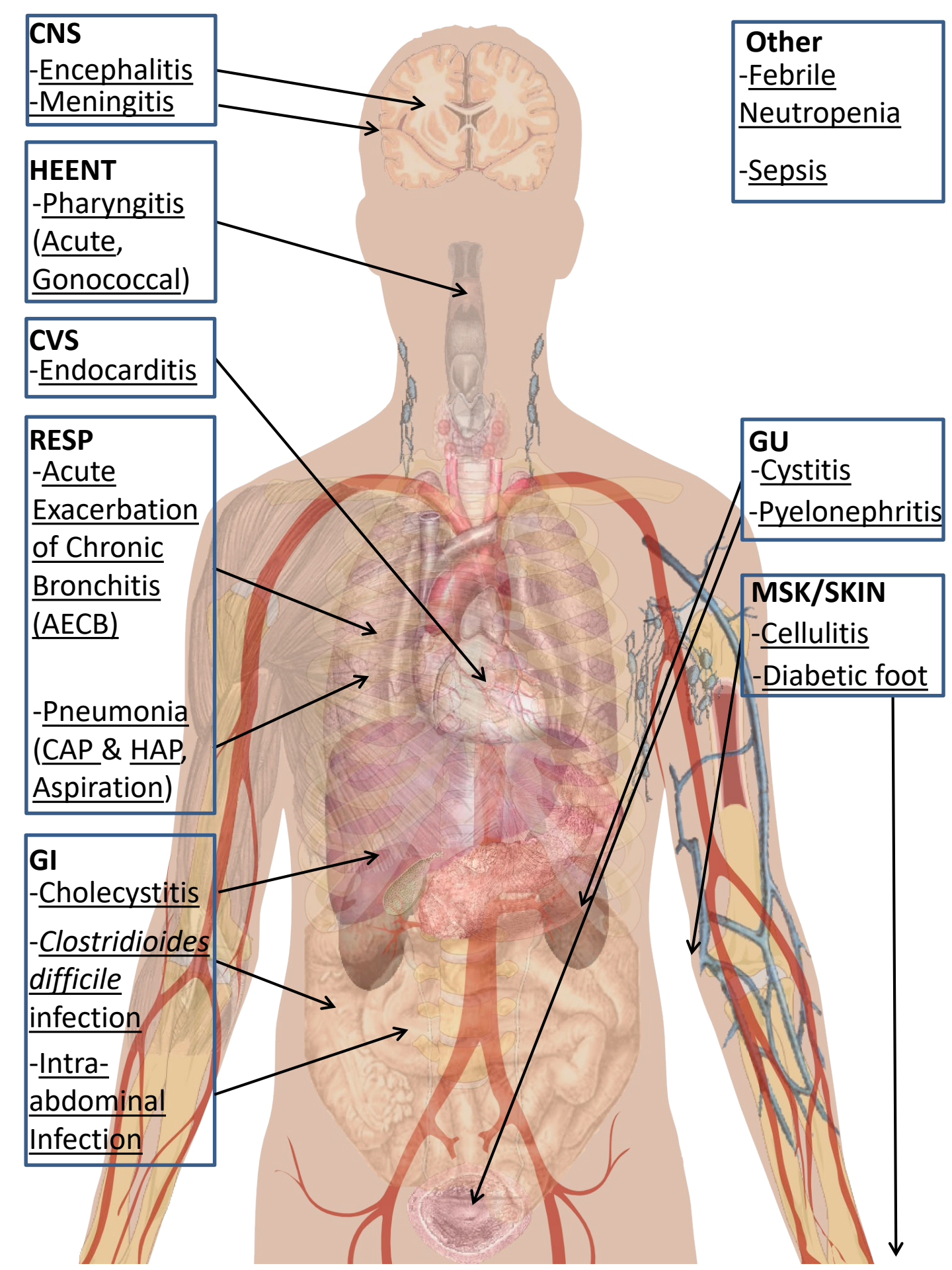

CNS
-Encephalitis
-Meningitis
HEENT
-Pharyngitis (Acute, Gonococcal)
CVS
-Endocarditis
RESP
-Acute Exacerbation of Chronic Bronchitis (AECB)
-Pneumonia (CAP & HAP, Aspiration)
GI
-Cholecystitis
-Clostridioides difficile infection
-Intra-abdominal Infection
Other
-Febrile Neutropenia
-Sepsis
GU
-Cystitis
-Pyelonephritis
MSK/SKIN
-Cellulitis
-Diabetic foot

Meningitis

Community-Acquired:

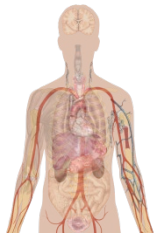
No recent neurosurgery or invasive neurological procedure (e.g. intrathecal pump insertion). Absence of encephalitis.

Post-Neurosurgical:

Recent neurosurgery or invasive neurological procedure - infection attributable to device implantation in neural tissue (e.g. spine stimulator). Absence of encephalitis.

Encephalitis:

Patient has symptoms of seizures, altered mental status, and focal neurologic signs.
Absence of neck stiffness or jolt accentuation.



Community-Acquired Meningitis

Treatment duration is based on causative organism (see below). Aseptic meningitis is often caused by viruses. For other organisms, please contact Infectious Diseases or Medical Microbiology. Tailor treatment once cultures are available, if culture is negative by day 3, consider discontinuing antibiotics.

