole 10%; or Tavaborole 0.5% topical solution
Pneumocystis jiroveci Pneumonia (PJP)	TMP/SMX 15–20 mg TMP component/ kg/day IV div q8h for 3 wks	• Pentamidine isethionate 4 mg base/kg/day IV qd for 3 wks • TMP AND dapsone • Primaquine AND clindamycin • Atovaquone
Tinea capitis (ringworm)	Griseofulvin 15-20 mg/kg (max 1 g) PO OD for 6-8 wks	• Terbinafine 125 mg PO OD for 4–6 wk for *T. tonsurans*, and 8–12 wk for *M. canis* • Itraconazole 5 mg/kg PO OD for 4 wks • Fluconazole 6 mg/kg/day for 4-8 wks • Griseofulvin is superior for *Microsporum*, but Terbinafine is superior for *Trichophyton* • *S*elenium sulfide 2.5% shampoo, or ketoconazole 2% shampoo, 2–3 times weekly for spores to prevent recurrences • For kerion, treat concurrently with prednisone (1–2 mg/kg/day) for 1–2 wk
Tinea corporis, cruris, or pedis	Topical miconazole, clotrimazole, or Terbinafine twice a day for 4 wks	Griseofulvin, Terbinafine, Itraconazole, or Fluconazole are alternatives for extensive or unresponsive cases
Pityriasis (Tinea) versicolor	Topical selenium sulfide 2.5% daily for a week, then monthly for 6 months	Topical Ketoconazole 2% cream daily for 2 wks; Ketoconazole, Fluconazole, or Itraconazole PO for 3 days for extensive lesion

RECOMMENDED ANTIPARASITIC THERAPY FOR SPECIFIC PARASITIC INFECTIONS

PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Ascariasis	Albendazole	400 once	• Mebendazole 100 mg bid x 3 d or 500 mg once • Pyrantel pamoate 11 mg/kg once • Ivermectin 150–200 µg/kg, orally, once
Babesiosis	Atovaquone + Azithromycin	• 20 mg/kg (up to 750 mg) PO, bid for 7–10 days • See comment	• Clindamycin + Quinine • Azithromycin dose: 10 mg/kg (max 500 mg), PO on day 1; then 5 mg/ kg/day (max 250 mg), on subsequent days (mild to moderate disease) OR 10 mg/kg (up to 500 mg), IV, daily (severe disease) until symptoms abate
Cryptosporidiosis	Nitazoxanide	Age 1–3 y: 100 mg PO, bid for 3 days Age 4 to 11 y: 200 mg PO, bid for 3 days Age ≥12 y: 500 mg PO, bid for 3 days	• Paromomycin 25–35 mg/kg/day ÷ bid–qid OR • Azithromycin 10 mg/kg/day for 5 days OR • Paromomycin AND Azithromycin given as combination therapy
Cutaneous Larva Migrans	Albendazole	Age >2 y: 15 mg/kg/day (max 400 mg/day), orally, for 3 days (take with food)	- Children > 15 kg: Ivermectin 200 µg/kg daily × 1d
Cyclosporiasis	TMP/SMX	8–10 mg TMP/kg/day (max 1 DS tab bid) PO ÷ bid for 7–10 days	• Nitazoxanide for TMP/SMX allergy • Ciprofloxacin 30 mg/kg/day ÷ bid for 7 days
Echinococcus granulosus	Albendazole +/- Praziquantel	15 mg/kg/d (max. 800 mg) ÷ q 12h × 1–6 months	• Initiate 4–30 days before intervention • Intervention according to number, site, size, symptoms & risk of rupture • PAIR (percutaneous aspiration-injection-reaspiration) • Surgery for complicated cysts

PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Echinococcus multilocularis	Albendazole	10–15 mg/kg/day PO div bid (max 800 mg/day); duration uncertain (at least 2 y).	• Surgical treatment generally the treatment of choice • Albendazole should be administered after surgery to reduce relapse
Entamoeba histolytica ▪ ***Asymptomatic:***	Luminal amebicide: Paromomycin OR Iodoquinol OR Diloxanide furoate	 25–35 mg/kg/d in 3 doses ×7d 30–40 mg/kg/d (max. 2g) in 3 doses × 20d 20 g/kg/d ÷ Tid × 10d	• E. dispar is more frequent, non pathogenic with identical morphology (cysts, trophozoites). • Presence of hemophagocytic trophozoites, or a positive antigen test or PCR is diagnostic of E. histolytica
▪ **Severe intestinal OR extraintestinal disease:**	Metronidazole *PLUS* A luminal amebicide	35–50 mg/kg/d in 3 doses × 7-10d See above	Tinidazole 60 mg/kg/d in 3 doses (max. 2 g) x 3-5d
Enterobius vermicularis (pinworm)	Pyrantel pamoate	11 mg/kg base once (max. 1 gram); repeat in 2 wks	• Mebendazole 100 mg once; repeat in 2 wk • Albendazole- < 2 yr : 200 mg once; repeat in 2 wks; ≥ 2 yr: 400 mg once; repeat in 2 wks
Giardiasis Giardia intestinalis	- Metronidazole	15 mg/kg/day (max 250 mg/dose) PO div tid for 5–7 days	• Tinidazole 50 mg/kg once (max. 2 g) PO for 1 day (approved for age>3 y) • Nitazoxanide PO (take with food), age 1–3 y, 100 mg/dose bid for 3 days; age 4–11 y, 200 mg/dose bid for 3 days; age ≥12 y, 500 mg/dose bid for 3 days • Albendazole 10–15 mg/kg/day (max 400 mg/dose) PO for 5 days • Mebendazole 200 mg PO tid for 5 days • Paromomycin 30 mg/kg/day ÷ tid for 5–10 days • Furazolidone 8 mg/kg/day (max 100 mg/dose) in 4 doses for 7–10 days • Quinacrine (refractory cases) 6 mg/kg/day PO ÷ tid (max 100 mg/dose) for 5 days

PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Hookworm infection (Ancylostoma duodenale, Necator americanus)	Albendazole	≥2 y old: 400 mg once (repeat dose may be necessary)	• Mebendazole 100 mg bid × 3d or 500 mg once • Pyrantel pamoate 11 mg/kg (max. 1g) × 3d
Cutaneous Leishmaniasis (L. major, L. Tropica) ▪ Uncomplicated cutaneous	• Self limited • Observe for spontaneous healing		Combination of • Debridement of eschars • cryotherapy, thermotherapy • Intralesional pentavalent antimony • Topical paromomycin
▪ Complicated cutaneous	• Fluconazole	200 PO qd for 6 wk	• Miltefosine 2.5 mg/kg/day PO (max 150 mg/day) for 28 days • Sodium stibo-gluconate 20 mg Sb/kg/d IV or IM × 20 d • Pentamidine isethionate 2–4 mg/kg/day IV or IM qod for 4–7 doses • Liposomal Amphotericin B 3mg/kg IV OD on D1 to D5 and once at D10 or daily from D1 to D7
Visceral Leishmaniasis L. donovani (Kala-azar), L. infantum	Liposomal Amphotericin B	3 mg/kg IV OD from D1 to D5 and once at D14, D21 (21mg/kg total dose)	• Sodium stibogluconate 20 mg/kg/day IM or IV for 28 days • Miltefosine 2.5 mg/kg/day PO (max 150 mg/day) for 28 days
Lice infestation Pediculus humanus, P. capitis, Phthirus pubis	1% Permethrin (≥ 2 months of age)	Topically, leave it for 10 minutes then rinse. Repeat in 9-10 days.	• 0.5% Malathion topically (age ≥ 2 y) • Pyrethrins with piperonyl butoxide topically (age ≥ 2 y) • 0.5% Ivermectin lotion (age ≥ 6 month) • Oral Ivermectin (400 µg/kg if ≥15 kg, once) if persist infestation, and repeat 7-10 days later.

PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Lymphatic filariasis (elephantiasis) *Wuchereria bancrofti, Brugia malayi, Brugia timori*	Diethylcarbamazine (DEC) (≥ 18 months of age)	• 6 mg/kg/day, orally, in 3 divided doses for 12 consecutive days OR • 6 mg/kg as a single oral dose	• Treatment of Tropical Pulmonary Eosinophilia (TPE): DEC 6 mg/kg/day, orally, in 3 divided doses for 14–21 days
Malaria prophylaxix ▪ For areas with chloroquine-resistant malaria	Atovaquone/Proguanil	5–8 kg: 1/2 pediatric tab (62.5/25 mg); 9–10 kg: 3/4 pediatric tab; 11–20 kg: 1 pediatric tab (205/100 mg); 21–30 kg: 2 pediatric tab; 31–40 kg: 3 pediatric tab; >40 kg: 1 adult tab (205/100 mg); orally, once daily starting 1–2 days before travel and continuing 7 days after last exposure.	• Mefloquine: <5 kg: 5 mg/kg; ≥5–9 kg: 1/8 tab; ≥10–19 kg: 1/4 tab; ≥20–30 kg: 1/2 tab; ≥31–45 kg: 3/4 tab; ≥45 kg 1 tab PO once weekly starting 2 wk before arrival and continuing for 4 wk after leaving area. • Avoid mefloquine for persons with a history of seizures, psychosis, active depression, or cardiac conduction defects. • Doxycycline: 2 mg/kg (max 100 mg) PO once daily starting 1–2 days before arrival and continuing for 4 wk after leaving area.
▪ For areas with chloroquine-sensitive malaria	Chloroquine phosphate	5 mg base/kg (max 300 mg base) PO once weekly, starting 1 wk before arrival and continuing for 4 wk after leaving area	• Emphasize personal protective measures (insecticides, bed nets, clothing, and avoidance of mosquito exposures).

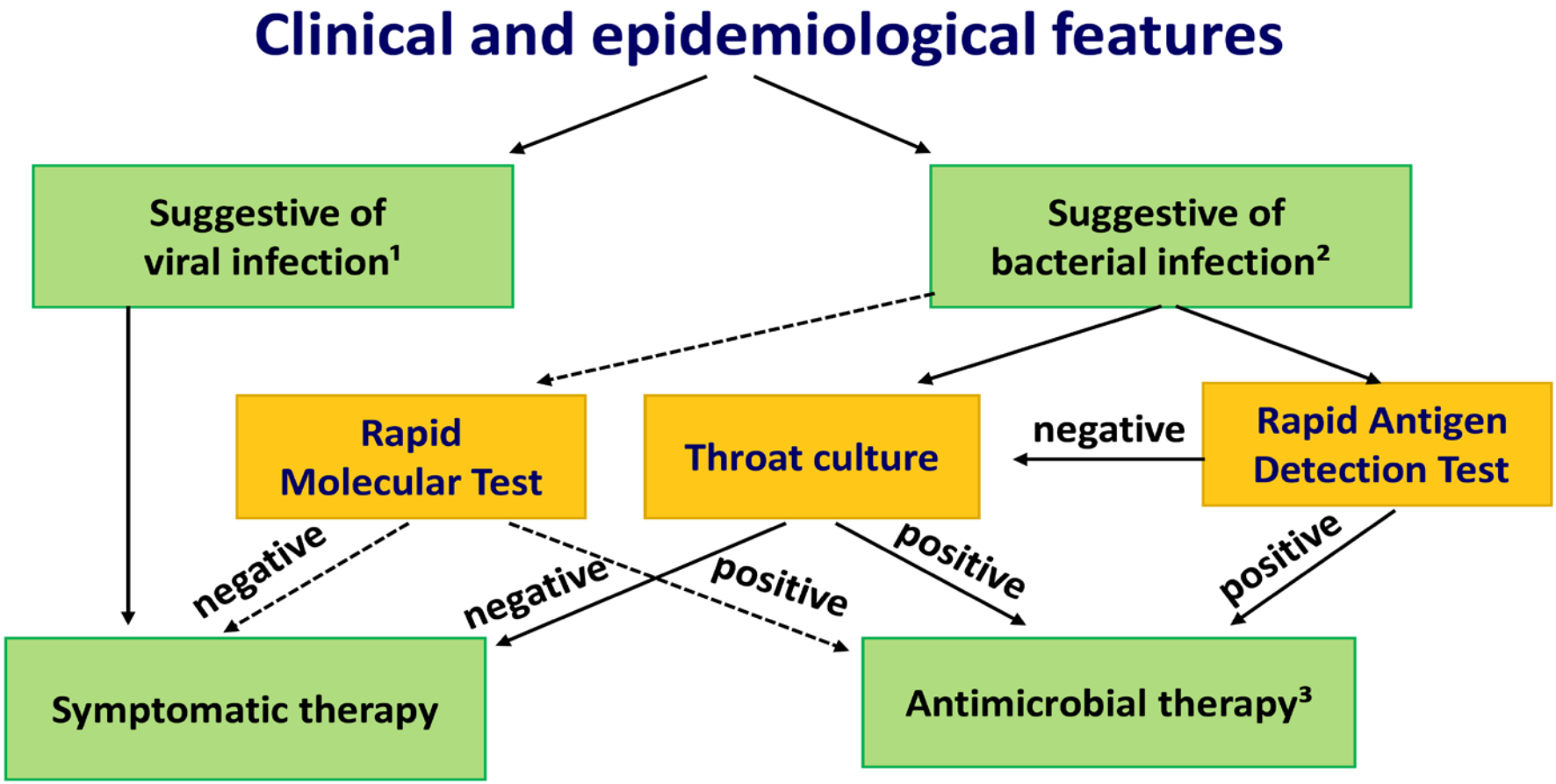
PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Malaria treatment: P. falciparum	• Non-severe malaria: Artemether/ Lumefantrine (20mg/120mg tab)	Weight <15 kg: 1 tab/ dose; 15–25 kg: 2 tabs/dose; 25–35 kg: 3 tabs/dose; >35 kg: 4 tabs/dose; 6 doses over 3 days at 0, 8, 24, 36, 48, and 60 h	• Quinine sulfate 25mg base (30 mg salt)/kg/day divided q 8h Po × 3–7 days **PLUS** Doxycycline 4.4 mg/kg/day divided q 12h × 7 days **OR** Clindamycin 30 mg/kg/day divided q 8h × 7 days • Atovaquone/Proguanil: 5–8 kg: 2 pedia tab (62.5/25 mg); 9–10 kg: 3 pedia tab; 11–20 kg: 1 adult tab (205/ 100 mg); 21–30 kg: 2 adult tab; 31–40 kg: 3 adult Tab; >40 kg: 4 adult tab OD for 3 d
	• Severe malaria: IV Artesunate **Then** PO Artemether/ Lumefantrine or Atovaquone/Proguanil	2.4 mg/kg/dose for 3 days at 0, 12, 24hr (total 3 doses) then reassess: after 24hr, if parasitemia >1% continue IV qday till parasitemia < 1% then shift to oral therapy	• Impaired consciousness, Clinically unwell, Persistent vomiting, Hypotension, and/or Parasitemia > 5% • Can start Rectal artemrther if no IV • DO NOT give IV artesunate for > 7days • Start oral therapy at least 4hr after the last dose of Artesunate
Other Plasmodium • **Chloroquine-sensitive P. vivax and P. ovale**	Chloroquine phosphate **PLUS** Primaquine phosphate	10 mg base/kg, then 5 mg base/kg 6, 24 and 48 hrs 0.5 mg base/kg/day × 14 days	• Hydroxychloroquine 10 mg base/kg PO, followed by 5 mg base/kg, orally, at 6, 24, and 48 h (Total dose: 25 mg base/kg) • Check G6PD level before primaquine start In mild-to-mod G6PD def, primaquine 0.75 mg base/kg given once a week for 8 wks. In severe G6PD deficiency, primaquine is contraindicated & should be avoided.
• **Chloroquine-resistant P. vivax and P. ovale** (Papua New Guinea and Indonesia)	Same like falciprum malaria **PLUS** Primaquine phosphate	0.5 mg base/kg/day × 14 d	• For relapses (primaquine-resistance), retreat with primaquine for 28 days.

PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Neurocysticercosis	• Albendazole **PLUS** (when > 2 intraparenchymal lesions) • Praziquantel	• 15 mg/kg/day (max 1200 mg/day) ÷ bid, PO for 8–30 days • 50 mg/ kg/day, orally, for 10–14 days	• Take Albendazole with food
Paragonimiasis (lung fluke)	Praziquantel	75 mg/kg/day PO divided into 3 doses, for 2 days	Triclabendazole 10 mg/kg, orally, once or twice
Scabies (Sarcoptes scabiei)	5% Permethrin cream	Applied to entire body (including scalp in infants), left on for 8–14 h then bath, and repeat in 1 wk	• Ivermectin 200 µg/kg PO once weekly for 2 doses • Sulfur (5%–10%) ointment apply overnight for 3 consecutive days • 10% Crotamiton applied topically overnight on days 1, 2, 3, and 8
Schistosomiasis	Praziquantel	40 mg/kg/day in 2 doses for one day (for S. haematobium, S. mansoni, and S. intercalatum) or 60 mg/kg/day in 3 doses for one day (for S. japonicum & S. mekongi)	- Re-treat with the same dose if eggs still present 6–12 wk after initial treatment.
Strongyloidiasis (Strongyloides stercoralis)	Ivermectin	200 µg/kg/day × 1–2 days	Albendazole 400 mg PO bid for 7 days (or longer for disseminated disease) is less effective
Tapeworms T. saginata, T. solium, Hymenolepis nana, Diphyllobothrium latum, Dipylidium caninum	Praziquantel	5–10 mg/kg PO once	Niclosamide 50 mg/kg (max 2 g), orally, once
Toxocariasis (Ocular Larva Migrans, Visceral Larva Migrans)	Albendazole ± Prednisone for Ocular Larva Migrans	- 400 mg bid PO ×5 days - 0.5–1 mg/kg/ day	• Mebendazole 100–200 mg PO bid × 5 days • Longer duration (2 wks) for sight-threatening Ocular Larva Migrans

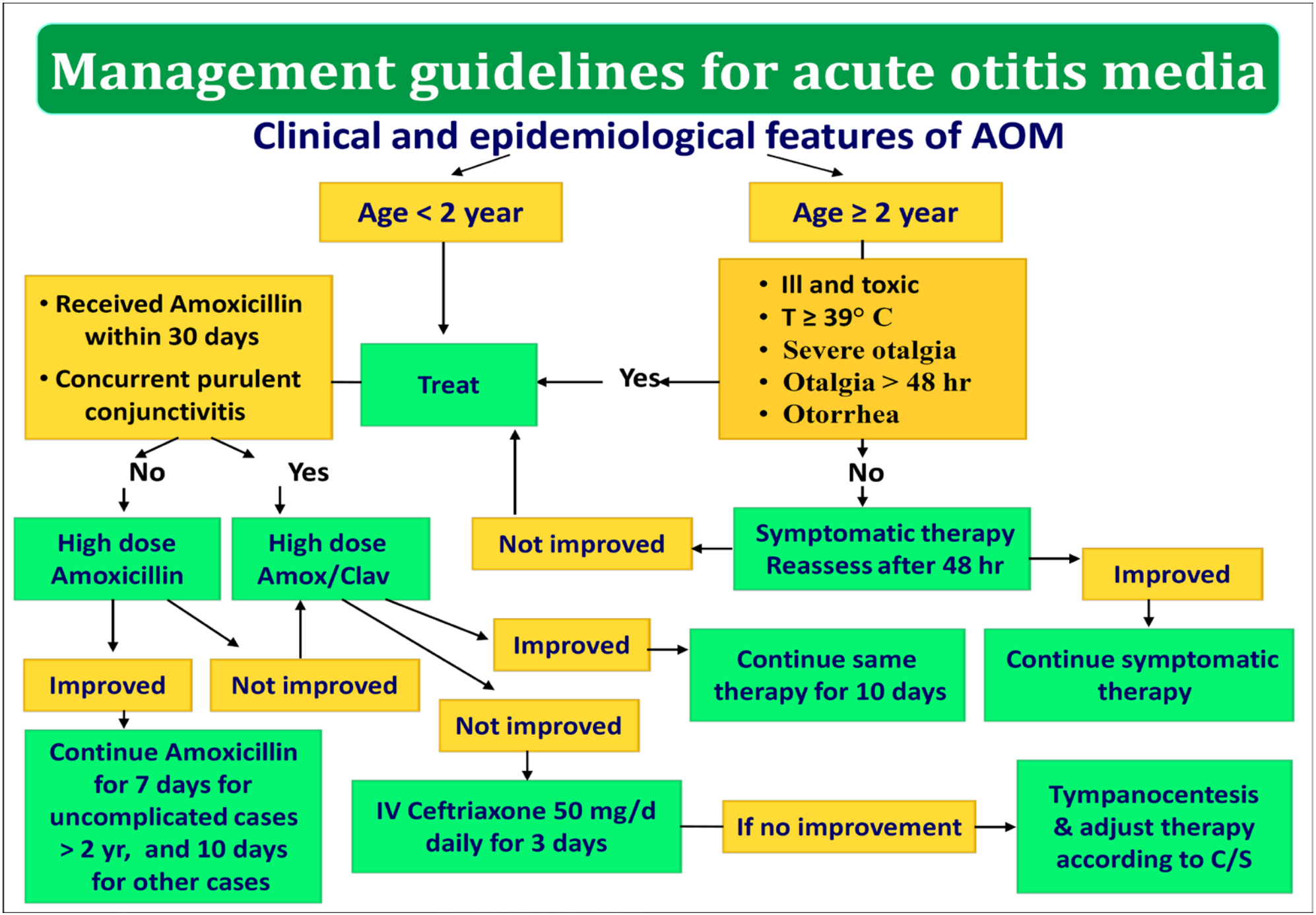
PARASITE	DRUG OF CHOICE	DOSE	ALTERNATIVE THERAPY OR COMMENTS
Toxoplasmosis: ▪ Congenital	Pyrimethamine + Sulfadiazine + Leucovorin (folinic acid)	1 mg/kg every 12 hours PO for 2 days, followed by 1 mg/kg once daily for 2–6 months, followed by 1 mg/kg once per day every Mon, Wed, Friday to complete a total course of 12 months. 50 mg/kg every 12 hours PO for 12 months 10 mg 3 times per wk	• For treatment in pregnancy, spiramycin 50–100 mg/kg/day PO div qid • Prednisone if active chorioretinitis or CNS involvement 0.5 mg/kg (maximum 20 mg/dose) every 12 hours PO started after 48–72 hours of anti-*Toxoplasma* therapy until CSF protein <1 g/dL or resolution of severe chorioretinitis
▪ **Acquired** - Immunocompetent children	- No therapy		
- immunocompromised pt. or Immunocompetent children with severe systemic disease or prolonged fever or active chorioretinitis	- Pyrimethamine + Sulfadiazine + Leucovorin (folinic acid)	2 mg/kg/day PO div bid for 2 days (max 100 mg) then 1 mg/kg/day (max 50 mg/day) PO qd 100–200 mg/kg/day PO div qid 10-20mg with each dose of Pyrimethamine	• Chorioretinitis: 2 mg/kg on day 1, then 1 mg/kg PO once a day • Chorioretinitis: 75 mg/kg (first dose), followed (12 hours later) by maintenance dose: 50 mg/kg every 12 hours orally (maximum 4 g/day) • Continue one week after d/c pyrimethamine

CLINICAL APPROACH TO COMMON PEDIATRIC INFECTIONS

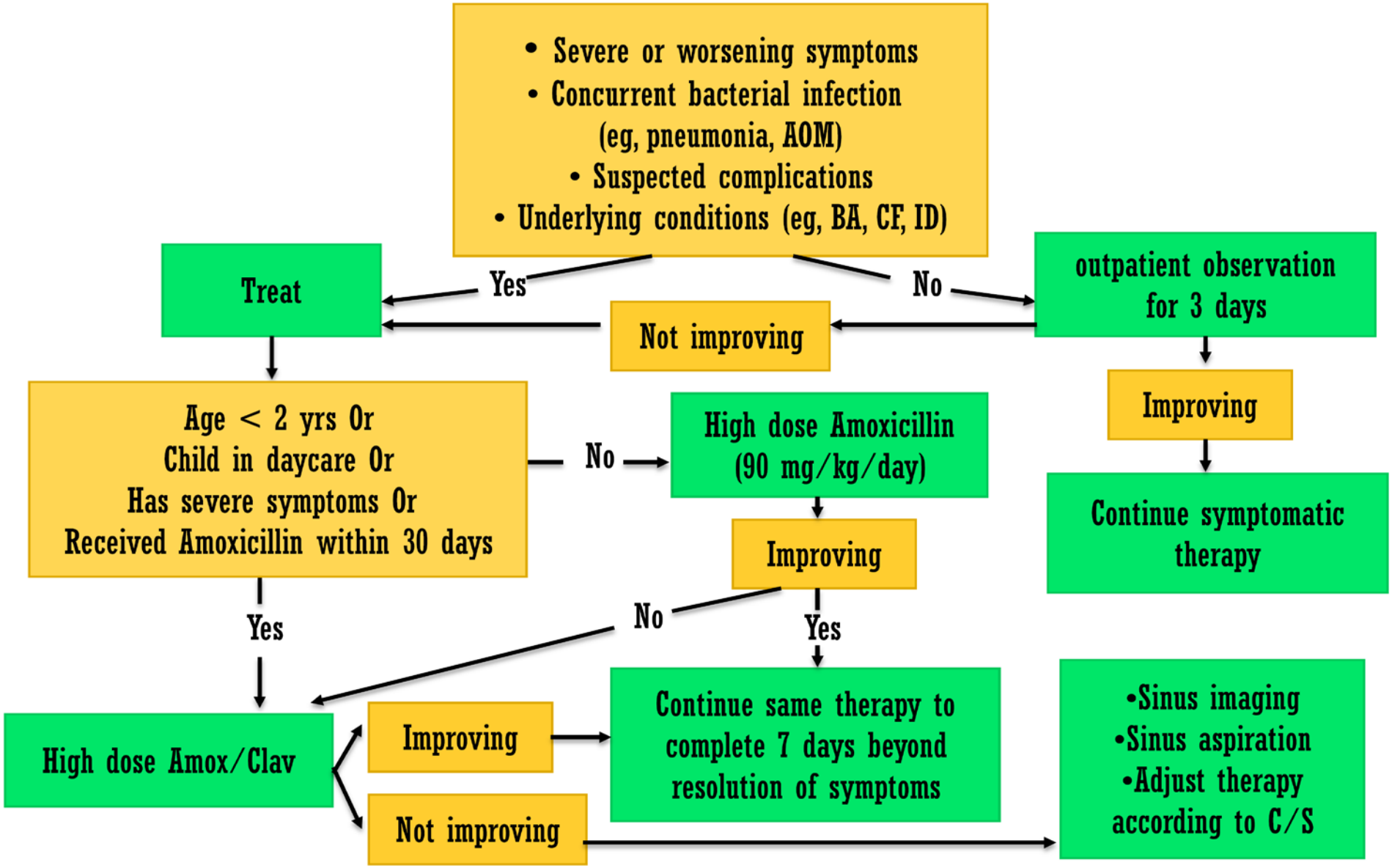
Diagnosis and management of acute pharyngitis



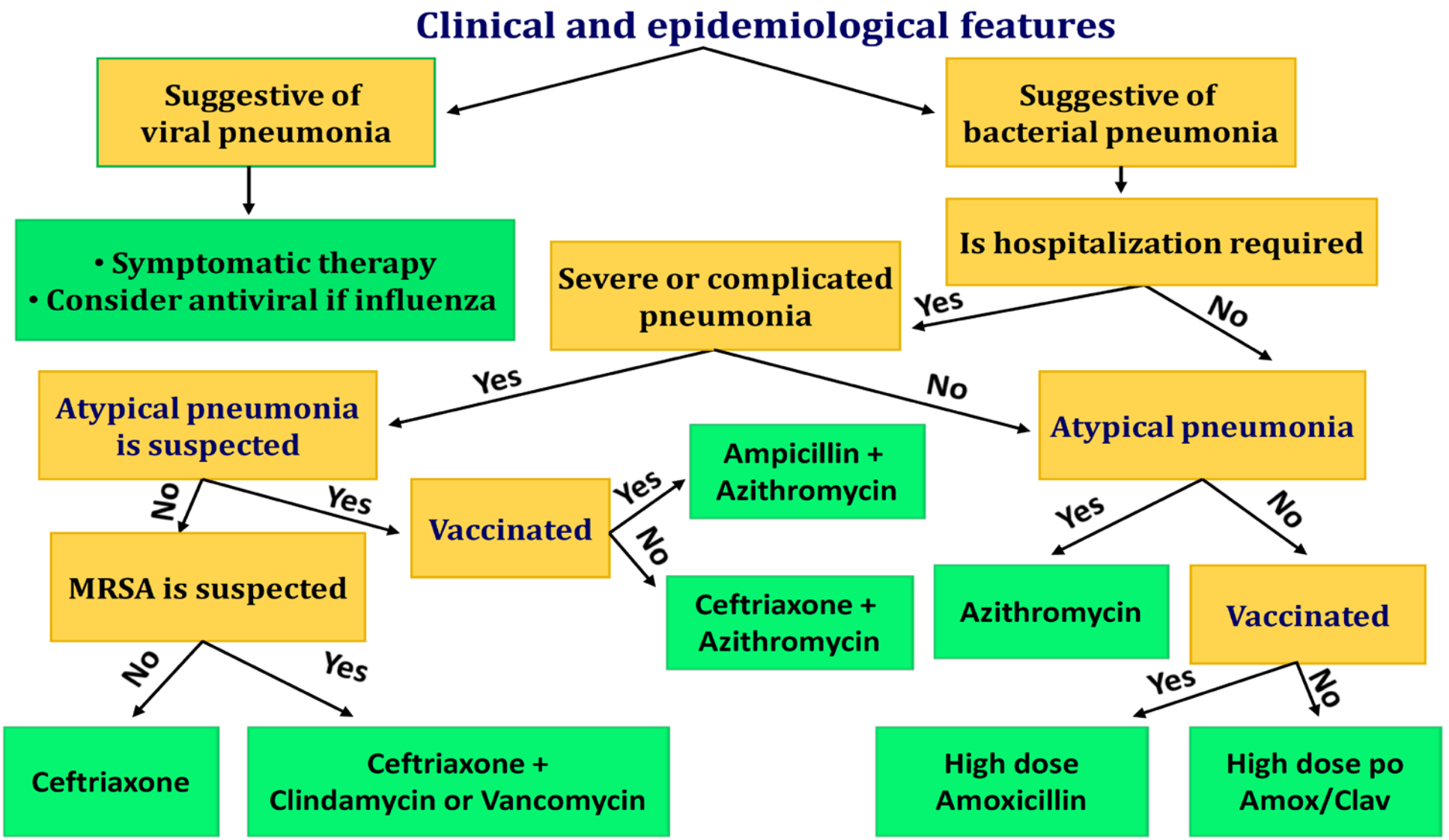
Management guidelines for acute otitis media



