

This guide does NOT apply to NICU or immunocompromised patients.

A thorough clinical assessment is required to identify any complicating factors which may necessitate alternative/additional therapy
Selection of empiric regimens may need to be tailored according to current local antibiogram or individual clinical factors.

Before starting anti-microbial therapy, take blood/urine/CSF and/or other relevant samples for culture wherever possible. Obtain appropriate dosage from current "[Drug Dosage Guidelines](#)". Consider the need for dose adjustments (e.g. renal impairment) and age-related contraindications for antimicrobials.

REVIEW DAILY - Adjust treatment according to microbiologic results as soon as they become available.

Consult ID and/or relevant subspecialty team(s) if required

All drugs IV unless stated (links to PEDIATRIC Drug Dosage Guidelines, 7th edition)

Infection	Most likely pathogens	First choice	Penicillin allergy [^]	Refs**
Sepsis - unknown source				
Sepsis (<4 weeks)	<i>Streptococcus agalactiae</i> (GBS) <i>Escherichia coli</i> <i>Listeria monocytogenes</i> Herpes simplex virus (HSV)	Ampicillin + (Gentamicin or Cefotaxime) + Acyclovir	Vancomycin + (Gentamicin or Cefotaxime) + Acyclovir	BCCH AAP SSC
Sepsis (≥4 weeks)	<i>Neisseria meningitidis</i> <i>Streptococcus pneumoniae</i> <i>Escherichia coli</i> <i>Staphylococcus aureus</i>	Cefotaxime [†] ± Vancomycin *	Cefotaxime [†] ± Vancomycin *	BCCH SSC
CNS				
Meningitis (<4 weeks)	<i>Streptococcus agalactiae</i> (GBS) <i>Escherichia coli</i> <i>Listeria monocytogenes</i> Herpes simplex virus (HSV)	Ampicillin + Cefotaxime + Acyclovir	Vancomycin + Cefotaxime + Acyclovir	AAP IDSA
Meningitis (≥4 weeks)	<i>Neisseria meningitidis</i> <i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i>	Cefotaxime [†] + Vancomycin ± Acyclovir	Cefotaxime [†] + Vancomycin ± Acyclovir	IDSA CPS
Encephalitis	Herpes simplex virus (HSV)	Acyclovir + Antibiotics as for "Meningitis"	Acyclovir + Antibiotics as for "Meningitis"	IDSA
Cerebral abscess or subdural empyema	<i>Streptococcus</i> spp. <i>Staphylococcus aureus</i> Anaerobic organisms Gram-negative organisms <i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i>	Cefotaxime [†] +/- Vancomycin * + Metronidazole	Cefotaxime [†] +/- Vancomycin * + Metronidazole	FC
ENT, ocular and dental				
Streptococcal pharyngitis / tonsillitis	<i>Streptococcus pyogenes</i> (Group A Strep)	Penicillin V PO or Amoxicillin PO	Clindamycin PO	IDSA RB
Bacterial acute otitis media	<i>Haemophilus influenzae</i> <i>Streptococcus pneumoniae</i> <i>Moraxella catarrhalis</i>	Amoxicillin PO or Amoxicillin-clavulanate PO	Cefuroxime PO or Clarithromycin PO	CPS AAP
Mastoiditis	<i>Streptococcus pneumoniae</i> <i>Streptococcus pyogenes</i> (Group A Strep) <i>Staphylococcus aureus</i>	Cefotaxime [†] ± Vancomycin ± Metronidazole	Cefotaxime [†] ± Vancomycin ± Metronidazole	FC
Sinusitis	<i>Haemophilus influenzae</i> <i>Streptococcus pneumoniae</i> <i>Moraxella catarrhalis</i> <i>Staphylococcus aureus</i> <i>Streptococcus pyogenes</i> (Group A Strep) Anaerobic organisms (older children)	Amoxicillin PO or Amoxicillin-clavulanate PO If IV treatment required, treat as for mastoiditis	Cefuroxime PO If IV treatment required, treat as for mastoiditis	IDSA AAP BD CFM
Cervical lymphadenitis	<i>Staphylococcus aureus</i> <i>Streptococcus pyogenes</i> (Group A Strep)	Cephalexin PO or Clindamycin PO* or Cefazolin	Clindamycin PO or Cefazolin	BD FC
Preseptal cellulitis	<i>Streptococcus pneumoniae</i> <i>Staphylococcus aureus</i> Group A <i>Streptococcus</i> <i>Staphylococcus epidermidis</i>	Cephalexin PO or Clindamycin PO* or Cefazolin or Vancomycin *	Cefuroxime PO or Clindamycin PO* or Cefazolin or Vancomycin *	AAP Long
Orbital cellulitis	<i>Staphylococcus aureus</i> <i>Streptococcus pneumoniae</i> Other <i>Streptococcus</i> spp. <i>Haemophilus influenzae</i>	Cefotaxime [†] ± Vancomycin * ± Metronidazole	Cefotaxime [†] ± Vancomycin * ± Metronidazole	AAP Long
Dental abscess with fever and/or extensive spread	Viridans streptococci <i>Peptostreptococcus</i> spp. <i>Prevotella</i> spp. <i>Porphyromonas melaninogenicus</i> <i>Fusobacterium</i> spp. Usually polymicrobial	Amoxicillin-clavulanate PO or Penicillin G + Metronidazole PO	Clindamycin PO/IV	BD FC