Empiric therapy

Drug	Dose	Route	Duration
Ceftriaxone	2 g q12h	IV	2-3 days then reassess
If ceftriaxone allergy: Meropenem 2 g IV q8h x 2-3 days then reassess			

→If elderly/immune-suppressed **ADD** to ceftriaxone **ONE** of:

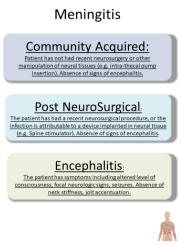
Ampicillin	2 g q4h	IV	2-3 days then reassess
TMP-SMX	5 mg/kg q6h	IV	2-3 days then reassess

→If suspected *S. pneumoniae* resistance, **ADD** to ceftriaxone:

Vancomycin	Load 30 mg/kg, then 20 mg/kg q8-12h	IV	2-3 days then reassess

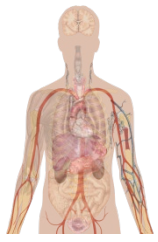
Directed therapy (if susceptible)

S. pneumoniae	Penicillin	4 MU q4h	IV	10-14 days
H. influenzae	Ampicillin	2 g q4h	IV	10 days
N. meningitidis	Penicillin	4 MU q4h	IV	5 days
L. monocytogenes	Ampicillin	2 g q4h	IV	21 days



TMP-SMX = trimethoprim-sulfamethoxazole (cotrimoxazole)

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3

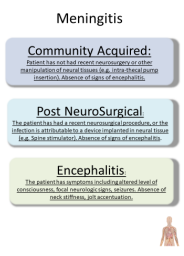


Post-Neurosurgical Meningitis

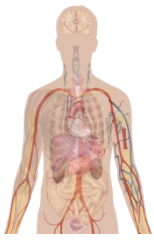
Meningitis developing after neurosurgery or CNS manipulation is commonly caused by organisms introduced at the time of surgery, which may include coagulase-negative staphylococci and non-fermenting gram negative rods such as *P. aeruginosa*. Empiric therapy should cover broadly, but be narrowed as soon as the causative pathogen is identified.

Treatment duration for proven post-surgical meningitis is dependent on the pathogen, presence of prosthetic hardware, and other factors. Please contact Infectious Diseases to assist in determining the duration of therapy.

Drug	Dose	Route	Duration
Meropenem	2 g q8h	IV	10 days then reassess
OR			
Ceftazidime	2 g q8h	IV	10 days then reassess
AND			
Vancomycin	Load 30 mg/kg, then 20 mg/kg q8-12h	IV	10 days then reassess



Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Encephalitis

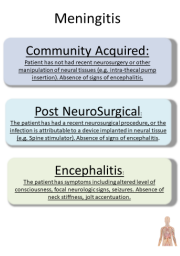
Encephalitis is distinguished from meningitis by seizures, changes in behaviour, confusion and disorientation, without prominent meningitic signs. It is most commonly caused by viruses (e.g. herpes simplex virus, arthropod-borne [West Nile virus]), although most causes are never identified.

Drug	Dose	Route	Duration
Acyclovir	10 mg/kg q8h	IV	14 days then reassess

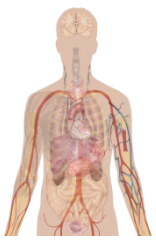
Step-down option

Antiviral therapy should be stopped if herpes virus is determined to not be responsible for infection. Other viral infections require supportive care alone, since anti-virals have not been shown to be beneficial. If a specific virus is identified, contact Infectious Diseases for further guidance. Once patient is clinically improving and able to take or absorb oral medications, consider step-down:

Drug	Dose	Route	Duration
Valacyclovir	1000 mg TID	PO	Up to 14-21 days of total therapy



Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Pharyngitis - Acute

Viral etiology is responsible for majority of cases in adults (80-90%) and do not require antimicrobial therapy.
Group A *Streptococcus* (GAS) is most common bacterial cause of pharyngitis. Occasionally pharyngitis is caused by Group C, G streptococci and *Arcanobacterium haemolyticum*

Acute (preferred therapy)

Drug	Dose	Route	Duration
Penicillin VK	600 mg BID or 300 mg TID	PO	10 days

Relapse or Recurrent (confirm by culture)

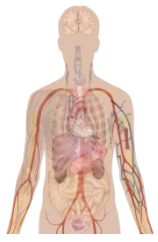
Drug	Dose	Route	Duration
Clindamycin	300 mg TID	PO	10 days
Amoxicillin-clavulanate	875-125 mg BID	PO	10 days

If severe penicillin allergy

Drug	Dose	Route	Duration
Cephalexin	500 mg BID	PO	10 days
Clindamycin	300 mg TID	PO	10 days
Azithromycin	500 mg daily	PO	3 days
Clarithromycin	250 mg BID	PO	10 days

Click link for Gonococcal Pharyngitis

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Pharyngitis - Gonococcal

Caused by *Neisseria gonorrhoeae*.
Test of cure recommended after completion of therapy.

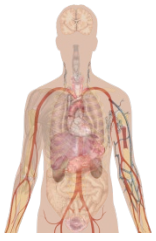
Preferred therapy, choose ONE of:

Drug	Dose	Route	Duration
Ceftriaxone	250 mg	IM	1 dose
Cefixime	800 mg	PO	1 dose
AND choose ONE of:			
Azithromycin	1 g	PO	1 dose
Doxycycline	100 mg BID	PO	7 days

If severe cephalosporin allergy

Drug	Dose	Route	Duration
Azithromycin	2 g	PO	1 dose

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Infective Endocarditis (IE)

Native Valve (NVE):

Empiric Therapy

Staphylococcus aureus

Viridans group streptococci (VGS)

Enterococci

HACEK organisms

Prosthetic Valve (PVE):

Empiric Therapy

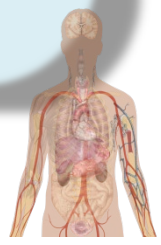
Staphylococcus aureus

Viridans group streptococci (VGS)

Group A, B,C,G streptococci

Enterococci

HACEK organisms



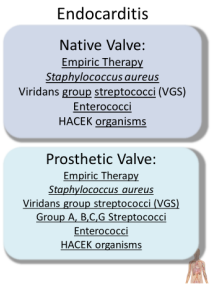
Native or Prosthetic Valve Infective Endocarditis

General approach

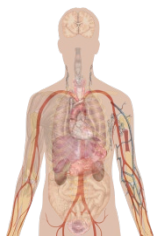
- Draw blood cultures, ideally 2 to 3 sets over 1 hour.
- Tailor therapy to culture and sensitivities, once available.
- Right-sided infective endocarditis (RSIE) accounts for only 5–10% of cases; the majority involves the tricuspid valve and generally occurs among injection drug users and where intravenous lines and wires (e.g. pacemakers) are present.
- Left-sided IE (LSIE) involves the mitral or aortic valve.