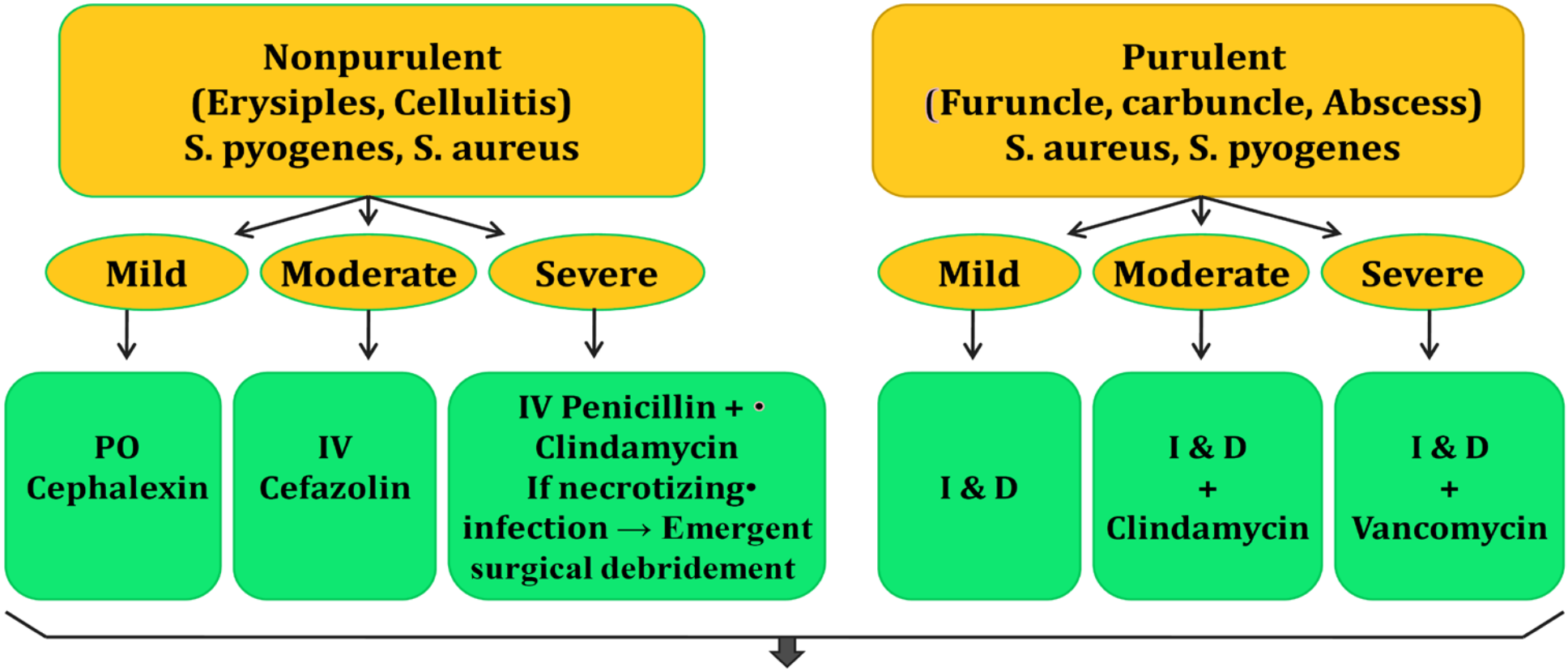
Management guidelines for acute sinusitis in children 1-12 yr



Management guidelines for Community-Acquired Pneumonia in children > 3 months



Skin & soft tissue infections management



• S. Pyogenes

Mild: PO Penicillin VK
Mod: IV Penicillin
Severe: IV Penicillin + Clindamycin

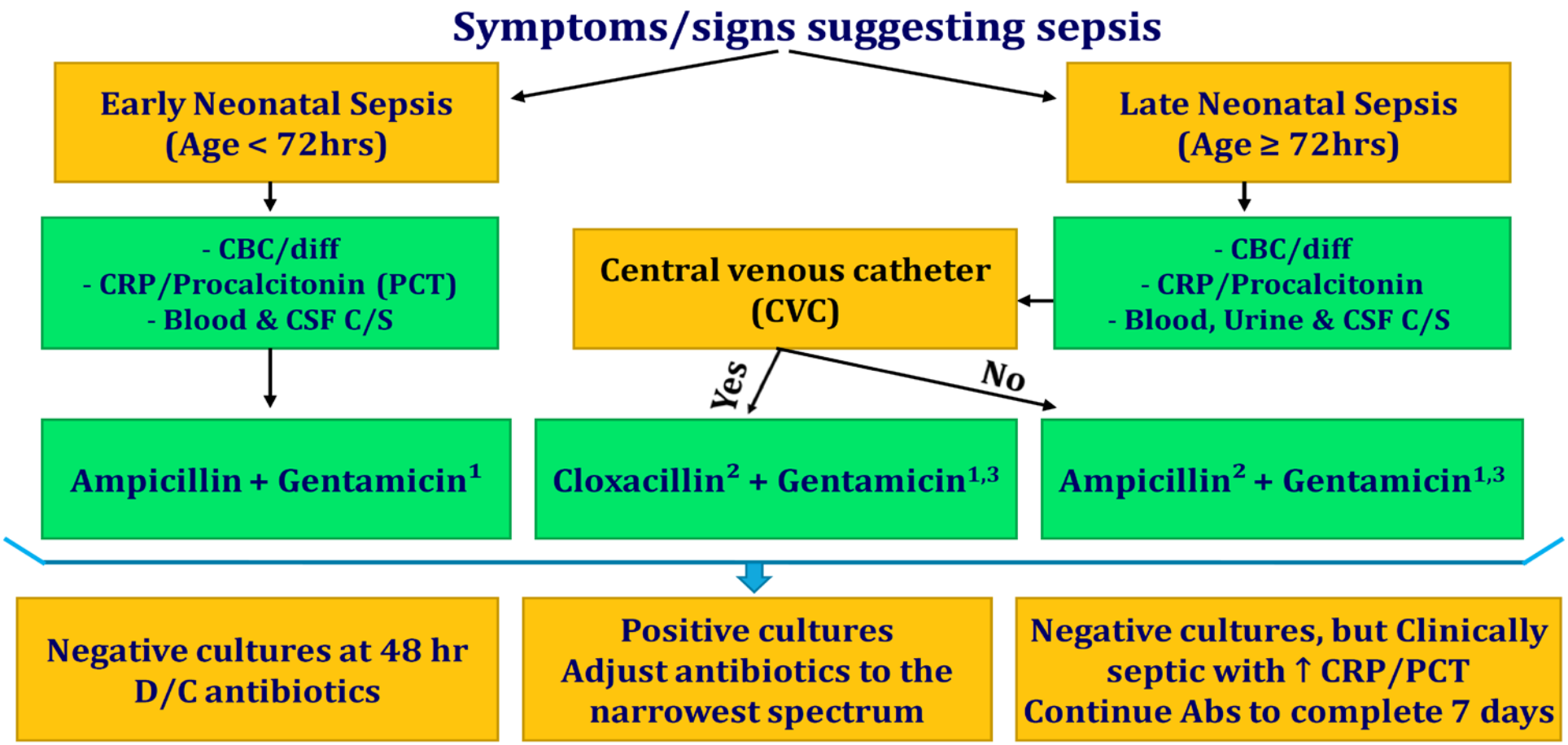
• MSSA

Mild: PO Cephalexin
Mod: IV Cefazolin or Cloxacillin
Severe: IV Cloxacillin or Cefazolin

• MRSA

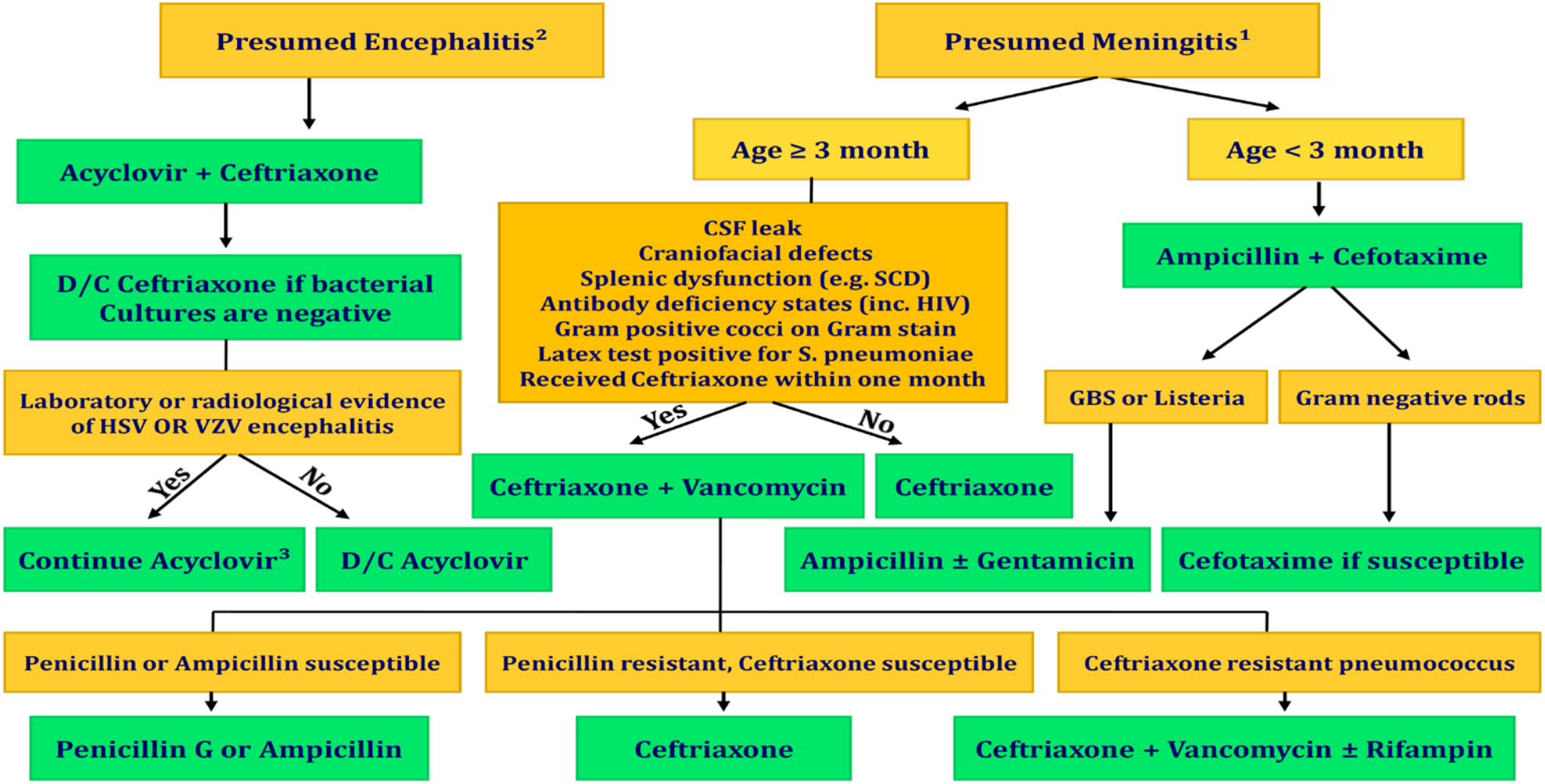
Mild: PO Clindamycin or TMP/SMX
Mod: IV Clindamycin or TMP/SMX
Severe: Vancomycin or Linezolid

Management guidelines for Neonatal sepsis

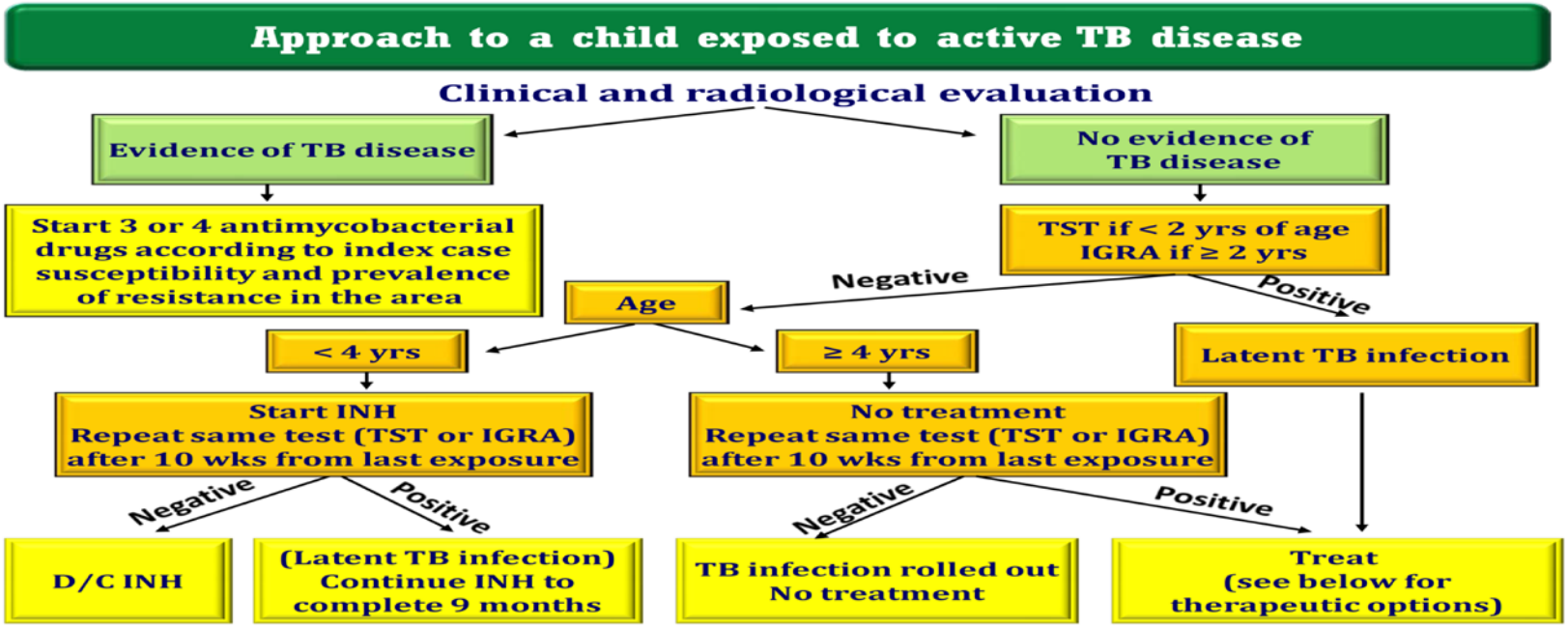


1. Use Cefotaxime insteade of Gentamicin if there is evidence of meningitis
2. Use Vancomycin insteade if colonized with MRSA or MRSA outbreak
3. Use Amikacin if received Gentamicin within the last 7 days
4. Restrict Meropenem to infections with ESBL or AmpC Beta-lactamases producing organisms

Approach to management of Meningitis and Encephalitis in children



1. fever, irritability, headache, vomiting, neck stiffness,and/or photophobia
2. Altered consciousness, unusual behavior, fever, focal seizures, and/or focal neurological deficits
3. VZV: 10 days; HSV: 3 weeks (if the repeated CSF PCR is negative) or longer
4. Duration of treatment of uncomplicated meningitis: N. meningitides: 5-7 days; H. influenzae: 7-10 days; S. pneumonia: 10-14 days; GBS & Listeria: 2-3 weeks; Gram negative rods: 3 wks (if $\geq$ 2 wks from 1st documended negative CSF culture) or longer