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Infection	Most likely pathogens	First choice	Penicillin allergy^	Refs**
Lower respiratory tract				
Community-acquired pneumonia (<1 month)	<i>Streptococcus agalactiae</i> (GBS) <i>Escherichia coli</i> <i>Listeria monocytogenes</i>	Ampicillin + (Gentamicin or Cefotaxime †)	Vancomycin + (Gentamicin or Cefotaxime †)	BCCH BD
Community-acquired pneumonia (1-3 months)	<i>Streptococcus pneumoniae</i> <i>Streptococcus agalactiae</i> (GBS) <i>Staphylococcus aureus</i> <i>Escherichia coli</i> <i>Chlamydia trachomatis</i>	Cefotaxime † ± Vancomycin	Cefotaxime † ± Vancomycin	BCCH BD
Community-acquired pneumonia (>3 months) - mild	Respiratory viruses <i>Streptococcus pneumoniae</i>	Amoxicillin PO	Cefuroxime PO	IDSA CPS
Community-acquired pneumonia (>3 months) - moderate	<i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i> <i>Staphylococcus aureus</i> <i>Streptococcus pyogenes</i>	Ampicillin ± Clarithromycin/Azithromycin PO ± Oseltamivir PO	Cefuroxime ± Clarithromycin/Azithromycin PO ± Oseltamivir PO	AAP IDSA CPS BCCH
Community-acquired pneumonia (>3 months) - severe	<i>Mycoplasma pneumoniae</i> <i>Chlamydia pneumoniae</i>	Cefotaxime † ± Vancomycin ± Clarithromycin/Azithromycin PO ± Oseltamivir PO	Cefotaxime † ± Vancomycin ± Clarithromycin/Azithromycin PO ± Oseltamivir PO	IDSA CPS BCCH
Parapneumonic empyema	<i>Staphylococcus aureus</i> <i>Streptococcus pneumoniae</i> Group A streptococcus <i>Haemophilus influenzae</i>	Cefotaxime † ± Vancomycin	Cefotaxime † ± Vancomycin	CPS IDSA BCCH
Hospital-acquired pneumonia	<i>Staphylococcus aureus</i> <i>Haemophilus influenzae</i> <i>Enterobacter</i> spp. <i>Pseudomonas aeruginosa</i>	(Cefotaxime † or Piperacillin-tazobactam) ± Vancomycin *	Cefotaxime † ± Vancomycin ± Gentamicin	BCCH IDSA
Aspiration pneumonitis		Not required	Not required	
Aspiration pneumonia – mild/moderate/Community-acquired	Oral streptococci Oral anaerobes (not established until after teeth erupt) <i>Streptococcus pneumoniae</i>	Amoxicillin-clavulanate PO or Ampicillin + Metronidazole PO or Clindamycin PO	Cefuroxime IV/PO + Metronidazole PO or Clindamycin PO	
Aspiration pneumonia – severe/Hospital-acquired	<i>Staphylococcus aureus</i> <i>Haemophilus influenzae</i>	Cefotaxime † + Metronidazole PO	Cefotaxime † + Metronidazole PO	Mandell BD
Cardiac				
Infective endocarditis	Viridans streptococci <i>Staphylococcus aureus</i>	As guided by blood culture results Consult ID & Cardiology	As guided by blood culture results Consult ID & Cardiology	AHA
Genito-urinary tract				
Urinary tract infection (<2 months)	<i>Escherichia coli</i> <i>Klebsiella</i> spp. <i>Proteus</i> spp. <i>Enterobacter</i> spp. <i>Enterococcus</i> spp.	Ampicillin + Gentamicin Imperative to check blood and CSF cultures. If positive, exit UTI pathway.	Cefotaxime or Gentamicin Imperative to check blood and CSF cultures. If positive, exit UTI pathway.	AAP CPS
Urinary tract infection – mild (≥2 months)	<i>Escherichia coli</i> <i>Klebsiella</i> spp. <i>Proteus</i> spp. <i>Enterobacter</i> spp. <i>Enterococcus</i> spp. <i>Staphylococcus saprophyticus</i> (adolescents)	Cephalexin PO	Septro PO	AAP BD CPS
Urinary tract infection – severe (≥2 months)	<i>Escherichia coli</i> <i>Klebsiella</i> spp. <i>Proteus</i> spp. <i>Enterobacter</i> spp.	Cefotaxime or Gentamicin	Cefotaxime or Gentamicin	AAP CPS
Pelvic inflammatory disease	<i>Neisseria gonorrhoeae</i> <i>Chlamydia trachomatis</i> Anaerobic organisms	(Cefixime PO or Ceftriaxone IM) + (Doxycycline PO or Azithromycin PO) ± Metronidazole PO (if bacterial vaginosis suspected with PID)	(Cefixime PO or Ceftriaxone IM) + (Doxycycline PO or Azithromycin PO) ± Metronidazole PO (if bacterial vaginosis suspected with PID)	BCCDC BD RB
Intra-abdominal				
Bacterial gastroenteritis	<i>Salmonella</i> spp. <i>Shigella</i> spp. <i>Campylobacter</i> spp. <i>Escherichia coli</i> <i>Plesiomonas shigelloides</i> <i>Aeromonas hydrophila</i>	Treatment not routinely required. If severe then treat according to susceptibilities of organism isolated	Treatment not routinely required. If severe then treat according to susceptibilities of organism isolated	IDSA
Secondary peritonitis (excluding peritoneal dialysis patients)	<i>Escherichia coli</i> <i>Klebsiella</i> spp. <i>Pseudomonas aeruginosa</i> <i>Enterococcus</i> spp. <i>Bacteroides fragilis</i> <i>Peptostreptococcus</i> spp.	Cefotaxime † + Metronidazole	Cefotaxime † + Metronidazole	IDSA BCCH
Primary peritonitis	<i>Streptococcus pneumoniae</i> <i>Escherichia coli</i>	Cefotaxime †	Cefotaxime †	EC Mandell
Ascending cholangitis	<i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Enterobacter</i> spp. <i>Pseudomonas aeruginosa</i> <i>Enterococcus</i> spp. Anaerobic organisms	Cefotaxime † + Metronidazole	Cefotaxime † + Metronidazole	IDSA

