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tele-antimicrobial stewardship program

March 21, 2017

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Agenda

- Didactic: *Empiric Antibiotic Regimens*
- Follow-Up: *PPI Guidance*
- Case Discussion: *Challenges of IDU and OPAT*

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Empiric Antibiotics: *Beyond Our Best Guess*

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This presentation is intended for educational use only, and does not in any way constitute medical consultation or advice related to any specific patient.

Disclosures

- No financial conflicts of interest
- Everything we discuss is QI, thus protected from legal discovery under WA State Code

Empiric Abx: *Starting on the Right Foot*

Diagnostic uncertainty

Proper syndrome? What bugs are most likely? Or most *dangerous*?

Integrating resistance data?

What does micro look like *here*?

Resistance to change

Passion for “sticking with the course”… regardless of testing or clinical outcome!

Empiric Abx: *Decision Support*

Order Sets

Benefits…

1. Behavior control
2. Quality control
3. Path of least resistance

Drawbacks…

1. Fits most
2. May be cumbersome
3. Only works if used

Empiric Abx: *CAP*

Pearls:

****Vancomycin Dosing:**
Loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q8-12 hours

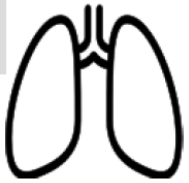
Pitfall:

SIGNIFICANT PENICILLIN ALLERGY

- Example: anaphylaxis, airway compromise, etc.
- CONSULT ALLERGY for evaluation and possible skin testing

For CAP: Replace Ceftriaxone or Ampicillin-Sulbactam with Moxifloxacin 400mg PO/IV q24h

PNEUMONIA



A. Community-acquired pneumonia [non-aspiration risk] (*S. pneumoniae, atypicals*)

Diagnosis: Send sputum gram stain & culture, CXR, urinary pneumococcal antigen and blood cultures.

- Ceftriaxone 1 gm IV q24h **PLUS**
- Azithromycin 500 mg PO/IV q24h x 5 days
- If previous MRSA colonization or infection, **CONSIDER ADDING:** Vancomycin**

Typical Duration: 7 days

B. CAP with cavitary lesion(s) (*Oral anaerobes and MRSA*)

- Ampicillin/Sulbactam 3 gm IV q6h **PLUS**
- Azithromycin 500 mg PO/IV q24h **PLUS**
- Vancomycin**

Typical Duration: 10-21 days

CF or Lung transplant patients: Call Pulmonary Transplant and Transplant Infectious Diseases Consult.

Empiric Abx: *HCAP*

Pearls:

F. For all Pneumonia pts:

⇒ **Anaerobic coverage such as Piperacillin-tazobactam is NOT recommended for HAP or VAP.**

⇒ **During flu seasons, send Flu testing and then give oseltamivir 75mg - 150mg PO/NGT q12.**

⇒ **Yeast in the sputum rarely represents true infection.**

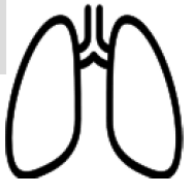
Pitfall:

SIGNIFICANT PENICILLIN ALLERGY

- Example: anaphylaxis, airway compromise, etc.
- CONSULT ALLERGY for evaluation and possible skin testing

- Replace Meropenem, Ceftazidime, Cefepime, or Piperacillin-Tazobactam with Ciprofloxacin 400mg IV q8h +/- Aztreonam 2gm IV q8h

PNEUMONIA



C. Healthcare associated pneumonia [i.e. from skilled nursing facility, etc]

- Cefepime 2g IV q8h +/- Vancomycin** if h/o MRSA infection/colonization

Typical Duration: 7 days

D. <u>UWMC only</u>: Ventilator-associated Pneumonia (VAP) regardless of hospitalization day

- Treat as **Healthcare associated pneumonia (section C)**

E. <u>HMC only</u>:

- **Early onset VAP (i.e. <u><</u> 4 days of hospitalization or ventilation) or aspiration:** Ceftriaxone 1g IV q24h **<u>OR</u>** Ampicillin-sulbactam 3g IV q6h

Typical Duration: 7 days

- **Late-onset [> 4 days inpatient],** treat as **Healthcare associated pneumonia (section C)**

Empiric Abx: *UTI*

URINARY

A. Community Acquired Pyelonephritis (Enteric Gram-negative rods)

Diagnosis: Clean catch midstream U/A with reflexive gram stain and culture (UACRC). Neutropenic and transplant patients may not mount WBC response; appropriate to cover these patients empirically even without positive U/A if presentation suggests pyelonephritis.