TST : Tuberculin skin test

Positive : ≥ 5 mm induration

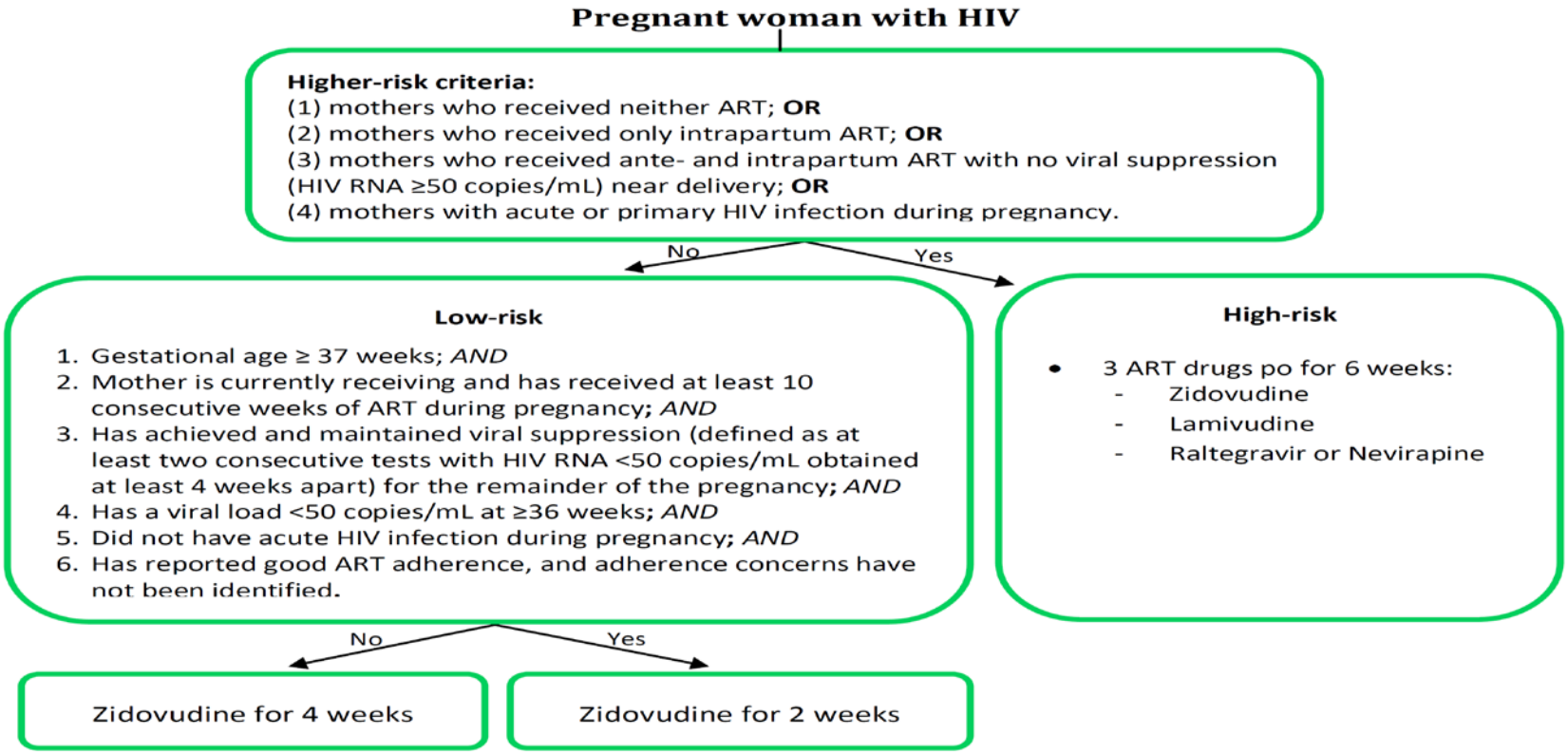
Negative : < 5 mm induration

IGRA : Interferone-γ release assay

Treatment options for latent TB infection

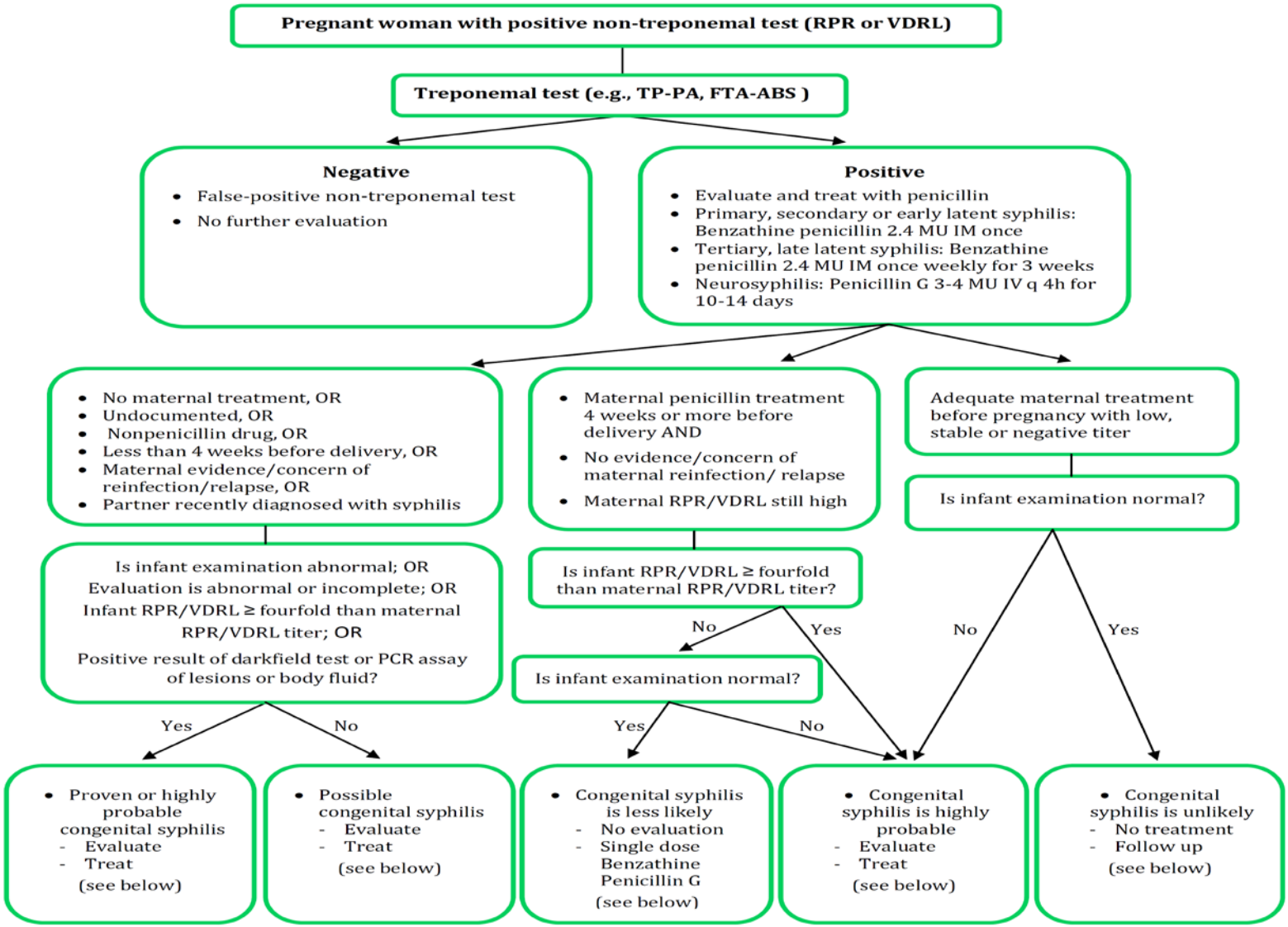
susceptibility	Regimen	Remarks
• **INH susceptible**	6 or 9 months of INH, once a day	If daily therapy is not possible, DOT twice a week can be used
	Or	
	4 months of rifampin, once a day	Continuous daily therapy is required. Intermittent therapy even by DOT is not recommended
	Or	
	12 weeks of INH plus rifapentine, once a week	Used only in children ≥ 2 years of age
	Or	
	3 months isoniazid plus rifampin, once a day	To be considered if above regimens are not feasible
• **INH resistant**	4 months of rifampin, once a day	Continuous daily therapy is required. Intermittent therapy even by DOT is not recommended.
• **INH-rifampin resistant**	Consult ID Team	Start anti-TB according to index case susceptibility

Prevention of perinatal HIV transmission



Drug	Drug Doses by Gestational Age at Birth
Zidovudine(ZDV)	<30 wks' gestation : 2 mg /kg/dose BID 30 to < 35 wks' gestation : Birth – 2weeks : 2 mg/kg/dose BID 2-4wks : 3 mg /kg/dose BID ≥ 35wks ' gestation : 4 mg/kg/dose BID
Lamivudine (3TC)	• Birth to age 4 wks of age: 2 mg/kg/dose po BID • >4 wks of age: 4 mg/kg/dose po BID
Lopinavir/Ritonavir (80 mg/20 mg)	≥ 14 days of age: 10-16 mg /kg po twice daily 7 to< 15 kg:12mg /kg po twice daily as lopinavir dose 15 to 40 kg: 10 mg/kg po twice daily as lopinavir dose
Nevirapine (NVP)	• Gestational Age ≥37 weeks: 6 mg/kg/dose po BID • Gestational Age 34–<37 weeks: Birth to 1 week of age: 4 mg/kg/dose po BID >1 week of age: 6 mg/kg/dose po BID
Raltegravir (RAL)	Gestational Age *≥37 Weeks and Weighing ≥2 kg* • Birth to 1 week of age: 1.5 mg/kg/dose po QD • 1 week to 4 weeks of age: 3 mg/kg/dose po BID • 4 weeks to 6 weeks of age: 6 mg/kg/dose po BID Note: If the mother has taken Raltegravir 2–24 hours prior to delivery, the neonate's first dose should be delayed until 24–48 hours after birth.

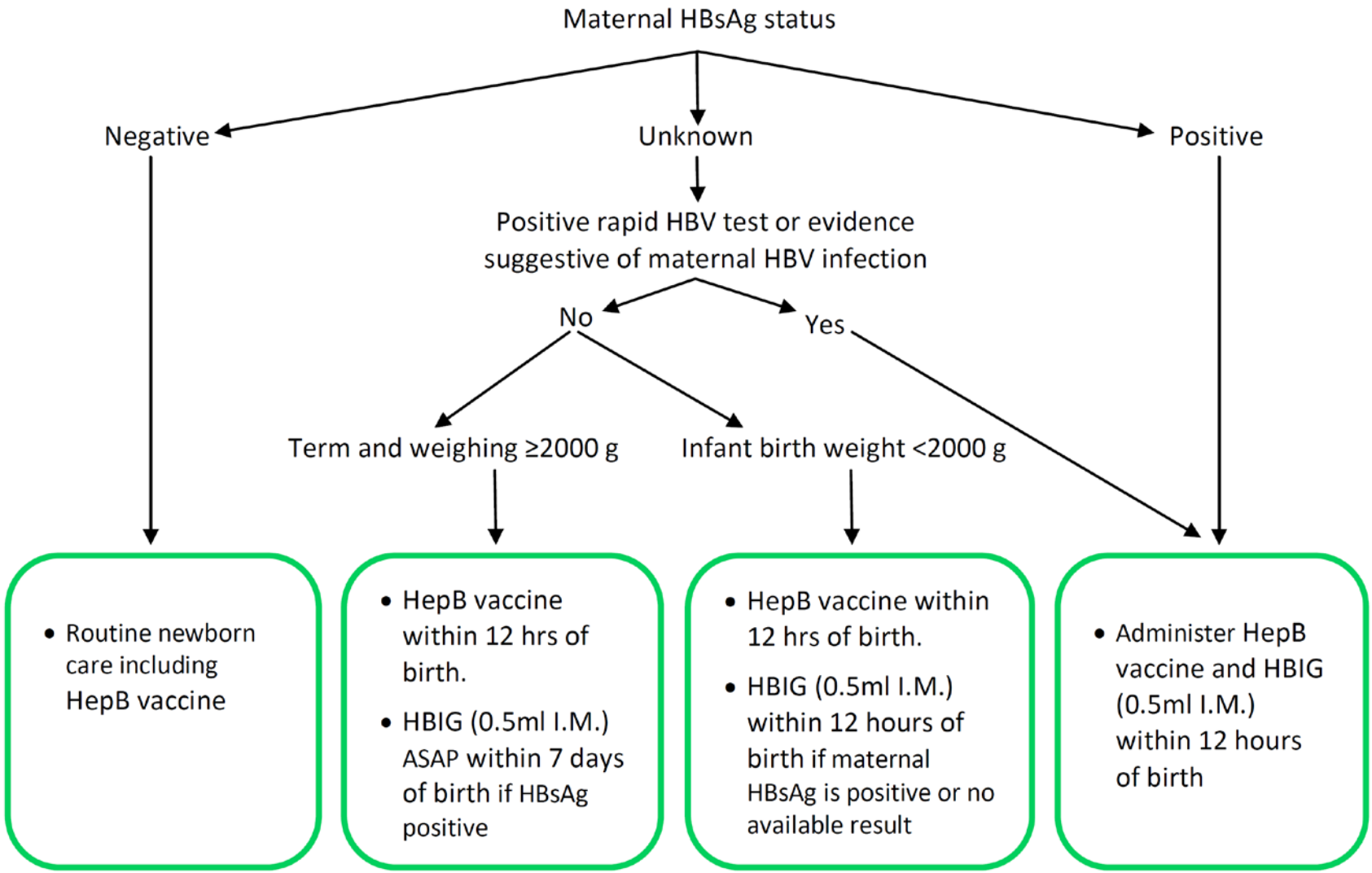
Management approach of infants born to mothers with reactive serologic tests for syphilis-1



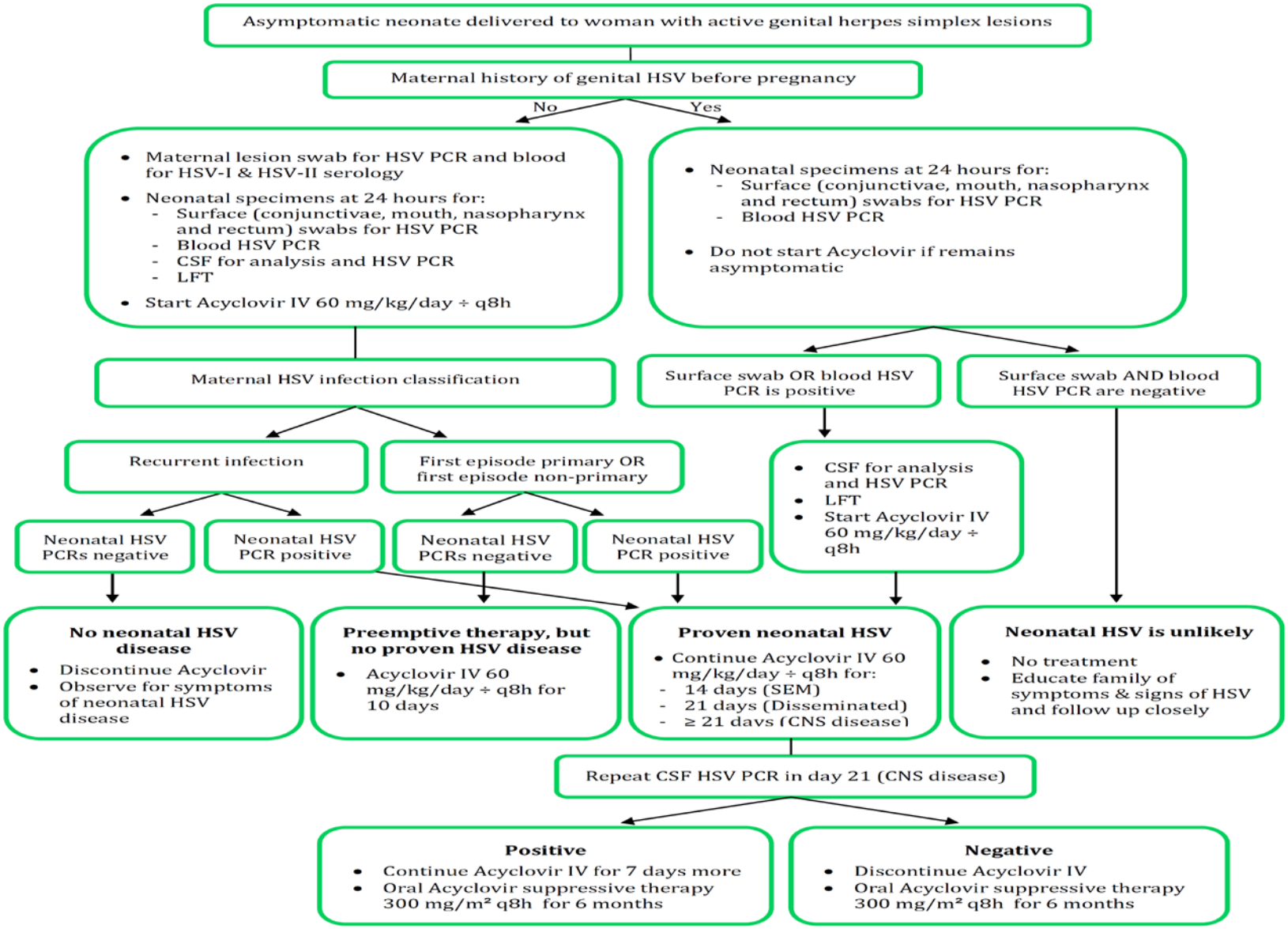
Management approach of infants born to mothers with reactive serologic tests for syphilis-2