Empiric therapy:

Drug	Dose	Route	Duration
Ceftriaxone	2 g q24h	IV	Until diagnosis is confirmed
	AND		
Vancomycin	Load 30 mg/kg, then 15 mg/kg q8-12h	IV	Until diagnosis is confirmed



Remember to check cultures, revise your diagnosis



Native Valve Infective Endocarditis

Staphylococcus aureus

Mean duration of bacteremia with *S. aureus* is approximately 7 days. Cultures should be drawn daily for 3 days, then every 3 days until clear. Infectious diseases should always be consulted for cases of *S. aureus* bacteremia; **it is the responsibility of the MRP to consult ID**. Consider echocardiogram and investigation for occult sources, such as osteomyelitis.

Preferred regimens, if susceptible

Drug	Dose	Route	Duration
Cloxacillin	2 g q4h	IV	6 weeks for left-sided IE or complicated right-sided IE
OR			
Cefazolin	2 g q8h	IV	2 weeks for uncomplicated right-sided IE

If severe penicillin/cefazolin allergy, or MRSA with vancomycin MIC ≤2 µg/mL

Vancomycin	Load 30 mg/kg, then 15 mg/kg q8-12h	IV	6 weeks

If MRSA with vancomycin MIC >2 µg/mL - Consult Infectious Diseases

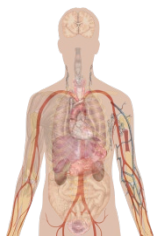
Uncomplicated right-sided IE: no evidence of renal failure, extrapulmonary metastatic infections, aortic or mitral valve involvement, meningitis, or infection by MRSA

Endocarditis

Native Valve:
Empiric Therapy
Staphylococcus aureus
Viridans group streptococci (VGS)
Enterococci
HACEK organisms

Prosthetic Valve:
Empiric Therapy
Staphylococcus aureus
Viridans group streptococci (VGS)
Group A, B,C,G Streptococci
Enterococci
HACEK organisms

Remember to check cultures, revise your diagnosis



Prosthetic Valve Infective Endocarditis

Staphylococcus aureus

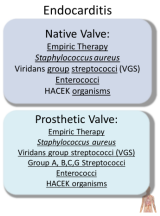
Preferred regimens, if susceptible

Drug	Dose	Route	Duration
Cloxacillin	2 g q4h	IV	6 weeks
	AND		
Rifampin	300 mg TID	PO	6 weeks
	AND		
Gentamicin	1 mg/kg q8h	IV	2 weeks

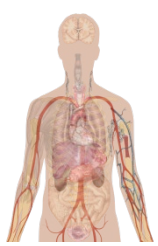
If severe penicillin allergy, or MRSA with vancomycin MIC ≤2 µg/mL

Vancomycin	Load 30 mg/kg, then 15 mg/kg q8-12h	IV	6 weeks
	AND		
Rifampin	300 mg TID	PO	6 weeks
	AND		
Gentamicin	1 mg/kg q8h	IV	2 weeks

If MRSA with vancomycin MIC >2 µg/mL - Consult Infectious Diseases



Remember to check cultures, revise your diagnosis



Native or Prosthetic Valve Infective Endocarditis

Viridans group streptococci (VGS) and β-hemolytic (group A,B,C,G) streptococci

VGS – Penicillin-susceptible MIC ≤0.12 µg/mL or β-hemolytic *Strep*

Drug	Dose	Route	Duration
Penicillin G	3 MU q4h 4 MU q4h	IV IV	4 weeks (NVE) 6 weeks (PVE)
	OR		
Penicillin + Gentamicin	3 MU q4h 3 mg/kg q24h	IV IV	2 weeks (NVE)

VGS – Penicillin MIC >0.12-<0.5 µg/mL & ceftriaxone MIC ≤ 1 µg/mL

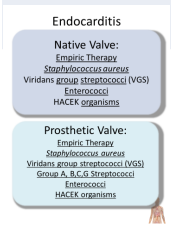
Ceftriaxone	2 g q24h	IV	4 weeks (NVE)
Penicillin + Gentamicin	4 MU q4h 3 mg/kg q24h	IV IV	6 weeks (PVE)

VGS – Penicillin-resistant MIC ≥0.5 µg/mL & Ceftriaxone MIC ≤1 µg/mL

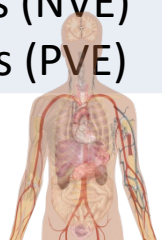
Ceftriaxone	2 g q24h	IV	4 weeks (NVE) 6 weeks (PVE)
	ADD		
Gentamicin	3 mg/kg q24h	IV	4 weeks (NVE) 6 weeks (PVE)

If severe penicillin/ceftriaxone allergy, or ceftriaxone MIC ≥2 µg/mL

Vancomycin	Load 30 mg/kg, then 15 mg/kg q8-12h	IV	4 weeks (NVE) 6 weeks (PVE)



Remember to check cultures, revise your diagnosis



Native or Prosthetic Valve Infective Endocarditis

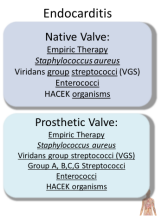
Enterococci

Preferred regimens, if susceptible

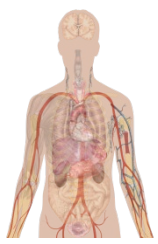
Drug	Dose	Route	Duration
Ampicillin	2 g q4h	IV	4 weeks For symptoms <3 mo 6 weeks For symptoms >6 mo
Consult ID to consider ADDING:			
Ceftriaxone	2g q12h	IV	4-6 weeks
OR			
Gentamicin	1 mg/kg q8h	IV	4-6 weeks