- Ceftriaxone 1 gm IV q24h
- If patient hemodynamically unstable or history MDRO, **CHANGE TO:** Ertapenem 1g q24h

Typical Duration: 14 days

Pitfall:

SIGNIFICANT PENICILLIN ALLERGY

- Example: anaphylaxis, airway compromise, etc.
- CONSULT ALLERGY for evaluation and possible skin testing

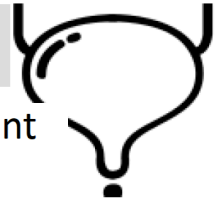
- Replace Meropenem, Ceftazidime, Cefepime, or Piperacillin-Tazobactam with Ciprofloxacin 400mg IV q8h +/- Aztreonam 2gm IV q8h

Empiric Abx: *UTI*

Pearls:

- ABU≠CAUTI
- Bladder Bundle!

URINARY



B. Catheter-associated UTI or Hospital- acquired:(Resistant Gram-negative rods)

Diagnosis: In symptomatic pts, obtain specimen from new foley, or from sterilized port on existing foley, not from collection bag or urimeter. Send U/A with reflexive gram stain and culture (UACRC). WBCs and Bacteria on direct stain suggests infection, but colonization also very common.

- Ceftazidime 2g IV q8h
- If GPC seen on gram stain, add: Vancomycin**
- De-escalate or discontinue coverage if alternate source found for patient symptoms.

Typical Duration: 7-14 days

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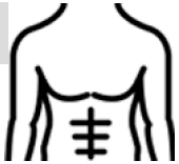
Empiric Abx: *Belly*

Pearls:

- No double-anaerobic coverage
- Short course post-appy

INTRA-ABDOMINAL



A. Community-acquired, mild-moderate
(Enteric Gram-negative rods, anaerobes)

- **HMC only:** Ertapenem 1g IV q24h
- **UWMC only:** Ceftriaxone 2g IV q24h **PLUS** Metronidazole 500mg PO/IV q8h
- For uncomplicated ***biliary*** infections, anaerobic coverage usually not necessary, use Ceftriaxone alone

Typical Duration: 4 days following source control

B. Hospital-acquired, severe physiological disturbance, advanced age, immunocompromised

- Vancomycin** **PLUS**
- Piperacillin-tazobactam 4.5gm X 1, then 4 hours later, start 3.375gm IV q8h infused over 4 hours

Typical Duration: 4-7 days from source control; if source control is not attained, then duration is variable.

C. Intra-abdominal infections:

⇒ **Double anaerobic coverage is not required (i.e. metronidazole + piperacillin/tazobactam)**

⇒ **Abdominal Transplant patients: Same as above and consult Transplant Infectious Diseases**

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Empiric Abx: *Skin*

Pearls:

- Cellulitis = *Strep* (beta lactam)
- Pus = *S.aureus* (I&D)

CELLULITIS

Not-applicable to device-related infections (eg ICD, pacemakers, VADs, etc): Consult Infectious Diseases

A. Non-purulent skin/soft tissue infection:
(Streptococcus species)

- Cefazolin 2g IV q8h
- PO option for Strep/MSSA: Cephalexin 500mg QID

B. Purulent/abscess forming skin/soft tissue infection:
(*S.aureus:* MSSA or MRSA)
Diagnosis: I&D abscess; send pus (not wound swab) for gram stain and culture.

- *Usually abx are unnecessary unless significant surrounding cellulitis or pt clinically unstable*
- Vancomycin**
- De-escalate when culture data available
- PO options for MRSA: Bactrim or Doxycycline (Consult ID)

Typical Duration: 5-7 days; Consult Infectious Diseases for PO step-down options

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Empiric Abx: *CNS*

Pearls:

- A true emergency
- Do not delay abx for LP or CT

MENINGITIS

(*S.pneumoniae, N.meningitidis and H.influenzae* Consider Listeria and HSV in patients age > 50, immuno-compromised or alcoholic.)

Diagnosis: Order antibiotics immediately; Do not wait for results of LP to initiate antimicrobials. LP for opening pressure, gram stain, culture, HSV PCR, cell count, glucose, and protein. Add cryptococcal antigen for HIV patients.