Category	Recommended evaluation	Treatment
Proven or highly probable congenital syphilis	• CSF analysis and CSF VDRL • CBC count with differential • Long-bone radiography • Other tests (as clinically indicated): - Liver function test - Chest radiography - Neuroimaging - Ophthalmologic examination - Auditory brain stem response	Penicillin G 50000 U/kg, IV, every 12 hours (1 wk or younger), then every 8 h for infants older than 1 wk, for a total of 10 days of therapy
Possible congenital syphilis	• CSF analysis and CSF VDRL • CBC count with differential • Long-bone radiography	Aqueous crystalline penicillin G, 50000 U/kg, IV, every 12 h (1 wk or younger),then every 8 h for infants older than 1 wk, for a total of 10 days of therapy (**preferred**) OR Procaine penicillin G, 50 000 U/kg, IM,as single daily dose for 10 days
Congenital syphilis less likely	Not recommended	• Benzathine penicillin G, 50000 U/kg, IM, single dose. • Follow-up nontreponemal antibody titers. • Patients with increasing or persistent titers 6 to 12 mo after initial treatment should be reevaluated, including a CSF examination, and treated with IV penicillin G for 10 days.
Congenital syphilis is unlikely	Not recommended	• None, but infants with reactive nontreponemal tests should be followed serologically to ensure test result returns to negative. • Single dose Benzathine penicillin G 50000 U/kg IM can be considered if follow-up is uncertain and infant has a reactive test. • Neonates with a negative nontreponemal test result at birth and whose mothers were seroreactive at delivery should be retested at 3 month to rule out incubating congenital syphilis.

Prevention of Maternal to Child transmission of Hepatitis B infection



Management approach of neonates delivered to mothers with active herpes simplex lesions



SURGICAL PROPHYLAXIS

Procedure	Expected pathogen	Antibiotic of choice	Alternative choice
Neurosurgery (e.g, CSF shunt)	Staph. aureus, CoNS	Cefazolin 30 mg/kg (maximum 2 g)	Vancomycin 10 mg/kg if MRSA likely or allergy
Head and neck (incision through oropharyngeal mucosa)	Streptococci, S. Aureus, anaerobes	Clindamycin 10 mg/kg (maximum 600 mg)	Cefazolin 30 mg/kg (maximum 2 g) + Metronidazole 10 mg/kg
Cardiac or Vascular surgery (including port insertion)	Staph. aureus, CoNS, GNR	Cefazolin 30 mg/kg (maximum 2 g)	Vancomycin 10 mg/kg if MRSA likely or allergy
Thoracic (lung surgery)	Staph. aureus	Cefazolin 30 mg/kg (maximum 2 g)	Vancomycin 10 mg/kg if MRSA likely or allergy
Opthalmic	Staph. aureus, CoNS, Streptococci, GNR	Topical Bacitracin-polymyxin B	Gentamicin **0.3%** 2 drops topically
Orthopedic	Staph. aureus, CoNS	Cefazolin 30 mg/kg (maximum 2 g)	Vancomycin if MRSA likely or allergy
Gastroduodenal	GNR, orophayngeal GPC	Cefazolin 30 mg/kg (maximum 2 g)	
Cholecystectomy or biliary surgery	GNR, enterococci, anaerobes	Cefazolin 30 mg/kg (maximum 2 g)	
Colon surgery	GNR, anaerobes	Cefazolin 30 mg/kg (maximum 2 g) + Metronidazole 10 mg/kg	Gentamicin 2.5 mg/kg (maximum 120 mg) + Metronidazole 10 mg/kg
Appendectomy - Uncomplicated - Complicated	GNR, anaerobes	- Cefazolin 30 mg/kg (maximum 2 g) + Metronidazole 10 mg/kg - Gentamicin 2.5 mg/kg (max 120 mg) + Metronidazole 10 mg/kg	- For one dose prior to surgery - Gangrenous appendix: 1-2 days Perforated appendix: 4-5 days
Pentrating abdominal trauma	GNR, anaerobes, enterococci	Cefazolin 30 mg/kg (maximum 2 g) + Metronidazole 10 mg/kg	
Genitourinary	Enteric GNR, enterococci	Cefazolin 30 mg/kg (maximum 2 g)	Colonized with a resistant GNR: Gentamicin or Ciprofloxacin

- Should be given 30-60 minutes before the surgical incision.
- Second dose required if operation > 4 hr, major blood loss, or using short-acting agent.
- While 1 or 2 doses usually given post-operatively, recent studies showed no additional benefit of this practice.
- Clean surgical procedures: e.g. Hernia repair, CVL removal, Biopsies (liver, bone marrow): Antimicrobial prophylaxis not required.

ANTIMICROBIAL DOSAGE FOR NEONATES

Drug / Formulation	BW <1200 g		BW 1200-2000 g		BW >2000 g	
	≤ 14 days	> 14 days	<1 wk of age	>1 wk of age	<1 wk of age	>1 wk of age
Acyclovir IV	HSV: 40 mg/kg/day ÷ q 12h		HSV: 40 mg/kg/day ÷ q 12h	HSV: 60 mg/kg/day ÷ q 8h	HSV: 60 mg/kg/day ÷ q 8h for 14 days (SEM disease) and 21 days (disseminated and/or CNS disease) Others: 30 mg/kg/day ÷ q 8h	
Acyclovir PO Oral suppressive Rx				900 mg/m^2/ day ÷ q 8h		900 mg/m^2/ day ÷ q 8h
Amikacin IV/IM	15 mg/kg q 48 h	15 mg/kg q 24 h	15 mg/kg q 36 h	15 mg/kg q 24 h	15 mg/kg q 24 h	17.5 mg/kg q 24 h
Amphtericin B IV infusion	1 mg/kg/day					
Liposomal Amph. B IV infusion	3-5 mg/kg/day					
Ampicillin IV/IM	- 100 mg/kg/ day ÷ q 12h - Meningitis: 200 mg/kg/day ÷ q 8h		- 100 mg/kg/ day ÷ q 12h - Meningitis: 200 mg/kg/ day ÷ q 8h	- 150 mg/kg/ day ÷ q 8h - Meningitis: 300 mg/kg/ day ÷ q 6h	- 150 mg/kg/ day ÷ q 8h - Meningitis: 200 mg/kg/ day ÷ q 8h	- 200 mg/kg/ day ÷ q 6h - Meningitis: 300 mg/kg/ day ÷ q 6h
Anidulafungin IV	1.5 mg/kg q 24h					
Azithromycin IV/PO	10 mg/kg q 24h					
Aztreonam IV	60 mg/kg/day IV ÷ q 12h		60 mg/kg/day IV ÷ q 12h	90 mg/kg/day IV ÷ q 8h	90 mg/kg/day IV ÷ q 8h	120 mg/kg/ day IV ÷ q 6h
Caspofungin IV	2 mg/kg q 24h					
Cefazolin IV/IM	50 mg/kg/day IV ÷ q12h		50 mg/kg/day IV ÷ q 12h	75 mg/kg/day IV ÷ q12h	100 mg/kg/ day IV ÷ q12h	150 mg/kg/ day IV ÷ q8h
Cefepime IV	60 mg/kg/day ÷ q12h		60 mg/kg/day ÷ q12h	100 mg/kg/day ÷ q12h	100 mg/kg/day ÷ q12h	100-150 mg/kg /day ÷ q8-12h

Drug / Formulation		BW <1200 g		BW 1200-2000 g		BW >2000 g	
		≤ 14 days	> 14 days	<1 wk of age	>1 wk of age	<1 wk of age	>1 wk of age
Cefotaxime IV/IM		100 mg/kg/day ÷ q 12h		100 mg/kg/ day ÷ q 12h	150 mg/kg/ day ÷ q 8h	100 mg/kg/ day ÷ q12h	150 mg/kg/ day IV q 8h
Ceftaroline IV/IM		12 mg/kg/day ÷ q12h		12 mg/kg/day ÷ q12h	18 mg/kg/day ÷ q8h	18 mg/kg/day ÷ q8h	18 mg/kg/day ÷ q8h
Ceftazidime IV/IM		100 mg/kg/day ÷ q12h		100 mg/kg/ day ÷ q12h	150 mg/kg/ day ÷ q8h	100 mg/kg/ day ÷ q8-12 h	150 mg/kg/ day ÷ q8h
Ceftriaxone IV/IM		-		-	-	50 mg/kg q24h	50 mg/kg q24h
Cefuroxime IV/IM		50 mg/kg/day ÷ q 12h		50 mg/kg/day ÷ q 12h	100 mg/kg/ day ÷ q 8h	100 mg/kg/ day ÷ q 12h	150 mg/kg/ day ÷ q 8h
Ciprofloxacin IV		15 mg/kg/day ÷ q 12h		15 mg/kg/day ÷ q 12h	20 mg/kg/day ÷ q 12h	20 mg/kg/day ÷ q 12h	25 mg/kg/day ÷ q 12h
Clindamycin IV/IM		10 mg/kg/day ÷ q 12h		10 mg/kg/day ÷ q 12h	15 mg/kg/day ÷ q 8h	21 mg/kg/day ÷ q 8h	27 mg/kg/ day ÷ q 8h
Cloxacillin IV/IM		50 mg/kg/day ÷ q 12h		50-100 mg/kg/ day ÷ q 12h	75-150 mg/kg/ day ÷ q 8h	75-150 mg/kg/ day ÷ q 8h	100-200 mg/kg /day ÷ q 6h
Erythromycin IV/PO		20 mg/kg/day ÷ q12h		20 mg/kg/day ÷ q12h	30 mg/kg/day ÷ q8h	20 mg/kg/day ÷ q12h	30-40 mg/kg/ day ÷ q6-8h
Fluconazole IV	Treatment	> 14 days : 6-12 mg/kg q48h		6-12 mg/kg q 48h	6-12 mg/kg q 24h	6-12 mg/kg q 48h	6-12 mg/kg q 24h
	Prophylaxis	6-12 mg/kg/dose twice weekly					
Flucytosine (5-FC) IV/PO		50-100 mg/kg/day ÷ q 12h					
Ganciclovir IV		Symptomatic congenital CMV infection 12 mg/kg/day ÷ q 12h					
Gentamicin IV/IM		5 mg/kg q48h	5 mg/kg q36h	5 mg/kg q36h	5 mg/kg q24h	4 mg/kg q24h	5 mg/kg q24h
Imipenem/cilastatin IV		50 mg/kg/day ÷ q 12h		50 mg/kg/day ÷ q 12h	75 mg/kg/day ÷ q 8h	50 mg/kg/day ÷ q 12h	75 mg/kg/day ÷ q 8h

Drug / Formulation	BW <1200 g		BW 1200-2000 g		BW >2000 g	
	≤ 14 days	> 14 days	<1 wk of age	>1 wk of age	<1 wk of age	>1 wk of age
Linezolid IV	20 mg/kg/ day ÷ q12h	30 mg/kg/ day ÷ q8h	20 mg/kg/ day ÷ q12h	30 mg/kg/ day ÷ q8h	30 mg/kg/ day ÷ q8h	30 mg/kg/ day ÷ q8h
Meropenem IV	Meningitis: 80 mg/kg/day ÷ q 12h Others: 40 mg/ kg/day ÷ q 12h		Meningitis: 80 mg/kg/day ÷ q 12h Others: 40 mg/ kg/day ÷ q12h	Meningitis: 120 mg/kg/day ÷ q 8h Others: 60 mg/ kg/day ÷ q8h	Meningitis: 120 mg/kg/day ÷ q 8h Others: 60 mg/ kg/day ÷ q8h	Meningitis: 120 mg/kg/day ÷ q 8h Others: 90 mg/ kg/day ÷ q8h
Metronidazole IV/PO	7.5 mg q 24 h		7.5 mg/kg q24 h	7.5 mg/kg q12h	7.5 mg/kg q12h	15 mg/kg q12h
Nevirapine PO	32-<34 weeks: Birth weight 1.5-2 kg: 8 mg/dose Birth weight >2 kg: 12 mg/dose 1st dose : within 48 hours of birth 2nd dose : 48 hours after 1st dose 3rd dose : 96 hours after 2nd dose		34-37 weeks: < 1 week of age: 4 mg/kg/dose q12h >1 week of age: 6 mg/kg/dose q12h		≥ 37 weeks 6 mg/kg/dose q12h	
Nystatin oral suspension	100,000 units (50,000 units to each side of mouth) 4 times/day					
Oseltamivir	Preterm, <38 wk PMA: 1 mg/kg/dose PO bid79 Preterm, 38–40 wk PMA: 1.5 mg/kg/dose PO bid Preterm, >40 wk PMA: 3 mg/kg/dose PO bid Term: 3 mg/kg/dose PO bid					
Penicillin G (aqueous) IV/IM	50,000-100,000 U/kg/day ÷ q12h GBS meningitis: 250,000 U/kg/ day ÷ q8h		50,000-100,000 U/kg/day ÷ q12h GBS meningitis: 250,000 U/kg/ day ÷ q8h	75,000-150,000 U/kg/ day ÷ q8h GBS meningitis: 250,000-450,000 U/kg/ day ÷ q6h	75,000-150,000 U/kg/day ÷ q 8h GBS meningitis: 250,000 U/kg/ day ÷ q 8h	100,000-200,000 U/kg/day ÷ q 6h GBS meningitis: 450,000 U/kg/ day ÷ q6h
Penicillin G (benzathine) IM	50,000 units q 24h		50,000 units q 24h	50,000 units q 24h	50,000 units q 24h	50,000 units q 24h
Penicillin G (procaine) IM	50,000 units q 24h		50,000 units q 24h	50,000 units q 24h	50,000 units q 24h	50,000 units q 24h