If severe penicillin allergy

Vancomycin	Load 30 mg/kg, then 15 mg/kg q8-12h	IV	6 weeks
Consult ID to consider ADDING:			
Gentamicin	1 mg/kg q8h	IV	6 weeks



Remember to check cultures, revise your diagnosis



Native or Prosthetic Valve Infective Endocarditis

HACEK organisms

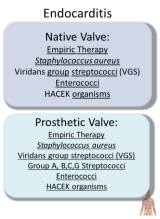
Haemophilus spp, Aggregatibacter spp, Cardiobacterium hominis, Eikenella corrodens, Kingella spp

Tailor to culture and susceptibilities:

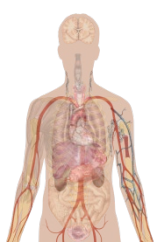
Drug	Dose	Route	Duration
Ceftriaxone	2 g q24h	IV	4 weeks (NVE) 6 weeks (PVE)
Ampicillin	2 g q4h	IV	4 weeks (NVE) 6 weeks (PVE)

If severe penicillin allergy

Drug	Dose	Route	Duration
Ciprofloxacin	400 mg q12h	IV	4 weeks (NVE) 6 weeks (PVE)
Ciprofloxacin	500 mg BID	PO	4 weeks (NVE) 6 weeks (PVE)



Remember to check cultures, revise your diagnosis



Acute Exacerbation of Chronic Bronchitis (AECB)

Antibiotic therapy is only recommended if two or more are present:

- ↑ sputum volume
- ↑ sputum purulence
- ↑ dyspnea.

Approximately 50% of acute exacerbations of chronic bronchitis are caused by viruses.

Simple AECB (<4 exacerbations/year), choose ONE of:

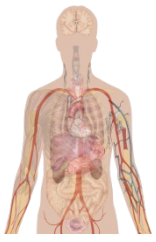
Drug	Dose	Route	Duration
Amoxicillin	500-1000 mg TID	PO	5 days
Doxycycline	200 mg x 1, then 100 mg BID	PO	5 days
Cotrimoxazole	1 DS tab BID	PO	5 days
Azithromycin	500 mg daily	PO	3 days
Clarithromycin	500 mg BID or XL 1 g daily	PO	5 days

Complicated AECB (≥4 exacerbations/year), choose ONE of:

Drug	Dose	Route	Duration
Amoxicillin-clavulanate	875-125 mg BID	PO	5 days
Cefuroxime	500 mg TID	PO	5 days

If severe beta-lactam allergy

Drug	Dose	Route	Duration
Moxifloxacin	400 mg daily	PO	5 days

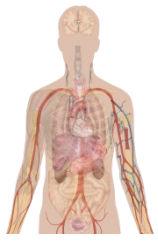


Pneumonia

Community-Acquired

Hospital-Acquired

Aspiration



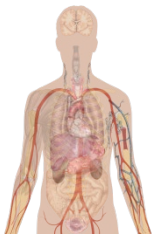
Community-Acquired Pneumonia

Calculate the CRB-65 score:

Parameter	Criteria	Add to Score
Confusion	**New** disorientation to person, place, or time	+1
Respiratory Rate	≥ 30 breaths per minute	+1
Blood Pressure	SBP < 90 mmHg or DBP < 60 mmHg	+1
Age ≥ 65 years		+1

Total Score: Click the calculated value

0	1	2	3	4
Mild	Mild	Moderate	Severe	Severe



Mild CAP – CRB-65 = 0-1

Patients with CRB-65 scores of 0 (30d mortality of 0.6%) or 1 (30d mortality of 2.7%) should be considered for outpatient oral therapy. Patients admitted to hospital do not require IV therapy, unless they are unable to take or absorb oral medication.

Preferred therapy

Drug	Dose	Route	Duration
Amoxicillin	500 mg or 1000 mg TID	PO	5 days

Penicillin/amoxicillin allergic with no severe delayed reaction to β-lactams (e.g. SJS, TENS, DRESS)

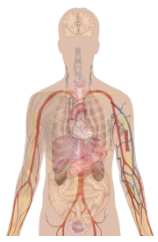
Drug	Dose	Route	Duration
Cefuroxime	500 mg TID	PO	5 days

If severe penicillin/amoxicillin & cefuroxime allergy

Drug	Dose	Route	Duration
Doxycycline	100 mg BID	PO	5 days

Parameter	Add
Confusion	+1
Respiratory Rate	+1
Blood Pressure	+1
Age >65	+1

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Moderate CAP – CRB-65 = 2

Patients with CRB-65 scores of 2 (30d mortality of 6.8%) may be discharged home or admitted to hospital. Oral therapy is preferred, but IV therapy may be appropriate with step-down to oral therapy as soon as possible. Quinolones are recommended only in exceptional circumstances and should not be prescribed routinely.

Preferred therapy, choose ONE of:

Drug	Dose	Route	Duration
Amoxicillin-clavulanate	875 mg BID	PO	5 days
Cefuroxime	500 mg TID	PO	5 days

→If unable to tolerate PO or IV therapy required

Ceftriaxone	1 g q24h	IV	5 days

→If atypical infection suspected, **ADD** ONE of:

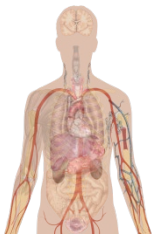
Azithromycin	500 mg daily	PO or IV	3 days
Doxycycline	100 mg BID	PO	5 days

Second-line (if penicillin/cefuroxime/ceftriaxone allergy)

Moxifloxacin	400 mg daily	PO or IV	5 days

Parameter	Add
Confusion	+1
Respiratory Rate	+1
Blood Pressure	+1
Age >65	+1

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Severe CAP – CRB-65 = 3-4

Patients with CRB-65 scores of 4 or 5 (30-day mortality of 27.8%) are considered to have severe disease. Patients could be managed on the ward or in the ICU. IV therapy should be started with dual therapy recommended for most patients.

