Antibiotics

**In patients requiring antibiotic therapy, make rational choices (i.e., first-line therapies, knowledge of local resistance patterns, patient’s medical and drug history, patient’s context).**

*Otitis media*

* Etiology – viral, Strep pneumonia, H. Influenza, M.catarrhalis
	+ If perforation or tubes consider staph aureus, Pseudomonas aeruginosa or virridans strep
* Consider watchful waiting or delayed antibiotics
* Antibiotics SHOULD be given if <6 months, > 39 fever, immunodeficient, craniofacial abnormalities, heart or lung disease, history of otitis media complications and Down’s syndrome
* **Amoxicillin** first line treatment 75-90 mg/kg/day po divided q12h.
	+ **Clarithromycin**  alternate for Betalactam allergy

*Chronic Rhinosinusitis*

* Bacterial more likely if symptoms lasting longer than 10 days or symptoms worsening more than 5 days
* Etiology - >90% start as viral then Strep pneumonia, H. Influenza, M catarrhalis. If chronic – Staph aureus, Grp A strep, enterobacteriacea, anaerobes
* 70% will resolve spontaneously – resever antibiotics for severe symptoms or moderate symptoms that don’t improve in 7-10 days or get worse
* Amoxicillin first line treatment. Amox-clav for chronic sinusitis
	+ TMP/SMX or doxycycline for betalactam allergy

*Soft tissue infections*

 *Impetigo*

* Staph aureus, Grp A Strep
* Give systemic antibiotics if multiple, extensive or recurrent lesions, fever, constitutional symptoms, lymphadenopathy, immunocompromised, valvular heart disease
* Mild symptoms - topical Mupirocin 2% or Fusidic acid 2%
* Systemic antibiotics – Cloxacillin or Cephalexin
	+ For betalactam allergy – erythromycin or clindamycin

*Folliculitic or Furuncles*

* Usually self-limited not requiring antibiotic treatment. Treat with systemic antibiotics if on scalp
* If recurrences treat carrier state with mupirocin 2% topically to nares for 3-5 days
* Hot tub folliculitis may be due to Pseudomonas which is also usually self-limiting but if severe can be treated with Ciprofloxacin

*Cellulitis*

* Do thorough history to rule out bites, dermatitis, foreign body, tinea, vascular causes
* Mild – cloxacillin or cephalexin
* Severe non-facial – cefazolin or clindamycin
* Severe facial – Cefazolin or cetriaxone
* Alternate for Betalactam allergy is clindamycin

*Pharyngitis*

* >90% viral and do not require antibiotics. Antibiotic treatment can be delayed while waiting for swab
* Conjunctivitis, cough, hoarseness, rhinorrhea and diarrhea suggest viral etiology
* If bacterial – Group A strep, all other causes are rare
* Goals of antibacterial treatment are to prevent rheumatic fever, shorten course by 1 day and prevent transmission
* Amoxicillin first line
	+ Erythromycin for betalactam allergy

*Urinary Tract Infections –*

* *Acute cystitis*
	+ First line
		- SMP/TMX (be aware of local resistance patterns)
		- Nutrofurantoin – not if CrCl <40
* *Recurrent cystitis < 1month*
	+ Do cultures
	+ First line SMP/TMX or Nitrofurantoin
* *In pregnancy*
	+ Do follow up cultures
	+ First line
		- Amoxicillin
		- Nitrofurantoin <36 weeks
* *Complicated UTI*
	+ Men, obstruction, chronic catheter structural abnormalities, spinal cord injuries
	+ First line SMP/TMX or IV amp and gent
	+ Consider culture and sensitivities
* *Pyelonephritis*
	+ First line cipro for outpatient, IV amp and gent for inpatients
* *Prostatitis*
	+ First line SMP/TMX or Cipro or IV amp and gent