Non-surgical, community-acquired:

- Consider Dexamethasone 0.15mg/kg IV q6 hours for 2-4 days, give 15 minutes prior to abx if possible
- Ceftriaxone 2g IV q 12h **PLUS**
- Vancomycin**
- **ADD** Ampicillin 2g IV q4 hours for Listeria coverage
- **ADD** Acyclovir 10mg/kg IV q8h for HSV coverage when appropriate

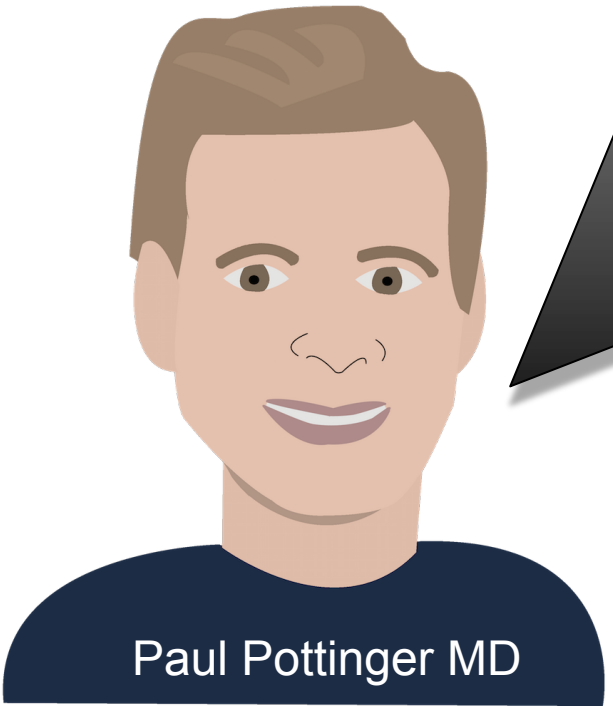
Typical duration: 7-21 days depending on organism

Post-surgical meningitis: *(S.epidermidis, S.aureus, P.acnes,* gram-negative rods *(including P.aeruginosa)*

- Cefepime 2g IV q8h **PLUS**
- Metronidazole 500mg IV q8h **PLUS**
- Vancomycin**

Duration: variable

Empiric Abx: *Conclusions*



1. Order sets assist with standardization… "Easy Button"
2. Get provider buy-in during development
3. Measure use… be willing to modify PRN!