Preferred therapy

Drug	Dose	Route	Duration
Ceftriaxone	2 g q24h	IV	5 days
AND ONE of:			
Azithromycin	500 mg q24h	PO or IV	3 days
Doxycycline	100 mg BID	PO	5 days

Second-line (if ceftriaxone allergy)

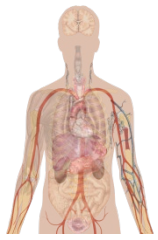
Moxifloxacin	400 mg daily	PO or IV	5 days

→ If MRSA or other Gram+ resistant organism suspected, **ADD**:

Vancomycin	Load 25-30 mg/kg, then 15 mg/kg q8-12h	IV	7 days (min.) Up to 14 days if bacteremia

Parameter	Add
C onfusion	+1
R espiratory Rate	+1
B lood Pressure	+1
Age >65	+1

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Hospital-acquired Pneumonia (HAP)

Hospital-acquired pneumonia can be categorized into early onset vs. late onset.

- Early onset ≤4 days – See Community-acquired Pneumonia
- Late onset >4 days – Develops after 4 days of hospitalization
- Usual pathogens for HAP include Enterobacterales

Preferred therapy (late onset HAP with no risk factors)

Drug	Dose	Route	Duration
Ceftriaxone	1 g q24h	IV	7 days
Cefuroxime	500 mg TID	PO	7 days
Moxifloxacin	400 mg q24h	PO/IV	7 days

Preferred therapy (late onset HAP - <3 months broad spectrum antibiotics, lung disease, immunosuppression)

Piperacillin-tazobactam	3.375 g q6h	IV	7 days
Meropenem	500 mg q6h	IV	7 days

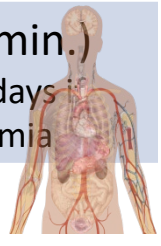
Step-down option (based on susceptibilities or as empiric therapy)

Amoxicillin-clavulanate	875/125 mg BID	PO	As above
Cefuroxime (if penicillin allergic)	500 mg TID	PO	As above

→ If MRSA or other Gram+ resistant organism suspected, **ADD**:

Vancomycin	Load 25-30 mg/kg, then 15 mg/kg q8-12h	IV	7 days (min.) Up to 14 days if bacteremia

Age >65	+1



Aspiration Pneumonia

Aspiration of gastric contents can cause a pneumonitis (inflammatory reaction) that is not infectious and does not require antibiotic therapy. Aspiration pneumonia is usually associated with radiographic infiltrates in the RLL, and clinical and systemic symptoms of pneumonia.

Preferred therapy (mild to moderate)

Drug	Dose	Route	Duration
Amoxicillin-clavulanate	875 mg BID	PO	7 days
Ceftriaxone	1 g q24h	IV	7 days

→ If risk factors for anaerobes (poor oral hygiene, periodontal disease, putrid sputum), **ADD**:

Metronidazole	500 mg q12h	PO/IV	7 days

Preferred therapy (hospital-acquired – severe)

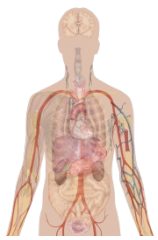
Piperacillin-tazobactam	3.375 g q6h	IV	7 days
Meropenem	500 mg q6h	IV	7 days

Second-line (if allergic to preferred therapy)

Moxifloxacin	400 mg daily	PO or IV	5 days

Parameter	Add
Confusion	+1
Respiratory Rate	+1
Blood Pressure	+1
Age >65	+1

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Cholecystitis

Management should involve source control. Oral step-down should be considered as soon as patient tolerates oral intake. Shorter duration of therapy (3 days or 24 hours post ERCP) should be considered in the absence of cholangitis, abscess, or perforation.

Mild (no hospitalization)

No antimicrobials required

Moderate – community-acquired & uncomplicated (hospitalized)

Drug	Dose	Route	Duration
Amoxicillin-clavulante	875 mg BID	PO	3 days, then reassess
Cefazolin	2 g IV q8h	IV	

Moderate – community-acquired & complicated (hospitalized)

Drug	Dose	Route	Duration
Ceftriaxone + Metronidazole	1 to 2 g q24h 500 mg q12h	IV PO/IV	3 days, then reassess

Severe – health-care associated, late onset, septic shock, or ICU

Drug	Dose	Route	Duration
Piperacillin-tazobactam	3.375 g q6h	IV	3 days, then reassess

If penicillin/ceftriaxone allergy, use BOTH:

Drug	Dose	Route	Duration
Ciprofloxacin + Metronidazole	500 (400) mg q12h 500 mg q12h	PO (IV) PO/IV	3 days, then reassess

Clostridioides difficile Infection

Diagnostic criteria for *Clostridioides difficile* infection include:

- Diarrhea (>3 unformed stools in 24 hours) **AND**
- [Positive toxigenic *C. difficile* or toxin **OR** colonoscopically or histopathologically-confirmed pseudomembranous colitis]

Non-severe (WBC <15 x 10^9/L AND SCr <135 µmol/L)
- Initial episode and first recurrence

Drug	Dose	Route	Duration
Vancomycin	125 mg QID	PO/NG	10 days
Metronidazole (if costs prohibits vancomycin use)	500 mg TID	PO/NG	10 days
Metronidazole (if unable to administer orally or enterally)	500 mg TID	IV	10 days

Non-severe (WBC <15 x 10^9/L OR SCr <135 µmol/L)
- Second or more recurrence

Vancomycin	125 mg QID	PO/NG	10 days
Vancomycin PO/NG taper (e.g. 125 mg BID x 7 days, then 125 mg daily x 7 days and then 125 mg every 2 or 3 days x 2-8 weeks)			

Severe (WBC >15 x 10^9/L AND SCr >135 µmol/L)

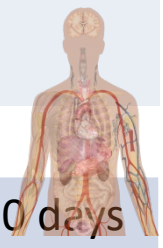
Vancomycin	125 mg QID	PO/NG	10 days

Fulminant (hypotension, ileus, megacolon, shock)

