

## Introduction to Abx Use

1. GNR
  - a. PSA
    - i. Cefepime
    - ii. Ceftazidime
    - iii. Zosyn (Pip/tazo)
    - iv. Timentin (Tic/clav)
    - v. Aztreonam
    - vi. Carbapenems (Imipenem, Meropenem)
    - vii. Quinolones (Cipro, Levaquin)
      1. Cipro- best for PSA and GNR, worst for PCN resistant pneumococcus (PRP)
      2. Moxifloxacin, Gatifloxacin best for PRP
      3. Levo in the middle for PSA and PRP
    - viii. Aminoglycosides
      1. Tobramycin and Amikacin best for PSA
      2. Gentamycin best for Enterococcus
    - ix. Polymixin B (Colistin)
  - b. Location of action for Abx
    1. Cell wall
      - a. Beta lactams
    2. Ribosome
      - a. AG
      - b. Macrolides
      - c. Erythromycin
    3. DNA
      - a. Quinolones
    4. Combo Tx
      - a. Synergy with multiple drugs
      - b. Less resistance due to multiple sites of action
  - c. SPACE
    - i. Inducible beta-lactamase on monotherapy
      1. .01% of bugs inherently resistant to Tx, selected out by monotherapy with ceftaz, astreonam, Zosyn, Timentin
    - ii. Tx with combo therapy
      1. Imipenem/Meropenem
        - a. +/- quinolone or
        - b. +/- AG
      2. TMP/SMZ for Enterobacter
    - iii. Cefepime
      1. Does not induce beta-lactamase production
      2. Good to start with; but not effective after treatment with other beta-lactams
  - d. ESBL
    - i. E. coli
    - ii. Klebsiella

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- iii. ESBL Cont.
  - iv. Treat same as SPACE
    - 1. Imipenem/Meropenem
      - a. +/- quinolone or
      - b. +/- AG
  - e. *Stenotrophomonas maltophilia*
    - i. Inherently resistant to Imipenem/Meropenem
    - ii. Tx with Septra
      - 1. And/Or Timentin
      - 2. +/- Quinolone/AG
  - f. Comments: Zosyn vs. Cefepime
    - i. Zosyn: + anaerobic coverage, prevents VRE, promotes SPACE
    - ii. Cefepime: - anaerobic coverage, promotes VRE, doesn't induce SPACE
  - g. Above the diaphragm: clindamycin
    - i. Tooth abscess
    - ii. Chronic sinusitis
    - iii. Lung abscess
    - iv. Empyema
    - v. covers anaerobic strep and staph (not covered by metronidazole)
  - h. Below the diaphragm: metronidazole (Flagyl)
    - i. Intra-abdominal abscess
    - ii. All enteric anaerobes
    - iii. Anaerobic GPR
      - 1. Clostridium spp.
    - iv. Anaerobic GNR
      - 1. Bacteriodes spp. (Clindamycin incomplete coverage)
    - v. C. diff
    - vi. Does not cover anaerobic strep or staph
  - i. Other Anaerobic Tx
    - i. Beta-Lactam/Beta-Lactamase inhibitor combos
      - 1. Amp/sulbactam: no PSA, better GP coverage (strep/staph/enterococcus)
      - 2. Pip/tazo: PSA (Most GNR)
      - 3. Tic/clav: PSA (Most GNR, not as good as Pip/tazo)
    - ii. Imipenem/Meropenem
    - iii. Quinolones: Moxifloxacin
2. GPC
- a. Staph aureus:
    - i. Oxacillin/Nafcillin
  - b. Group A Streptococcus (GAS):
    - i. PCN

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- c. Both SA/GAS
  - i. Unasyn
  - ii. Ancef
  - iii. Vancomycin
  - iv. Levaquin
  - v. +/- Gent or Rifampin (synergy)
- d. Enterococcus:
  - i. Amp/Gent
    - 1. Tolerance: MBC= MICx32
    - 2. Normal levels are inhibitory but not cidal
    - 3. Ex. Amp MIC=2, MBC 64
  - ii. Vancomycin/ Gent
- e. Pen resist pneumococcus (PRP)
  - i. Rocephin (ceftriaxone)+ macrolide (azithromycin)
  - ii. Quinolone
    - 1. Moxi, Gati, Levo
    - 2. not Cipro
- f. MRSA:
  - i. Vanco (IV only)
  - ii. Doxycycline or Septra (PO)
    - 1. +/- Rifampin (PO)
    - 2. +/- Bactroban (topical)
  - iii. Zyvox (PO/IV)
    - 1. \$\$\$\$
- g. VRE:
  - i. Zyvox (linezolid) PO/IV
  - ii. Synercid IV (Not E. faecalis)
  - iii. Daptomycin IV
  - iv. 90% E. faecium
  - v. 10% E. faecalis
  - vi. <1% E. gallinarium, E. cassiflavus, E. avium
- h. GPR
  - i. Vanco
    - 1. Corynebacterium
      - a. Non JK
      - b. JK
    - 2. Bacillus spp.
  - ii. PCN
    - 1. Listeria
    - 2. Lactobacillus
    - 3. Propionobacter
    - 4. Erysipeothrix
    - 5. Clostridium

## Introduction to Abx Use

- 3. Vanco resistant
  - a. GPC
    - i. VRE
    - ii. VRSA
    - iii. Leuconostoc
    - iv. Pediococcus
  - b. GPR
    - i. Lactobacilli
    - ii. Proprionobacteria
    - iii. Erysipelothrix
- 4. Fungal
  - a. Candida/molds

<b>Candida/Mold Coverage</b>				
Drug	Efficacy	Toxicity	Cost	Other
Amphotericin B	++++	++++	+	IV only, fluconazole resistant, nephrotoxic
ABCDF	+++	++	++	Mucor
ABIC	++++	+	+++	Mucor
AMBIS	++++	+	+++	Mucor
Fluconazole	++	+	+	PO, IV only, candida albicans
Itraconazole	+++	+	++	PO, IV
Voriconazole	++++	+	+++	IV, oral, fluconazole resistant, Aspergillus, Mucor
Posaconazole	++++	+	?	PO, IV only
Cancidas	+++	+	+++	IV, oral, fluconazole resistant
GFC	+++	++	+	PO, IV, suppression

## Introduction to Abx Use

- b. Combo therapy for Molds
  - i. Voriconazole + Cancidas
  - ii. Voriconazole + ABLC or Ambisome
  - iii. Cancidas + ABLC or Ambisome
- c. AmphoB resistant Fungi
  - i. Yeast
    - 1. Candida lusitanae
    - 2. Trichosporon beigelii
  - ii. Molds
    - 1. Scedosporium (Pseudallescheria)
    - 2. Fusarium (relatively resistant)
- d. Fusarium (drug of choice combo)
  - i. Voriconazole
  - ii. ABLC or Ambisome