Drug / Formulation		BW <1200 g		BW 1200-2000 g		BW >2000 g	
		≤ 14 days	> 14 days	<1 wk of age	>1 wk of age	<1 wk of age	>1 wk of age
Piperacillin/Tazobactam IV		300 mg/kg/day ÷ q8h		300 mg/kg/day ÷ q6h	300 mg/kg/day ÷ q6h	300 mg/kg/day ÷ q6h	300 mg/kg/day ÷ q6h
Raltegravir PO		≥ 37 week gestational age: > 1 week of age: 1.5 mg/kg/dose q24h 1 week to 4 weeks of age: 3 mg/kg/dose q12h 4 weeks to 6 weeks of age: 6 mg/kg/dose q12h					
Rifampicin PO/IV		10 mg/kg q 24 h					
Ticarcillin IV		150 mg/kg/day ÷ q12h		150 mg/kg/day ÷ q12h	225 mg/kg/day ÷ q8h	225 mg/kg/day ÷ q8h	300 mg/kg/day ÷ q6h
Tobramycin IV/IM	MOD	2.5 mg/kg q 24h		2.5 mg/kg q 18h	5 mg/kg/day ÷ q 12h	5 mg/kg/day ÷ q12h	7.5 mg/kg/day ÷ q8h
	OD	2.5 mg/kg q 24h		3 mg/kg q 24h	5 mg/kg q 24h	5 mg/kg q24h	5-7 mg/kg q24h
Valganciclovir PO		16 mg/kg/day ÷ q12h					
Zidovudine (ZDV) PO/IV		• < 30 week gestational age: - PO: 2 mg/kg/dose q 12h, increase to 3 mg/kg/dose q 12h at 4 wk of age - IV: 1.5 mg/kg/dose q 12h, increase to 2.3 mg/kg/dose q 12h at 4 wk of age • 30-34 week gestational age: - ≤ 2 weeks of age: PO 2 mg/kg/dose q 12h IV 1.5 mg/kg/dose q 12h - > 2 weeks: PO 3 mg/kg/dose q 12h IV 2.3 mg/kg/dose q 12h			≥ 35 week gestational age: PO: 4 mg/kg/dose q 12h IV: 3 mg/kg/dose q 12h		

VANCOMYCIN DOSAGE IN NEONATES

GA ≤ 28 wk			GA > 28 wk		
Start with a loading dose of 20 mg/kg, then a maintenance dose, according to GA & serum creatinine					
Serum Creatinine	**Dose**	**Frequency**	**Serum Creatinine**	**Dose**	**Frequency**
< 44 µmol/L	15 mg/kg	q12h	< 62 µmol/L	15 mg/kg	q12h
44-66 µmol/L	20 mg/kg	q24h	62-83 µmol/L	20 mg/kg	q24h
67-90 µmol/L	15 mg/kg	q24h	84-110 µmol/L	15 mg/kg	q24h
91-123 µmol/L	10 mg/kg	q24h	111-141 µmol/L	10 mg/kg	q24h
≥ 124 µmol/L	15 mg/kg	Q48h	≥ 142 µmol/L	15 mg/kg	Q48h

ANTIMICROBIAL DOSAGE FOR OLDER INFANTS AND CHILDREN

Drug / Formulation		Dose		Dose limit	comment
		mild-mod infections	severe infections		
Abacavir (ABC) PO		8 mg/kg q 12h		300 mg/dose	
Acyclovir PO IV		HSV: 40-80 mg/kg/day PO ÷ q 6h VZV: 80 mg/kg/day PO ÷ q 6h	**HSV Encephalitis:** < 4 month: 60 mg/kg/day ≥ 4 month: 45 mg/kg/day (or 1500 mg/m^2/day) IV ÷ q 8h **HSV other infections:** <1 yr: 15-30 mg/kg/day ≥1 yr: 750-1500 mg/m^2 /day IV ÷ q 8h **VZV:** <1 yr: 30 mg/kg/ day IV ÷ q 8h ≥1 yr: 1500 mg/m^2/day IV ÷ q 8h	PO: 3.2 g/day	IV doses for obese children should be based on ideal body weight
Albendazole PO		10 mg/kg OD Enterobius : 400 mg once, repeat after 2 wk	Hydatid cyst, Neurocysticercosis: 15 mg/kg/day ÷ q 12h	800 mg/day	
Amantadine PO		1-9 yr of of age: 5 mg/kg/day ÷ q 12h ≥ 10 yr of age: < 40 kg: 5 mg/kg/day ÷ q 12h ≥ 40 kg: 200 mg/day ÷ q 12h		150 mg/day	
Amikacin IV/IM	MOD	Inappropriate	22.5 mg/kg/day ÷ q 8h	1.5 g/day	Adjust doses according to serum levels
	OD	15 mg/kg/day ÷ q 24h	15-22.5 mg/kg/day ÷ q 24h		
Amoxacillin PO		Usual dose: 40-50 mg/kg/ day ÷ q 8-12h High dose in otitis media: 80-90 mg/kg/day ÷ q 8-12h	Inappropriate	2 g/day	Once-daily amoxicillin dosage for pharyngitis: 50 mg/kg (max 1,000–1,200 mg).

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Amoxacillin/Clavulanic acid PO/IV	25-45 mg (Amox) kg/day High dose in otitis media: 80-90 mg (Amox)/kg/day ÷ q 8-12h	Inappropriate	1750 (Amox) mg/day	Formulations: - 4:1 Augmentin 125/31, 500/125 - 7:1 Augmentin 875/125 - 14:1 Augmentin ES-600
Amphotericin B (conventional) IV	Inappropriate	1 mg/kg OD	70 mg/day or 1.5 mg/kg whichever is less	Infuse over 2-6 hr ; Monitor serum potassium and renal function
Amphotericin B lipid complex (ABLC) IV	Inappropriate	3-5 mg/kg OD		Monitor serum potassium and renal function
Liposomal Amphotericin B IV	Inappropriate	3-5 mg/kg OD		Doses as high as 10 mg/kg/d have been used in invasive Aspergillosis
Ampicillin PO/IV/IM	PO: 50-100 mg/kg/day IV: 100-150 mg/kg/day ÷ q 6h	200-400 mg/kg/day IV ÷ q6h	PO: 2-3 g/ day IV: 12 g/day	
Ampicillin-sulbactam IV/IM	100-150 mg (ampicillin) /kg/day ÷ q 6h	200-400 mg (ampicillin) /kg/day IV ÷ q 6h	8 g/day (ampicillin)	
Atovaquone PO	40 mg/kg/day ÷ q 12h		1500 mg/day	Use in mild-moderate PCP infection as alternative to TMP/SMX

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Azithromycin PO/IV	5–12 mg/kg PO once daily	12 mg/kg IV once daily	600 mg	- Pharyngitis: 12 mg/ kg/day OD for 5 days - Otitis media and other respiratory infections: 10 mg/ kg first day, then 5 mg/kg OD for 4 days
Aztreonam IV/IM	90 mg/kg/day ÷ q 8h	120 mg/kg/day ÷ q 6h	8 g/day	Restricted drug (needs ID approval)
Caspofungin IV	Inappropriate	70 mg/m^2 loading dose on first day, then 50 mg/ m^2 q 24h	70 mg	Restricted drug (needs ID approval)
Cefaclor PO	20-40 mg/kg/day ÷ q 8-12h	Inappropriate	1.5 g/day	Serum sickness-like reaction in 0.2%
Cefazolin IV/IM	50-100 mg/kg/day ÷ q 8h	100-150 mg/kg/day ÷ q 8h	6 g/day	Surgical prophylaxis: 25 mg/kg (max. 1 g) 30 min before procedure
Cefdinir PO	14 mg/kg/day ÷ q 12-24h	Inappropriate	600 mg/day	Inadequate activity against resistant pneumococcus
Cefepime IV/IM	100 mg/kg/day ÷ q 12h	150 mg/kg/day ÷ q 8h	2 g/dose (2-4 g/day)	Restricted drug (needs ID approval)
Cefixime PO	Usual dose: 8 mg/kg/ day ÷ q 12-24h UTI: 8 mg/kg q 12h on day 1, then 8 mg/kg q 24h	Inappropriate	400 mg/day	inadequate activity against penicillin nonsusceptible pneumococci, no antistaphyloccal activity

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Cefotaxime IV/IM	100 mg/kg/day ÷ q 6-8h	200 mg/kg/day IV ÷ q8h Pneumococcal meningitis: 300 mg/kg/day IV ÷ q 6h	12 g/day	
Cefoxitin IV, IM	80–100 mg/kg/day ÷ q 6-8h	80–160 mg/kg/day ÷ q 6-8h	12 g/day	Not used routinely, a potent inducer of ESBL
Cefpodoxime PO	10 mg/kg/day ÷ q 12h	-	400 mg/day	
Cefprozil PO	15–30 mg/kg/day ÷ q 12h	-	1 g/day	
Ceftaroline IV	- 2 mo–<2 y: 24 mg/kg/day IV ÷ q8h - ≥2 y: ≤ 33 kg: 36 mg/ kg/day IV div q8h (max single dose 400 mg) >33 kg: 1200 mg/day IV ÷ q8-12h		1200 mg/day	
Ceftazidime IV, IM	100 mg/kg/day ÷ q 8h	150 mg/kg/day ÷ q 8h	6 g/day	12 g/day for serious Pseudomonas infections in children with cystic fibrosis
Ceftazidime/avibactam IV	- 3 mo–<6 mo: 120 mg (Ceftazidime)/ 30 mg (Avibactam)/kg /day ÷ q8h - > 6 mo: 150 mg (Ceftazidime)/ 37.5 mg (Avibactam)/ kg/day ÷ q8h		6 g (Ceftazidime)/day	Restricted medication
Ceftriaxone IV, IM	50-75 mg/kg (max 1 g) q24h	CNS inf. or endocarditis: 100 mg/kg/day ÷ q 12-24h	4 g/day	

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Cefuroxime PO (Cefuroxime axetil)	20-30 mg/kg/day ÷ q 12h	Inappropriate	1 g/day	otitis media, sinusitis: 30 mg/kg/day
Cefuroxime IV, IM	100 mg/kg/day ÷ q 8h	150 mg/kg/day ÷ q 8h	4 g/day	
Cephalexin PO	Usual infections: 25-50 mg/kg/day ÷ q 6-8h Skeletal infections: 100 -150 mg/kg/day ÷ q 6h	Inappropriate	4 g/day	
Cephradine: PO IV	 25-100 mg/kg/day ÷ q 6-12h 50-100 mg/kg/day ÷ q 6h	 Inappropriate 100-150 mg/kg/day ÷ q 6h	 4 g/day 8 g/day	
Chloramphenicaol IV	50-75 mg/kg/day ÷ q6h	75-100 mg/kg/day ÷ q6h	4 g/day	Use only if no other alternative antibiotics, rsk of aplastic anemia
Chloroquine phosphate PO	10 mg base/kg, then 5 mg base/kg 6 hrs later, then 5 mg base/kg OD for 2 days Malaria prophylaxis: 5 mg base/kg/dose once weekly beginning 1-2 weeks before travel, and continued for 4 weeks after leaving malaria area		600 mg base 300 mg base 300 mg base	
Cidofovir IV	CMV retinitis: Induction: 5 mg/kg once Maintenance: 3 mg/kg once weekly			Must prehydrate with IV saline and oral probencid
Ciprofloxacin PO/IV	20-30 mg/kg/day PO ÷ q12h	20-30 mg/kg/day IV ÷ q12h	- 1500 mg/day PO - 800 mg/day IV	Cystic fibrosis: 40 mg/ kg PO, 30 mg/kg IV/day
Clarithromycin PO	15 mg/kg/day ÷ q12h	Mycobacterium avium complex (MAC): 15-30 mg/kg/day ÷ q12h	1 g/day	
Clindamycin PO/IV/IM	15-25 mg/kg/day ÷ q6-8h	25-40 mg/kg/day IM/IV ÷ q6-8h	2.7 g/day	

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Cloxacillin PO/IV/IM	50-100 mg/kg/day ÷ q6h	150-200 mg/kg/day IV/IM ÷ q6h	4 g/day PO 12 g/day IV/IM	Give po on an empty stomach (1 hr ac or 2 hrs pc).
Cycloserine PO	10-20 mg/kg/day ÷ q12h		1 g/day	
Daptomycin IV	- 1–2 yr: 10 mg/kg OD - 2–6 yr: 9 mg/kg OD - 7–11 yr: 7 mg/kg OD - ≥12 yr: 5 mg/kg OD	- 1–6 yr: 12 mg/kg OD - 7–11 yr: 9 mg/kg OD - ≥12 yr: 7 mg/kg OD		- Neuromuscular toxicity in neonates, monitor CK - Not used for CNS infections or pneumonia
Didanosine (ddI) PO	2 wks-8 months: 100 mg/m^2 q 12h >8 months: 120 mg/m^2 q 12h		400 mg/day	Dosing range 90-150 mg/m2
Doxycycline PO/IV	2-4 mg/kg/day ÷ q12-24h	5 mg/kg/day ÷ q12h	200 mg/day	Contraindicated in children < 8 yr of age
Erythromycin PO/IV	30-50 mg/kg/day PO ÷ q6-8h	15-50 mg/kg/day IV ÷ q6h	PO: 2 g/day IV: 4 g/day	
Ethambutol	15 mg/kg once daily	25 mg/kg once daily	1 g/day	Can cause optic neuropathy: monitor visual acuity and color discrimination
Ethionamide PO	15-20 mg/kg/day ÷ q12h		1 g/day	
Fluconazole PO/IV	3-6 mg/kg q 24h	10-12 mg/kg IV q 24h	400 mg/day	
Flucytosine (5-FC) PO/IV	50-100 mg/kg/day PO ÷ q6h	100-150 mg/kg/day IV ÷ q6h		
Foscarnet IV	CMV retinitis: Induction: 180 mg/kg/day ÷ q8-12h for 2-3 weeks Maintenance: 90 mg/kg once daily			Renal toxicity in 1/3 of patients

Drug / Formulation		Dose		Dose limit	comment
		mild-mod infections	severe infections		
Ganciclovir PO/IV		CMV & EBV infection in immunocompromised patients: 10 mg/kg/day IV ÷ q12h induction for 2-3 wk, then 5 mg/kg/day IV ÷ q24h maintenance. PO: 90 mg/kg/day ÷ q 8h			
Gentamicin IV/IM	MOD	Inappropriate	6-7.5 mg/kg/day ÷ q 8h	120 mg/dose	Adjust doses according to serum levels
	OD	5 mg/kg/day IV ÷ q 24h	7 mg/kg/day ÷ q 24h		
Griseofulvin PO (microsize)		10-20 mg/kg q 24h	Inappropriate	1 g/day	
Imipenem/Cilastatin IV/IM		60 mg/kg/day ÷ q 6h	100 mg/kg/day ÷ q 6h	4 g/day	- Causion in meningitis because of possible seizures - Restricted drug
Indinavir		500 mg/m^2/dose q 8h		800 mg/dose	Restricted drug
Interferon Alfa-2a S.C.		Chronic hepatitis B: 5-10 million u/m^2 3 times/wk Chronic hepatitis C: 3 million u/m^2 3 times/week			Restricted drug
Interferon Alfa-2b S.C.		Chronic hepatitis B: 3-10 million u/m^2 3 times/wk Chronic hepatitis C: 3-5 million u/m^2 3 times/wk			Restricted drug
Isoniazid (INH) PO/IM		10-15 mg/kg/day ÷ q 12-24h Twice weekly regimen: 20-30 mg/kg		300 mg/day 900 mg/dose	Max. dose in CNS disease: 500 mg/day After 1-2 month of daily therapy
Itraconazole PO/IV		3-5 mg/kg q 24h	5-10 mg/kg/day ÷ q 12-24h	600 mg/day	Administer capsules after full meal; oral solution on an empty stomach.
Ketoconazole PO		5-10 mg/kg/day ÷ q 12-24h	Inappropriate	800 mg/day	Administer with food