Vancomycin	125 mg QID	PO/NG	14 days
Vancomycin + Metronidazole (if complete ileus or critically ill)	125 mg QID 500 mg q8h	PO/NG IV	14 days

If vancomycin allergy/intolerance

Fidaxomicin	200 mg BID	PO	10 days

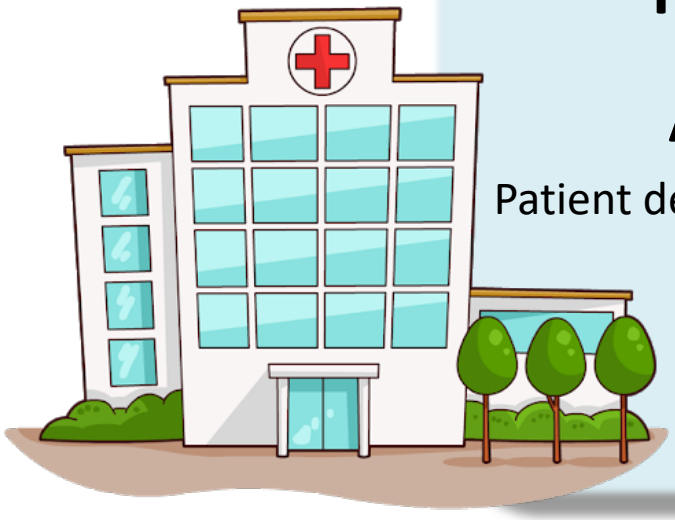


Intra-abdominal Infection (IAI)

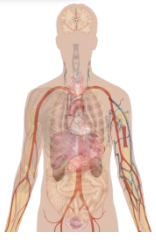
Community-Acquired IAI

Patient is admitted with an IAI present or develops IAI within 48 hours of hospitalization, where it is not the result of a previous contact with healthcare (e.g. invasive procedures or hospitalization).

Healthcare-Associated



Patient develops an IAI within 48 hours of admission with recent contact with healthcare (e.g. recent surgery or hospitalization) or after 48 hours of hospitalization



Intra-abdominal Infection Community-Acquired

Management should involve source control. Uncomplicated IAIs include non-perforated appendicitis or perforated appendix without established infection (i.e. OR within 24 hours of rupture). Oral step-down should be considered as soon as patient tolerates oral intake.

Uncomplicated (involvement of source organ with source control)

Drug	Dose	Route	Duration
Cefazolin + Metronidazole	2 g q 8h 500 mg q12h	IV PO/IV	24 hr post-op

Complicated (extension beyond source organ with source control)

Drug	Dose	Route	Duration
Ceftriaxone + Metronidazole	2 g q24h 500 mg q12h	IV PO/IV	3-5 days

Severe (septic shock or ICU)

Drug	Dose	Route	Duration
Piperacillin-tazobactam	3.375 g q6h	IV	Up to 7 days

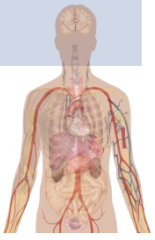
If severe cefazolin/ceftriaxone/penicillin allergy

Ciprofloxacin + Metronidazole	500 (400) mg q12h 500 mg q12h	PO (IV)	As above

Step-down option

Amoxicillin-clavulanate	875/125 mg BID	PO	As above

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Intra-abdominal Infection Healthcare-Associated

Management should involve source control. Prolonged previous hospitalization (>5 days), anastomotic leak, perforation, and post-operative abscess. Oral step-down should be considered as soon as patient tolerates oral intake.

Mild-moderate (with source control), use BOTH:

Drug	Dose	Route	Duration
Ceftriaxone + Metronidazole	2 g q24h 500 mg q12h	IV PO/IV	7 days

Severe (septic shock or ICU)

Piperacillin-tazobactam	3.375 g q6h	IV	7 days

If ceftriaxone/penicillin allergy, use BOTH:

Ciprofloxacin + Metronidazole	500 (400) mg q12h 500 mg BID	PO (IV) PO/IV	7 days 7 days

→ If MRSA or *Enterococcus faecium* suspected, **ADD**:

Vancomycin	Load 25 mg/kg, then 15 mg/kg q8-12h	IV	7 days

→ If *Candida* spp suspected (in peritoneal fluid/tissue), **ADD ONE of**:

Fluconazole	400 mg q24h	PO/IV	7 days
Micafungin	100 mg q24h	IV	7 days

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3

Cystitis

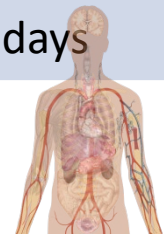
Diagnosis of a urinary tract infection requires signs or symptoms to be present, including: dysuria, frequency, urgency, supra-pubic tenderness, and hematuria. Patients who have fever, flank pain, chills or CVA tenderness should be assessed for pyelonephritis. Cystitis spontaneously resolves in 50% of cases. Catheters should be removed or changed if present; this alone may resolve symptoms.

Uncomplicated, choose ONE of:

Drug	Dose	Route	Duration
Nitrofurantoin (MacroBID®)	100 mg BID	PO	5 days
TMP-SMX	1 DS tab BID	PO	3 days
Cephalexin	250 to 500 mg QID	PO	5 days
Fosfomycin	3g (1 Sachet)	PO	Single dose

Complicated (male or urinary tract abnormality), choose ONE of:

Drug	Dose	Route	Duration
Nitrofurantoin (Macrobid®)	100 mg BID	PO	5-7 days
TMP-SMX	1 DS tab BID	PO	5-7 days
Amoxicillin-clavulanate	875 mg BID	PO	5-7 days
Cefuroxime	500 mg BID	PO	5-7 days
Cefixime	400 mg daily	PO	5-7 days



Pyelonephritis

Diagnosis of a urinary tract infection requires signs or symptoms to be present, including: dysuria, frequency, urgency, supra-pubic tenderness, and hematuria. Patients who have fever, flank pain, chills or CVA tenderness should be assessed for pyelonephritis.