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Health-care associated intra-abdominal infection (ie. patients who have had intra-abdominal surgery, have intra-abdominal stents or drains in situ or have had hospitalization >1 week)	<i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Enterobacter</i> spp. <i>Pseudomonas aeruginosa</i> <i>Enterococcus</i> spp. Anaerobic organisms Multi-drug resistant organisms (MDRO's)	————— Piperacillin-Tazobactam	————— Cefepime + Metronidazole	IDSA
<i>Clostridium difficile</i> infection	<i>Clostridium difficile</i>	Mild/moderate: Metronidazole PO Severe: Vancomycin PO Stop all other antibiotics if possible	Mild/moderate: Metronidazole PO Severe: Vancomycin PO Stop all other antibiotics if possible	BCCH IDSA CPS
Skin and soft tissue				
Cellulitis - mild	<i>Streptococcus pyogenes</i> (Group A Strep) <i>Staphylococcus aureus</i>	Cephalexin PO or Trimethoprim-Sulfamethoxazole PO*	Trimethoprim-Sulfamethoxazole PO*	CPS IDSA
Cellulitis - severe	<i>Streptococcus pyogenes</i> (Group A Strep) <i>Staphylococcus aureus</i>	Cefazolin or Vancomycin *	Cefazolin or Vancomycin *	IDSA BD
Soft tissue injury - clean	Not infected	Not required	Not required	FC
Dog / cat / human bites - mild	<i>Staphylococcus aureus</i> <i>Streptococcus</i> spp. <i>Eikenella corrodens</i> (human) <i>Pasteurella</i> spp. (dog/cat) <i>Capnocytophaga cynodegmi</i> (dog/cat) Anaerobic organisms Usually polymicrobial	Amoxicillin-clavulanate PO	Clindamycin PO* + Trimethoprim-Sulfamethoxazole PO*	IDSA FC
Dog / cat / human bites - severe	<i>Staphylococcus aureus</i> <i>Streptococcus</i> spp. <i>Eikenella corrodens</i> (human) <i>Pasteurella</i> spp. (dog/cat) <i>Capnocytophaga cynodegmi</i> (dog/cat) Anaerobic organisms Usually polymicrobial	Piperacillin-tazobactam	Clindamycin * + Trimethoprim-Sulfamethoxazole *	IDSA FC Mandell
Necrotising fasciitis (unknown etiology)	<i>Streptococcus pyogenes</i> (Group A Strep) <i>Staphylococcus aureus</i> Aerobic and Anaerobic organisms May be polymicrobial	Piperacillin-tazobactam + Clindamycin +/- Vancomycin *	Ciprofloxacin + Clindamycin +/- Vancomycin *	IDSA FC
Documented group A streptococcal necrotising fasciitis	<i>Streptococcus pyogenes</i> (Group A Strep)	Penicillin G + Clindamycin	Cefazolin + Clindamycin	IDSA FC
Musculoskeletal				
Osteomyelitis or septic arthritis (≥3 months)	<i>Staphylococcus aureus</i> <i>Streptococcus pyogenes</i> (Group A Strep) <i>Streptococcus pneumoniae</i> <i>Kingella kingae</i> <i>Neisseria</i> spp. <i>Salmonella</i> spp. <i>H. influenzae</i> if unimmunized	Cefazolin or Vancomycin * (Consider adding Cefuroxime if unimmunized)	Cefazolin or Vancomycin * (Consider adding Cefuroxime if unimmunized)	CPS FC Mandell