Drug / Formulation		Dose		Dose limit	comment
		mild-mod infections	severe infections		
Lamivudine (3-TC) PO		8 mg/kg/day ÷ q 12h		300 mg/day	Restricted drug
Levofloxacin PO/IV		≥6 mo-5 year: 24 mg/ kg/day IV/PO ÷ q 12h ≥5-14 year: 16 mg/ kg/day IV/PO ÷ q 12h		500 mg/day	Restricted drug
Linezolid PO/IV		20 mg/kg/day ÷ q12h	<12 y: 30 mg/kg/day ÷ q 8h ≥12 y: 600 mg q 12h	1200 mg/day	Restricted drug
Lopinavir/Ritonavir (Kaletra)		6 months-12 yr: 7-<15 kg: 12 mg/kg q 12h 15-40 kg: 10 mg/kg q 12h >40 kg or >12 yr: L 400 mg/ R 100 mg q 12h		L 400 mg/ R 100 mg q 12h	Restricted drug
Meropenem IV		60 mg/kg/day ÷ q 8h Meningitis: 120 mg/kg/day ÷ q 8h		6 g/day	Restricted drug
Metronidazole:	PO	15-35 mg/kg/day ÷ q 8h	Inappropriate	2 g/day	
	IV	Not appropriate	30 mg/kg/day ÷ q 8h	4 g/day	
Nalidixic acid PO		55 mg/kg/day ÷ q 6h	Inappropriate	4 g/day	
Nelfinavir PO		60-90 mg/kg/day ÷ q 8h		2250 mg/day	
Neomycin PO		50-100 mg/kg/day ÷ q 6-8h Hepatic coma: 2.5-7 g/m^2/day ÷ q 4-6h for 5-6 days		12 g/day	
Nystatin PO		Infants : 200,000 units/dose q 6h Older children : 400,000-600,000 units/dose q 6h	Inappropriate	2,400,000 units/day	
Nevirapine PO		120 mg/m^2 q 24h for 14 days, then 120-200 mg/m^2 q 12h		400 mg/day	Restricted drug

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Nitrofurantoin PO	- UTI Treatment: 5-7 mg/kg/day ÷ q 6h - UTI prophylaxis: 1-2 mg/kg OD	Inappropriate	400 mg/day	Administer with food Avoid if CLcr < 40 ml/min
Oseltamivir PO	Term, birth–8 mo: 3 mg/kg/dose PO bid 9–11 mo: 3.5 mg/kg/dose PO bid80 12–23 mo: 30 mg/dose PO bid 2–12 y: ≤15 kg: 30 mg bid 16–23 kg: 45 mg bid 24–40 kg: 60 mg bid >40 kg OR ≥13 y: 75 mg bid for 5 days		150 mg/day	- Treatment should begin within 2 days of onset of symptoms - Prophylaxis for children ≥ 3 month: same tratment dose once daily for 10 day
Penicillin G Benzathine IM	Gp A Strep. pharyngitis: 25,000-50,000 u/kg single dose Rheumatic fever prophylaxis: 25,000-50,000 units/kg (OR Children < 27 kg: 600,000 units; Children ≥ 27 kg: 1.2 million units) every 3-4 wks	Inappropriate	1.2 million units/dose	Deep IM injection Do not give IV or S.C.
Penicillin G (Crystalline Penicillin) IV/IM	100,000-250,000 units/kg/day ÷ q 6h	250,000-400,000 units/kg/day ÷ q 4-6h	24 million units/day	
Penicillin G, procaine IM	- 25,000-50,000 units/ kg/day ÷ q 12-24h - Congenital syphilis: 50,000 units/kg once daily for 10 days	Inappropriate	4.8 million units/day	

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Penicillin V Potassium PO	50-75 mg/kg/day ÷ q 6-12h Pneumococcal prophylaxis in SCD: ≤ 3 yr : 125 mg q 12h > 3 yr: 250 mg q 12h Rheumatic fever prophylaxis: 250 mg q 12h	Inappropriate	2 g/day	- 50 mg/kg/day ÷ q 6-12h for GAS pharyngitis. - 75 mg/kg/day ÷ q 6h for GAS pneumonia
Piperacillin IV/IM	100-150 mg/kg/day ÷ q 6h	200-300 mg/kg/day ÷ q 4-6h	24 g/day	
Piperacillin/Tazobactam (Tazocin) IV	Inappropriate	240-300 mg (piperacillin)/kg/day ÷ q6-8h	12 g/day	CF with sever pseudomonal infection: 400 mg /kg/day ÷ q 6h
Polymyxin B IV/IM	Inappropriate	IM: 25,00-30,000 units/kg/day ÷ q 6h; IV: 15,00-25,000 units/kg/day ÷ q 12h OR by continuous infusion	2 million units/day	IV: Infuse slowly over 60-90 min or by continous infusion at a concentration of 1000-1667 units/ml in D5W
Polymyxin E (Colistin) IV/IM	Inappropriate	2.5-5 mg base/kg/day ÷ q 6-12h OR by continuous infusion	7 mg base/kg/day	Up to 7 mg base/kg/ day can be used severe resistant infections
Praziquantel PO	Schistosomiasis: 40 mg/kg/day ÷ q 12h for 1 day Flukes: 75 mg/kg/day ÷ q 8h for 1 day if intestine or liver, and for 2 days if lung Tapeworms: 5-10 mg/kg single dose Cysticercosis: 50 mg/kg/day ÷ q 8h for 15 days			
Pyrazinamide PO	20-40 mg/kg/day ÷ q 12-24h		2 g/day	

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Quinine PO (Quinine sulfate) IV (Quinine dihydrochloride)	25mg/kg/day PO ÷ q 8h	20 mg/kg loading dose IV followed by 10 mg/kg IV q8h	IV: 1800 mg/day	Used in chloroquine resistant malaria Tx duration: 3–7 day Monitor B. glucose
Ribavirin Aerosol	Inappropriate	6 g in 300 ml sterile water (20 mg/ml), delivered for 18 h per day, or 6 g in 100 ml of sterile water for 2 h, 3 times/day, for 3-7 days		- Delivered by small particle generator - For Tx of severe RSV infection - Efficacy is doublful
Ribavirin PO	15 mg/kg/day ÷ q 12h			To treat chronic hepatitis C infection
Rifampicin PO/IV	10-20 mg/kg/day ÷ q 12-24h		600 mg/day	PO given 1 hr before or 2 hrs after a meal
Rifapentine	- 10–14 kg: 300 mg - 14.1–25 kg: 450 mg - 25.1–32 kg: 600 mg - 32.1–50 kg: 750 mg - >50 kg: 900 mg		900 mg	>2 y old, with INH for treatment of latent TB
Ritonavir PO	Start with 250 mg/m^2/dose q 12h, increase by 50 mg/m^2/dose over 5 days to reach 350-400 mg/m^2/dose q 12h		600 mg/dose	Administer with food
Stavudine (d4T) PO	Chidren < 30 kg: 1 mg/kg q 12h 30-60 kg: 30 mg q 12h >60 kg 40 mg q 12h		80 mg/day	
Streptomycin IM/IV	20-40 mg/kg once daily		1 g/day	IV if cannot tolerate IM
Sulfadiazine PO	100-150 mg/kg/day ÷ q 6h	120-200 mg/kg/day ÷ q 4-6h		

Drug / Formulation		Dose		Dose limit	comment
		mild-mod infections	severe infections		
Tetracyclines PO/IV		20-50 mg/kg/day PO ÷ q 6h	10-25 mg/kg/day IV ÷ q 6-12h	2 g/day	
Ticarcillin/Clavulanate IV		100-200 mg/kg/day ÷ q 6h	200-300 mg/kg/day ÷ q 6h	24 g/day	
Tobramycin IV/IM	MOD	Inappropriate	5-7.5 mg/kg/day ÷ q 8h		Adjust doses according to serum levels
	OD	5 mg/kg q 24h	7 mg/kg q 24h		
TMP/SMX (Cotrimoxazole) PO/IV		5-10 mg TMP (25/50 mg SMX) /kg/day PO/IV ÷ q 12h	10 mg TMP /kg/day IV ÷ q12 h PCP infection: 20 mg TMP /kg/day IV ÷ q 6 h	320 TMP (1600 SMX) mg/day	Prophylaxis: - UTI: 2-5 mg TMP/kg/ day PO OD - HIV: 5 mg TMP/kg/ day ÷ BID 3 or 7 days per wk - Other immune-compromised: 2.5-5 mg TMP/kg/day OD PO 3 times per wk
Vancomycin IV		40 mg/kg/day ÷ q 6-8h	40-60 mg/kg/day ÷ q6h Meningitis: 60 mg/kg/ day ÷ q6h	4 g/day	Adjust doses according to serum levels
Voriconazole PO/IV		- Children < 40 kg :8 mg/kg PO q 12h x 1 day, then Maintenance dose 7 mg/kg PO q 12h - Children > 40 kg : 400 mg PO q 12h x 1 day, then 200 mg PO q 12h.	Loading dose 18 mg/kg/day IV ÷ q12h x 1 day, then Maintenance dose 16 mg/kg/day IV ÷ q12h		Administer PO doses 1 hour before or 1 hour after meal

Drug / Formulation	Dose		Dose limit	comment
	mild-mod infections	severe infections		
Zanamivir Inhalation	Children ≥7 yr of age: 10 mg q 12h			
Zidovudine (ZDV) PO/IV	• PO: - 4-<9 kg: 12 mg/kg/dose q 12h - 9-<30 kg: 9 mg/kg/dose q 12h - ≥ 30 kg: 300 mg q 12h • IV continous infusion: 20 mg/m^2/hour IV intermittent infusion: 120 mg/m^2/dose q 6h		600 mg/day	

INTRAVENTRICULAR/INTRATHECAL DOSAGE

Drug	Dose	Comment
Amikacin	Adults: 5-50 mg/day	
Gentamicin	Newborn: 1 mg/day Infants: 1-2 mg/day Children: 2 mg/day Adults: 4-8 mg/day	Use a preservative free preparation
Polymyxin B	Chidren < 2yr : 20,000 units once daily for 3-4 days, then 25,000 units once every other day for at least 2 weeks after first negative CSF culture Chidren ≥ 2yr : 50,000 units once daily for 3-4 days, then once every other day for at least 2 weeks after first negative CSF culture	Reconstitute vial with 10 ml NS without preservatives to provide a final concentration of 50,000 units/ml
Polymyxin E (colistin)	1.6 mg (20,000 IU) once daily	
Vancomycin	Neonates & Infants: 4-10 mg/day Children: 5-20 mg/day Adults: 20 mg/day	

Dosage adjustment of antimicrobials in paediatric patients with impaired renal function

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Cephalosporins						
Cefazolin	25-50mg/kg q8h (max 6000 mg/dose)	NC	q12hr (max 2000 mg/dose)	q 24 h	q 48 h	**HD:** Intermittent dosing (3 times weekly) 25 to 50 mg/kg/dose after dialysis (max2,000 mg/dose). **PD**: 25-30 mg/kg/dose every 24 to 48 hr (max. dose: 1,000 mg/dose)
Cephalexin	5-10 mg/kg q6h (max 2000 mg /day)	NC	q8 hr (max 500 mg/ dose)	q 12h	q 24 h	**HD**: 5 to 10 mg/kg/dose q 24 hr after dialysis (max. dose 500 mg/dose). **PD**: 5 to 10 mg/kg/dose q 24 hr (max dose 500 mg/dose).
Cefuroxime	**IV**: 25-50 mg/kg q8h **PO**: 15 mg/kg q 12h	NC	q 12h	q 12h	q 24h	**HD**: Intermittent hemodialysis: 25 to 50 mg/kg/dose q 24 hr. Continuous renal replacement therapy (CRRT): 25 to 50 mg/kg/dose q 8 hr **PD**: 25 to 50 mg/kg/dose q 24 hr
Cefoxitin	20-40 mg/kg q 6h(max12 g/day)	NC	q8hr	q 12h	q 24h	**HD**: Intermittent hemodialysis20 to 40 mg/kg/dose q 24 hr. (CRRT): 20 to 40 mg/kg/dose q 8 hr. **PD**: 20 to 40 mg/kg/dose q 24 hr.
Cefotaxime	50-60 mg/kg q 8h (max 8g/ day)	NC	q 8-12 hr	q 12h	q 24h	**HD**: Intermittent hemodialysis:50-60 mg /kg/dose 24 hr. (CRRT): 50 to 60 mg/kg/dose q 12 hr. **PD**: 50-60 mg /kg/dose 24 hr.

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Ceftriaxone	50 to 75 mg/kg/dose q 24 hours (max.1,000 mg/dose)	NC	NC	NC	NC	**HD/PD**: None
Ceftazidime	30 to 50mg/kg q 8 hr.(max. 6g/day.)	NC	Q12hr	q 24h	q 48h	**HD**: 50 mg/kg/dose q48hr, give after dialysis on dialysis days. (CRRT): 50 mg/kg/dose q 12 hours. **PD:** 50 mg/kg/dose q48 hr. HD/PD:Not significantly removed
Cefixime	PO: 8 mg/kg/day q24-12hr (max 400 mg/day)	NC		NC	4 mg/kg	
Cefepime	50 mg/kg q 8-12h	50 mg/kg/dose q12hr(max. 1000 mg/dose)	50 mg/kg /dose q 12hr (max. 1000 mg/dose)	25 mg/kg/dose q24hr (max. 500 mg/dose)	25mg/kg/ dose q 24 hr(max.250 mg/dose)	**HD**: *Intermittent (posthemodialysis) dosing:* 50 mg/kg/dose following dialysis (max. 2,000 mg/dose. **PD**: 25 to 50 mg/kg/dose q 48 hr. (max.dose: 1,000 mg/dose)
Penicillins						
Ampicillin	50 to 200 mg/kg/day q 6hr (max. daily dose: 8 g/day**)**	NC	35 to 50 mg/kg/dose q 6 hr	35 to 50 mg/kg/dose q8 - 12 hr	35 to 50 mg/kg/dose q12 hr	**HD**: *Intermittent hemodialysis*: 35 to 50 mg/kg/dose q 12 hr. (CRRT): 35 to 50 mg/kg/dose q 6 hr. **PD:**35 to 50 mg/kg/dose q 12 hr.
Amoxicillin	**PO**:25 to 50 mg/kg/day q 8hr (max dose: 500 mg/dose)	NC		8 to 20 mg/kg/dose q 12 hr	8 to 20 mg/kg/dose q 24 hr.	**HD**: 8 to 20 mg/kg/dose q 24 hr give after dialysis **PD:** 25 mg/kg q12h

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Penicillin G	100,000 to 300,000 units/kg/day in q 4 to 6 hr (max daily dose 24 million).	NC		Administer a normal dose followed by 50% of the normal dose q 4 to 5 hr.	Administer a normal dose followed by 50% of the normal dose q 8 to 10 hr	**HD**: after dialysis **PD:** as for CLCr<10
Cloxacillin	PO:: 25 to 50 mg/kg/day q 6 hr. IV: 25-50 mg/kg q 6h	NC	NC	NC	35 to 50 mg/kg /dose q 8 hr	**HD**: after dialysis **PD:** as for CLCr<10
Piperacillin/Tazobactam	240 to 300 mg /kg/day q 3 to 4 doses (max daily dose: 16 g/day)	NC		35 to 50 mg/kg /dose q6h		**HD:** (IHD): 50 to 75 mg kg/dose q12 hr. (CRRT): 35 to 50 mg /kg/dose q 8 hr. **PD**: 50 to 75 mg /kg/dose q 12 hr.
Carbapenems						
Meropenem	20-40 mg/kg q 8h	NC	20 to 40 mg/kg/dose q12 hr.	10 to 20 mg/kg/dose q 12 hr.	10 to 20 mg/kg /dose q 24 hr.	**HD:**10 to 20 mg/kg/dose q 24 hours, after hemodialysis. (CRRT): 20 to 40 mg/kg/dose q 12 hr **PD**: 10 to 20 mg/kg/dose q 24 hr.
Imipenem-cilastatin	60 to 100 mg/kg/**day**q 6 hr(max daily dose 4,000 mg/**day)**	NC	7 to 13 mg/kg/dose q 8 hr	7.5 to 12.5 mg/kg/dose q 12 hr	7.5 to 12.5 mg/kg/dose q 24 hr	**HD**7.5 to 12.5 mg/kg/dose q 24 hr after dialysis . (CRRT): 7 to 13 mg/kg/dose q 8 hr. **PD:**7.5 to 12.5 mg/kg/dose q24 hr .
Monobactam						
Aztreonam	90 mg/kg/day q8 hr.(max.3,000 mg/**day)**	NC		15 to 20 mg/kg q 8 hr	7.5 to 10 mg/kg q12 hr	**HD:**7.5 to 10 mg/kg q 12 h. (CRRT): No adjustment required **PD:**7.5 to 10 mg/kg q 12 hr.