Moderate (hospitalized)

Drug	Dose	Route	Duration
Cefuroxime	500 mg BID	PO	7 days
Amoxicillin-clavulante	875 mg BID	PO	7 days
TMP-SMX	1 DS tab BID	PO	7 days
Cefixime	400 mg daily	PO	7 days

Moderate (hospitalized) and IV therapy required

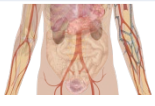
Drug	Dose	Route	Duration
Ceftriaxone	1 g q24h	IV	7-10 days
Tobramycin	6 mg/kg q24h	IV	7-10 days

Second-line (if severe β-lactam/TMP-SMX/aminoglycoside allergy)

Drug	Dose	Route	Duration
Ciprofloxacin	500 mg BID	PO	7 days

Severe (septic shock or ICU, or known/suspected ESBL)

Drug	Dose	Route	Duration
Piperacillin-tazobactam	3.375 g q6h	IV	7-10 days
OR if penicillin allergic:			
Meropenem	500 mg q6h	IV	7-10 days



Cellulitis

Skin and soft tissue infections are most commonly caused by streptococci (non-purulent cellulitis) or staphylococci (purulent cellulitis). For soft tissue infections involving salt water contact, consider *Vibrio* coverage.

Non-purulent Cellulitis – mild (outpatient)

Drug	Dose	Route	Duration
Cephalexin	500 mg or 1000 mg QID	PO	5 days

Non-purulent Cellulitis - moderate (outpatient)

Cefazolin + Probenecid	2 g q24h 1 g daily (30 min before cefazolin)	IV PO	5-10 days

→ If **Purulent Cellulitis or Abscess <u>AND</u> MSSA** suspected:
Treat as above

→ If **Purulent Cellulitis or Abscess <u>AND</u> MRSA** suspected, **<u>ADD</u>** ONE of:

TMP-SMX	2 DS tablets BID	PO	5 days
Doxycycline	100 mg BID	PO	5 days

Second-line (if cephalexin allergy)

Clindamycin	600 mg TID	PO	5 days

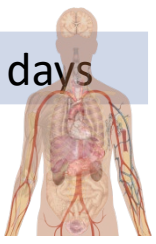
Severe (hospitalized) and IV therapy required

Cefazolin	2 g q8h	IV	5-10 days

Severe (hospitalized) and MRSA suspected:

Vancomycin	15 mg/kg q12h	IV	5-10 days

TMP-SMX = trimethoprim-sulfamethoxazole or co-trimoxazole



Diabetic Foot Infection

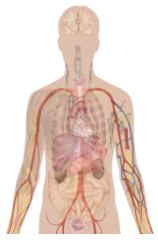
Determine the Acuity

NON-INFECTED:
No signs of infection;
no swelling, erythema, pain, warmth, or purulence;
[NO signs of cellulitis; non-infected ulcer may have some surrounding erythema]

ACUTE MILD:
Local infection with 2 of: swelling, erythema, pain, warmth, or purulence;
Cellulitis >0.5 cm to ≤2 cm around ulcer;
[NO deep tissue or systemic toxicity]

ACUTE MODERATE:
Local infection with with cellulitis >2 cm or deep tissue involvement (e.g., abscess, osteomyelitis, septic arthritis, fasciitis);
[NO systemic toxicity]

ACUTE SEVERE:
Local infection as described in “acute moderate” with systemic illness (e.g. fever, tachycardia, tachypnea, leukocytosis)



Diabetic Ulcer

New or chronic diabetic ulcers with no signs of infection should not be treated with antibiotics, however appropriate management is critical for preserving limb function. The following measures will help in wound healing and avoid adverse outcomes, such as amputation.

Reduce Pressure

Diabetic ulcers form as a result of pressure points that are not felt by the patient.

- Promote footwear that is comfortable, supportive, and protective.
- Ensure the patient or their care team inspects the feet regularly to recognize any new pressure-associated areas.

Improve Circulation

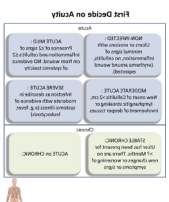
- Evaluate extremities for reduced circulation for all patients with diabetic ulcers.
- Consult vascular surgery for assessment.

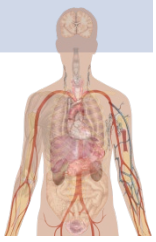
Optimize Glycemic control

- Involve GP or endocrinologist to target HgA1c of 8% or less

Promote Wound Healing

- Consult wound-care team to optimize dressings and community wound care.





Diabetic Foot Infection
Acute Mild

Acute diabetic foot infections should be treated quickly, but chronic infections require discussion of management goals and culture prior to treatment. Underlying causes, such as poor glycemic control and vascular compromise, should be discussed. Usual pathogens are streptococci and *S. aureus*. Oral therapy is preferred and narrowing by 48 hours based on culture results (e.g. stop MRSA coverage if cultures are negative).

Oral therapy

Drug	Dose	Route	Duration
Cephalexin	500 mg to 1000 mg QID	PO	7 days

If IV therapy required (change to PO when possible)

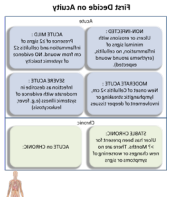
Cefazolin	2 g q8h	IV	7 days

→ If purulent **AND** MRSA suspected, **ADD** ONE of:

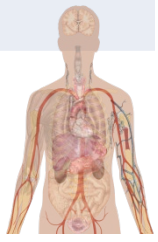
TMP-SMX	2 DS tabs BID	PO	7 days
Doxycycline	100 mg BID	PO	7 days

Second-line (if cephalexin allergy)

Clindamycin	600 mg TID	PO	7 days
Amoxicillin-clavulanate	875/125 mg BID	PO	7 days



Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Diabetic Foot Infection
Acute Moderate

Acute diabetic foot infections should be treated quickly, but chronic infections require discussion of management goals and culture prior to treatment. Underlying causes, such as poor glycemic control and vascular compromise, should be discussed. Usual pathogens are polymicrobial. Severity should determine PO vs. IV therapy with narrowing based on culture results, investigations, and clinical improvement.