[^] This refers to Type 1 IgE mediated hypersensitivity reactions to Penicillins (anaphylaxis).

‡ [Cefotaxime](#) may be interchanged with [ceftriaxone](#) for children over 30 days old and not on calcium-containing parenteral products (e.g. TPN).

*As anti-MRSA agent. **Current local MRSA rates are available via the [hospital antibiogram](#).** The following factors have been associated with MRSA in previous studies:

- Previous known MRSA infection in child or a significant contact (e.g. family member)
- Family member is a healthcare worker
- First nations child or Pacific Island origin (e.g. Samoan)
- Day care attendance
- Prolonged hospitalization in the last 1 year
- Antibiotic therapy in the last 2 months
- Critically ill
- Chronic skin condition (e.g. atopic eczema)

**References:

- [AAP = American Academy of Pediatrics Guidelines](#)
- [BCCDC = BC Centre for Disease Control](#)
- [BCCH = Pre-existing BC Children's Hospital Guidelines \(sepsis guideline, PICU guideline\)](#)
- [BD = Bugs & Drugs. Blondel-Hill and Fryters](#)
- [CFM = Canadian Family Physician, by the College of Family Physicians of Canada](#)
- [CPS = Canadian Pediatric Society Guidelines](#)
- [IDSA = Infectious Diseases Society of America Guidelines](#)
- [RB = Red book. American Academy of Pediatrics \(2015\)](#)
- [FC = Textbook of Pediatric Infectious Diseases. Feigin and Cherry, 7th ed. \(2014\)](#)
- [Mandell = Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, 8th ed. \(2015\)](#)
- [Long = Principles and Practice of Pediatric Infectious Diseases. Long, Pickering and Prober, 4th ed. \(2012\)](#)
- [SSC = Surviving Sepsis Campaign: International Guidelines for the Management of Severe Sepsis and Septic Shock: 2016](#)