Pneumonia –

* Most common mycoplasma pneumonia, chlamydophylia pneumonia and strep penumoniae
* First line Amoxicilin or macrolide (erythromycin, azithromycin or clarithromycin), second line Doxycycline.
* IF comorbidities (COPD, diabetes, malignancy, renal failure, heart failure, alcoholism etc.) but NO antibiotics or po steroids in past 3 months –
	+ All above etiologies plus H. Influenzae, M. Catarrhalis
	+ First line Azithromycin, clarithromycin or Doxycycline
* IF comorbidities AND antibiotics or po steroied in past 3 months –
	+ Above etiologies plus M. Catarrhalis, legionella pneumophilia
	+ Use
		- Amox or amox/clav PLUS macrolide or doxy
		- OR Respiratory fluroquinolone (levofloxacin, moxifloxacin)
* Nursing home residents
	+ chlamydophylia pneumonia, strep penumoniae, H. Influenzae, staph aureus, gram negative rods, aspiration pneumonia
	+ Use
		- Amox or amox/clav PLUS macrolide or doxy
		- OR Respiratory fluroquinolone (levofloxacin, moxifloxacin)
* In hospitalized patients – treatment within 4 hours can decrease mortality
* In patients with antibiotic usage in the past 3 months, select an antibiotic from a different class
* If pneumonia onset is >5 days from admission to hospital resistant organisms are more likely to be present
* If at risk for MRSA
	+ Consider in athletes, military, inmates, very young, aboriginal, IVDU
	+ Add SMP/TMX, clindamycin, vancomycin or linezolid
* Aspiration pneumonia
	+ Oral anaerobes
	+ Consider if loss of consciousness, seizures, alcohol or drug overdose
	+ First line amox/clav or cefuroxime
		- Second line clindamycin OR metronidazole PLUS fluoroquinolone
* Pseudomonas pneumonia
	+ Consider if in ICU, cystic fibrosis, HIV, structural lung disease, bronchiectasis
	+ First line Ciprofloxacin OR levofloxacin PLUS one of imipenem, meropenem, cefrazidime, cefepime or pip-tazo

**In patients with a clinical presentation suggestive of a viral infection, avoid prescribing antibiotics.**

**In a patient with a purported antibiotic allergy, rule out other causes (e.g., intolerance to side effects, non-allergic rash) before accepting the diagnosis.**

* Approximately 85-90% of patients with reported penicillin allergies who undergo skin testing do not have positive skin tests and are able to tolerate penicillins
* Differentiate between types of reactions as Type 1 carries risk of anaphylaxis if patient re-exposed
* Do thorough history of reaction including time since last reaction (penicillin IgE Ab decrease over time)
* Referral to allergy specialist is recommended
* Delayed cutaneous reactions more common if concurrent viral infection esp EBV
* Patients with history of Stevens-Johnson syndrome, toxic epidermal necrolysis, hypersentivity syndrome or other exfoliative dermatoses should not be re-exposed under any circumstance



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 **Use a selective approach in ordering cultures before initiating antibiotic therapy**

Usually do not order cultures in uncomplicated cellulitis, pneumonia, urinary tract infections, and abscesses.

For elderly patients – do not culture urine if not symptomatic

Do order cultures for assessing community resistance patterns, in patients with systemic symptoms, and in immunocompromised patients

**In urgent situations (e.g., cases of meningitis, septic shock, febrile neutropenia), do not delay administration of antibiotic therapy (i.e., do not wait for confirmation of the diagnosis).**

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| **Suspected condition** | **Empiric treatment** | **Other considerations** |
| Meningitis | <1 month* Amp +cefotaxime

1-24 months* Vanco + ceftriaxone or cefotaxime

2-50 years* Vanco + ceftriaxone or cefotaxime

>50 year* Vanco + ceftriaxone or cefotaxime + amp
 |  |
| Septic shock | Obtain culturesEmpiric therapy* Vancomycin PLUS one of cefriaxone, cefotaxime, pip-tazo, imipenem, meropenem
 | Assess for risk of pseudomonal infection |
| Febrile neutropenia | Initiate anti-pseudomonal beta-lactam ie: cefepime, meropenem, pip-tazoAdd other antibiotics in patients with focal findings, complicated presentations or demonstrated antimicrobial resistance | Consider addition of an anti-fungal drug after 4-7 days in high risk patients |