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Aminoglycosides*						
Amikacin	15 to 22.5 mg/kg/**day**q 8 to 12 hr.	NC	q 12- 18 hr	q12 to 18 hours(According to serum levels)	q 48-72h (According to serum levels)	**HD**: 5 mg/kg/dose; redose as indicated by serum concentrationsafter dialysis. (CRRT): 7.5 mg/kg/dose q12 hours, monitor serum concentrations **PD**: 5 mg/kg/dose; redose as indicated by serum concentrations.
Gentamicin	2 to 2.5 mg/kg/dose q 8 hr	NC	q 12 to 18 hr	q18 to 24 hr. (According to serum levels).	q 48-72h (According to serum levels)	**HD:**2 mg/kg/dose; redose as indicated by serum concentration after dialysis. (CRRT): 2 to 2.5 mg/kg/dose q 12 to 24 hr, monitor serum concentrations **PD**: 2 mg/kg/dose; redose as indicated by serum concentration
Tobramycin	6 to 7.5 mg/kg/**day**q 6 to 8 hr	NC	q12 to 18 hr	Q 18 to 24 hr	q 48-72h (According to serum levels)	**HD**2 mg/kg/dose; redose as indicated by serum concentrations after dialysis. (CRRT): 2 to 2.5 mg/kg/dose q12 - 24 hr, monitor serum concentrations **PD**: 2 mg/kg/dose; redose as indicated by serum concentrations.
Macrolides						
Azithromycin	I**V:**10 mg/kg once daily; max 500 mg/dose.	NC	NC	NC	NC	**HD/PD**: None
Clarithromycin	**PO**: 7.5 mg/kg/dose q12 hr (max dose: 500 mg/dose)	NC	NC	4 mg/kg/dose q 12 hr.	4mg/kg/dose q24 hr	**HD**:Administer after hemodialysis 4 mg/kg/dose once daily **PD**: 4 mg/kg/dose once daily

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Erythromycin	**PO**:30 to 50 mg/kg/ **day**q 6-8 hr (max 2,000 mg/**day).** **IV:**15 to 20 mg/kg/day q 6 hr (max. 4,000 mg/day)	NC	NC	NC	NC	**HD/PD**: None
Miscellaneous						
Chloramphenicol	**IV:** 18.75 to 25 mg/kg/doseq 6 hr(max. 4,000 mg/**day)**	NC	NC	NC	NC	**HD/PD:** None
Ciprofloxacin	**PO**: 15 to 20 mg/kg/dose q 12 hr(max:750 mg/dose) **IV**: 10 mg/kg/dose q 8 - 12 hr(max 400 mg/dose).	NC	NC	10 to 15 mg/kg/dose q 18 hr	10 to 15 mg/kg/dose q 24 hr.	**HD/PD**: 10 to 15 mg/kg/dose q 24 hr. **CRRT**: 10 to 15 mg/kg/dose q12 hr.
Clindamycin	**IV**: 20 to 40 mg/kg/**day** q 6 to 8 hr (max dose 2,700 mg/**day)** **PO**: 10 to 25 mg/kg/ **day**q 8 hr (max 1,800 mg/**day)**	NC	NC	NC	NC	**HD/PD:** None
Doxycycline	**PO, IV**: 2.2 mg/kg/dose q12 hr (max 100 mg/dose)	NC	NC	NC	NC	**HD/PD**: None
Linezolid	**PO, IV:** 10 mg/kg/dose q 8 hr (max 600 mg/ dose)	NC	NC	NC	NC	**HD/PD**: 10 mg/kg/dose q 8 hr. **CRRT:** NC

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Metronidazole	**PO**: 15 to 50 mg/kg/ **day** q 8hr (max 2,250 mg/**day**) **IV**: 22.5 to 40 mg/kg/ **day** q 8-6 hr (max 4,000 mg/**day)**	NC	NC	NC	4 mg/kg/dose q 6 hr	**HD/PD:** 4 mg/kg/dose q 6 hr. **CRRT:** NC
Nitrofurantoin	**PO**: 5 to 7 mg/kg/day q 6 hr	NC	NC	contraindicated	ontraindicated	**HD/PD**: Avoid
Quinupristin-Dalfopristin	I**V:** 7.5 mg/kg q 8 - 12 hr	NC		NC	NC	**HD/PD:** None
Trimethoprim-Sulfamethoxazole	**PO,IV**: 6 to 12 mg TMP/kg/day q 12 hr(max.160 mg TMP/dose) **PCP**: **PO,IV**5 mg/kg/**dose** q 6 hr	NC NC		3 to 5 mg TMP/kg/**dose** q 18 hr **PCP**: 5 mg TMP/kg/**dose** q 8 hr.	3 to 5 mg TMP/kg/**dose**q 24 hr **PCP**: 5 mg TMP/kg/**dose**q 12hr.	**HD/PD:**3 to 5 mg TMP/kg/**dose**q 24 hr; administer 2.5 mg TMP/kg/**dose** after each dialysis session **CRRT:** • *Combined dialysis flow + ultrafiltration rate <1,500 mL/m²/hr:* 3 - 5 mg TMP/kg/dose q 18 hr. • *Combined dialysis flow + ultrafiltration rate ≥ 1,500 mL/m²/hr*: 4- 5 mg TMP/kg/dose q 18 hr
Vancomycin*	45 to 60 mg/kg/**day**q 6 - 8 hr	NC		30-50 :10 mg/ kg/dose q 12hr 10-29:10 mg/ kg/dose q 18–24 hr	10 mg/kg/ dose; redose based on serum concentrations	**HD/PD:** 10 mg/kg/dose; redose based on serum concentrations. **CRRT:** 10 mg/kg/dose q 12-24hr; monitor serum concentrations.

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Antituberculous						
Ethambutol	**PO**:15-25 mg/kg q 24h	NC		NC	NC	**HD/PD**: None
Ethionoamide	**PO:** 15 to 20 mg/kg/day q 12-24 hr(max.1,000 mg**/day).**	NC		NC	NC	**HD/PD**: None
Isoniazid	**PO, IM**10-15 mg/kg q 24h(max.300 mg/dose).	NC		NC	10 mg/kg	**HD/PD:**None, after dialysis.
Para-aminno-salicylic acid	**PO:**200 to 300 mg/kg/**day**. (100 mg/kg/dose q8-12hr).	NC		NC	NC	**HD**: after dialysis **PD:** None
Pyrazinamide	**PO**:30 to 40 mg/kg/dose q24 hr	NC				**HD/PD:** None
Rifampicin	10-20 mg/kg q 24hmax(900 mg/**day)**	NC		NC	5 mg/kg	**HD/ PD:** None
Antifungal						
Amphotericin B	0.25 to 0.5 mg/kg/dose q24hr (max 1.5 mg/kg/**day**).	NC	NC	NC	0.15-0.25 mg/kg/dose q 24 hr	**HD/PD:** None
Lipid AmB (Abelcet)	5 mg/kg q 24h	NC	NC	NC	NC	**HD/PD**: None
Liposomal AmB (AmBisome)	3-5 mg/kg q 24h	NC	NC	NC	NC	**HD/PD**: None
Caspofungin	70 mg/m^2 LD, then 50 mg/m^2 q 24h.	NC	NC	NC	NC	**HD/PD:** None

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Fluconazole	*Prophylaxis:* **IV, Oral**: 3 - 6 mg/kg/dose twice **weekly**. *Treatment:* **IV, Oral**: Initial: 25 mg/kg on day 1, followed by 12 mg/kg/dose q24hr.	NC		50% q 24h	50% q 48h	**HD**: after dialysis **PD**: as for CLCr<10. **CRRT:** IV, Oral: <1,500 mL /m^2/ **hour** (<25 mL/ m^2/ minute): DL: 6 to 10 mg/kg/dose q24hr. DM: 3 to 12 mg/kg/dose q24hr. ≥1,500 mL/m^2/**hour** (≥25 mL/m^2/minute): DL: 6 to 10 mg/kg/dose q24h DM: 6 to 12 mg/kg/dose q24hr.
Flucytosine	**PO**:50-150mg/kg/ day q 6h.	NC	25 to 37.5 mg/kg/dose q 8 hr	25 to 37.5 mg/kg/dose q12 hr.	25 to 37.5 mg/kg/dose q24 hr	**HD/PD**:25 to 37.5 mg/kg/dose q24 hr, after dialysis. **CRRT:**25 to 37.5 mg/kg/dose q 8 hr; monitor serum concentrations
Griseofulvin	**PO**:20 to 25 mg/kg/day q12hr. (max. 1,000 mg/**day.**	NC	NC	NC	NC	**HD/PD:**None
Itraconazole	5 mg/kg q24h(max. 200 mg/dose)	NC	NC	NC	NC	**HD/PD**: None
**Voriconazole	*DL*, **IV** 9 mg/kg/dose q 12 hr for 2 doses day 1. *DM:***IV**: 8 mg/kg/dose q 12 hr. **PO**: 9 mg/kg/dose q 12 hr (max> 350 mg/dose)	NC	NC	NC	NC	**HD/PD:** None

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Antiviral						
Acyclovir	**IV**:10-15 mg/kg/ dose q 8h	NC	10-15 mg/kg/dose q12 hr .	10-15mg/kg q24 hr	5 mg/kg/dose q 24 hr	**HD:**5 mg/kg/dose q 24 hr after dialysis **PD**: 5 mg/kg/dose q 24 hr. **CRRT:** 10 mg/kg/dose q 12 hr.
Ganciclovir	**IV:**6 mg/kg/dose q 12 hr.	NC	NC	NC	NC	**HD/PD**: None
Foscarnet	**IV**: 180 mg/kg/dayq 8 - 12 hr	NC	NC	NC	NC	**HD/PD:**None
Amantadine	**PO:** 4.4 to 8.8 mg/kg/ **day** q 12 hr (max: 150 mg/**day)**.	NC	NC	NC	NC	**HD/PD:** None
Oseltamivir	3 mg/kg/ day q 12h	NC	NC	NC	NC	**HD**: (IHD) • ≤15 kg: 7.5 mg after each hemodialysis session. • >15 kg to ≤23 kg: 10 mg after each hemodialysis session. • >23 kg to ≤40 kg: 15 mg after each hemodialysis session. • >40 kg: 30 mg after each hemodialysis session **PD:** None.
Zanamivir	10 mg inhaled q 12h	NC	NC	NC	NC	**HD/PD:** None
Ribavirin	PO:15 mg/kg/day q 12 hr	NC	NC	NC	containdicated	**HD/PD**: None

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Anti-HIV						
Abacavir	8 mg/kg/dose q12hr daily (max 300 mg/dose)	NC	NC	NC	NC	HD/PD: None
Didanosine	100 mg/m^2/dose q 12 hr.	NC	NC	NC	NC	HD/PD: None
Lamivudine (3TC)	4 mg/kg/ day q 12h	NC	150 mg once daily	150 mg first dose, then 100 mg OD	150 mg first dose, then 50 mg OD 80 mg/m^2 q 8h	**HD**: 1 mg/kg/dose q24hr .after dialysis **PD:**1 mg/kg/dose q24hr. **CRRT:** 4 mg/kg/dose q24hr
Zadovudine (AZT)	**PO**:180- 240 mg/**m^2**/doseq 12 hr, (max . 300 mg/dose). **IV:**120 mg/m^2/dose q 6 hr(max160 mg/dose)	NC	NC	NC	NC	HD/PD: None.
Nevirapine	**Age <8 yrs:**PO:.200 mg/m^2/dose q12 hr (max dose: 200 mg/dose). **≥8 years**: **PO**: 120 to 150 mg/m^2/dose q24 hr (max 200 mg/dose)	NC	NC	NC	NC	HD/PD: None
Indinavir	**PO:**400 mg/m^2/dose (max.800 mg) q 12 hr.	NC	NC	NC	NC	HD/PD: None
Nelfinavir	45 to 55 mg/kg/dose (max 1,250 mg/dose) q12 hr	NC	NC	NC	NC	HD/PD: None

Drug	Usual dose	Creatinine clearance (ml/min)				Supplement for dialysis
		>50	50-30	30-10	<10	
Ritonavir	**PO:** 250 mg/m^2/dose q 12 hr; titrate at 2-3-day by 50 mg/m^2/dose q12hr Daily increments to 350 to 400 mg/m^2/dose q12hr (max. 600 mg/ dose).	NC	NC	NC	NC	HD/PD: None
Saquinavir	**PO**:50 mg/kg/dose (max 1,000 mg/dose) q12hr	NC	NC	NC	NC	HD/PD: None

* Dose and frequency should be individualized based on serum concentrations, AUC_{24} target of 400 mg•hour/L is recommended in patients with serious methicillin-resistant *S. aureus* (MRSA) infections; specific dosing recommendations may be higher when targeting this range.

**Monitoring of serum trough concentrations typically initiated after 3 to 5 days, maintain trough concentrations of 2 to 6 mcg/mL.

Intraperitoneal antibiotic dosing in PD-related peritonitis

Antibiotic	Continuous therapy		Intermittent therapy
	Loading dose	Maintenance dose	
Ampicillin	-	125 mg/L	-
Amikacin	25 mg/L	12 mg/L	-
Aztreonam	1000 mg/L	250 mg/L	-
Cefazolin	500 mg/L	125 mg/L	15 mg/kg q 24 hrs
Cefuroxime	200 mg/L	125 mg/L	15 mg/kg q 24 hrs
Cefotaxime	500 mg/L	250 mg/L	30 mg/kg q 24 hrs
Ceftazidime	250 mg/L	125 mg/L	15 mg/kg q 24 hrs
Ciprofloxacin	50 mg/L	25 mg/L	-
Clindamycin	300 mg/L	150 mg/L	-
Gentamicin	8 mg/L	4 mg/L	-
Imipenem/Cilastatin	500 mg/L	200 mg//L	-
Nafcillin	-	125 mg/L	-
Oxacillin	-	125 mg/L	-
Piperacillin	-	250 mg/L	-
TMP/SMX	320/1600 mg/L	80/400 mg/L	-
Vancomycin	500 mg/L	30 mg/L	30 mg/kg q 5-7 days
Fluconazole	-	-	3-6 mg/kg q 24-48 hrs (max. 200 mg)

- Loading dose should be administered during a standardized 3- to 6-hr dwell period.
- Intermittent dosing should be administered over ≥ 6 hr in one bag per day.
- If vancomycin intermittent therapy is used, the second dose should be time-based on a blood level obtained 3-5 days after initial dose. Redoes when blood level < 12 mg/L.
- Penicillins and aminoglycosides should not be mixed in dialysis fluid because of the potential for inactivation.

References

1. Red Book: Report of the Committee on Infectious Diseases, 2021 (32nd Edition).
2. Nelson's Pediatric Antimicrobial Therapy, 2023 (29th Edition)
3. Nelson's Neonatal Antimicrobial Therapy, 2019 (1st Edition)
4. The Harriet Lane handbook of pediatric antimicrobial therapy, 2014 (second Edition)
5. Principles and Practice of Pediatric Infectious Diseases, 2023 (6th Edition)
6. IBM NeoFax, 2021
7. Lexicomp Online
8. MOH Protocol for Patients Suspected of/Confirmed with COVID-19, (version 3.6) April 14th, 2022
9. Omar Alzomor et. al., Management of community-acquired pneumonia in infants and children: Clinical practice guidelines endorsed by the Saudi Pediatric Infectious Diseases Society, 2017.
10. Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce Perinatal HIV Transmission in the United States; Clinicalinfo.hiv.gov/2023.
11. CDC's Sexually Transmitted Infections (STI) Treatment Guidelines, 2021.