Oral Therapy (no evidence of osteomyelitis)

Drug	Dose	Route	Duration
Amoxicillin-clavulanate	875 mg BID	PO	7-14 days

If IV therapy required or osteomyelitis suspected, use BOTH:

Ceftriaxone + Metronidazole	2 g IV q24h 500 mg q12h	IV PO/IV	ID consult recommended

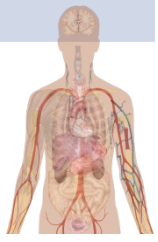
→ If purulent **AND** MRSA suspected, **ADD** ONE of:

TMP-SMX	2 DS tabs BID	PO	7-14 days
Doxycycline	100 mg BID	PO	7-14 days

Second-line (if penicillin/amoxicillin allergy), use BOTH:

Clindamycin + Ciprofloxacin	300 mg to 600 mg TID 500 to 750 mg BID	PO PO	7-14 days

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Diabetic Foot Infection
Acute Severe

Depth and chronicity of ulcer are not measures of severity, but rather the rapidity of progression. Therapy should be used to prevent potential limb loss or progression to systemic disease (e.g. sepsis). Start with 7 days and adjust regimen as required; duration will be affected by presence of osteomyelitis. Deep tissue cultures should be taken and antibiotic choice tailored to culture results. ID consult is recommended.

First-line (no known or suspected resistance), use BOTH:

Drug	Dose	Route	Duration
Ceftriaxone + Metronidazole	2 g IV q24h 500 mg q12h	IV PO/IV	7-14 days

If septic shock or suspected ceftriaxone-resistance

Piperacillin-tazobactam	3.375 g q6h	IV	7-14 days

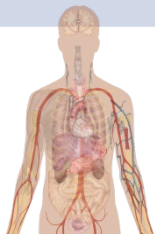
If penicillin/ceftriaxone allergy or known resistance

Meropenem	500 mg q6h	IV	7-14 days

→ If MRSA suspected, **ADD**:

Vancomycin	Load 25 mg/kg, then 15 mg/kg q8-12h	IV	7-14 days

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



Febrile Neutropenia

Febrile neutropenia is defined as:

- Temperature >38.3°C **AND**
- Absolute neutrophil count <500/mm^3 or expected to decrease to <500/mm^3 within 48 hours

High Risk – inpatient (empiric therapy)

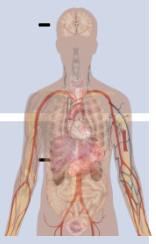
Drug	Dose	Route	Duration
Piperacillin-tazobactam	4.5 g q6h	IV	-
If penicillin/ceftriaxone allergy or known resistance			
Ceftazidime ± Metronidazole (if intraabdominal source suspected)	2 g q8h 500 mg q12h	IV PO/IV	-
If severe penicillin/ceftriaxone anaphylaxis OR if ESBL suspected or documented			
Meropenem	500 mg q6h	IV	-

→ If hemodynamically unstable/septic; pneumonia; blood culture positive for Gram-positive bacteria; serious catheter-related infection; serious skin or soft tissue infection; MRSA known/suspected; severe mucositis on fluoroquinolone prophylaxis, **ADD**:

Vancomycin	Load 20 mg/kg, then 15 mg/kg q8-12h	IV	-

Low Risk – outpatient (empiric therapy)

Amoxicillin-clavulanate + Ciprofloxacin	875 mg BID 750 mg BID	PO PO	-
Clindamycin + Ciprofloxacin	600 mg TID 750 mg BID	PO	-



Sepsis

Empiric broad-spectrum intravenous antibiotic therapy should be started within the first hour of severe sepsis and septic shock, preferably after blood cultures have been collected. Source control within 12 hours of the diagnosis is critical.
Recommended duration of therapy is usually 7 days; 14 days minimum for *S. aureus* pneumonia/bacteremia and longer courses may be required in persistent bacteremia (rule out endocarditis), fungemia, inadequate source control, slow clinical response, or neutropenia. Consider consulting ID.

Unknown source

Piperacillin-tazobactam	3.375 g q6h	IV	7 days

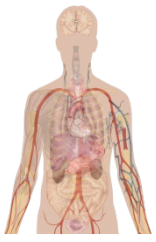
If severe penicillin allergy, known resistance, or septic shock

Meropenem	500 mg q6h	IV	7 days

→ If MRSA suspected or septic shock, **ADD**:

Vancomycin	Load 30 mg/kg, then 20 mg/kg q8-12h	IV	7-14 days

Remember to check cultures, revise your diagnosis and consider oral Rx by day 3



The ASPIRES smart prescribing Card

Antimicrobial Stewardship Programme: Innovation, Research, Education, and Safety

Assess Patients Daily to Optimize Antibiotics

Bioequivalent IV to PO agents:

Ciprofloxacin
Clindamycin
Co-trimoxazole
Fluconazole
Linezolid
Metronidazole
Moxifloxacin
Voriconazole

Checklist for IV to PO Step-down:

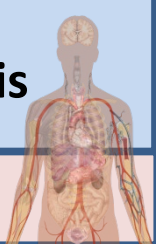
Continues to need anti-infective;
Clinically stable;
Tolerates PO;
No factors affecting PO absorption

Minimum Duration of Therapy:

Cellulitis: 5d
Cystitis: 3d
SBP: 5d
Pneumonia: 5d
Pyelonephritis: 7d
VAP: 7d

Criteria for Discontinuing Anti-infectives:

Completed minimum duration of therapy;
Source is controlled;
Clinically improved to baseline;
Alternative diagnosis



Questions? Talk to ASPIRES or your Clinical Pharmacist