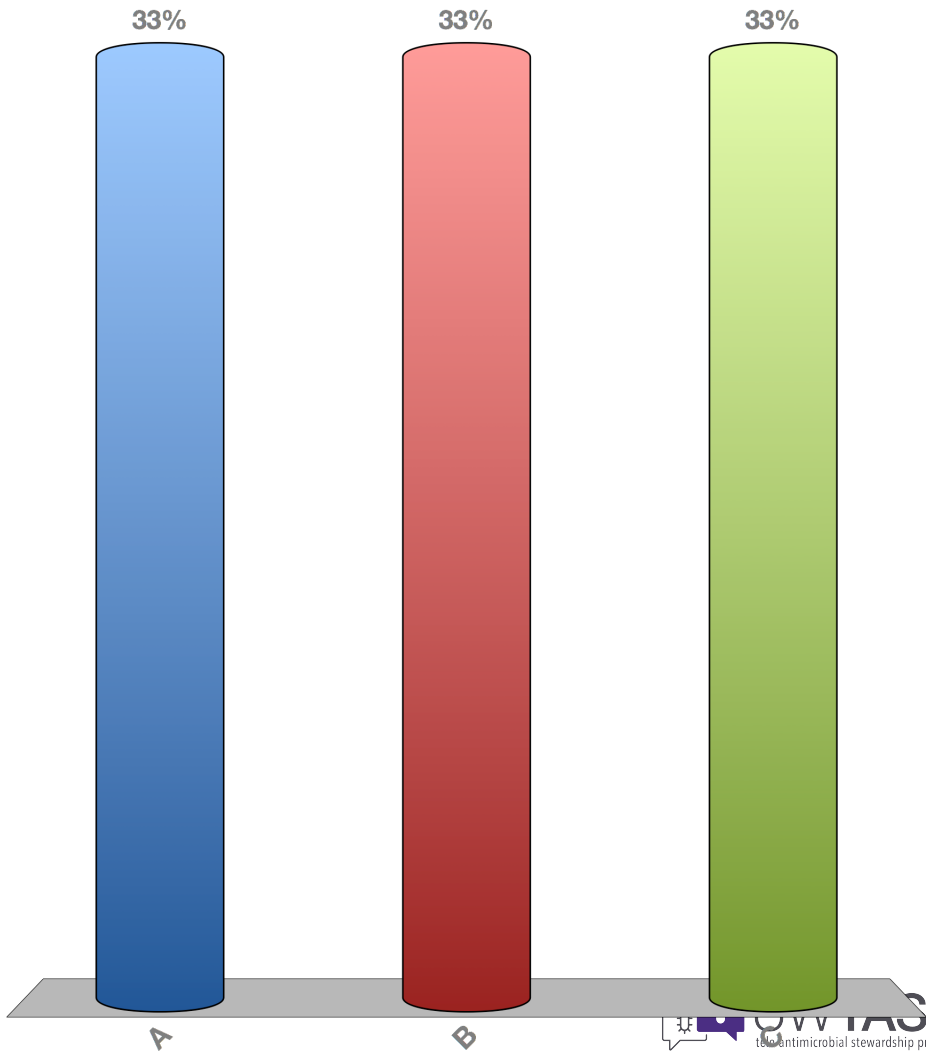
References

- IDSA Practice Guidelines

  http://www.idsociety.org/IDSA_Practice_Guidelines/

How burdensome are narcotic addictions in your setting?

A. Rarely see it
B. Pretty common
C. Super common!



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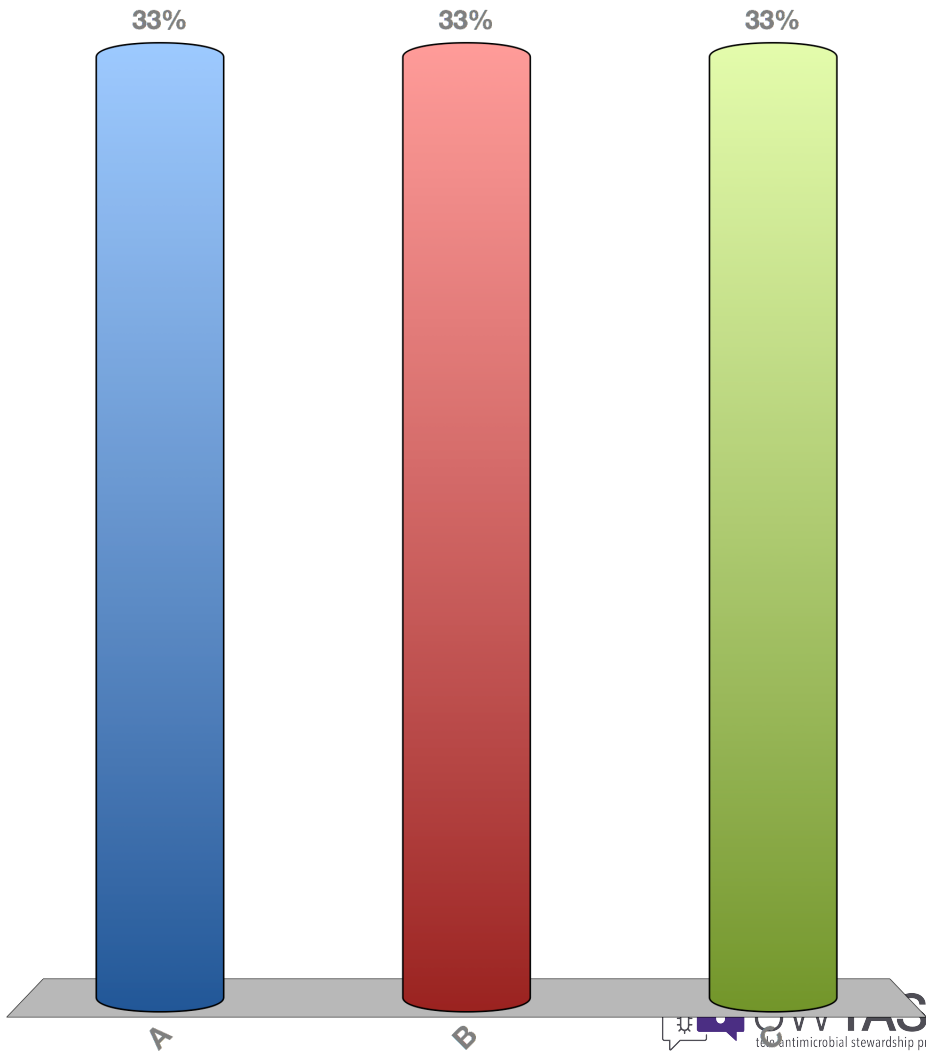
Have you seen “black tar” heroin in your hospital in the last few years?

A. Nope
B. Yep
C. Not Sure



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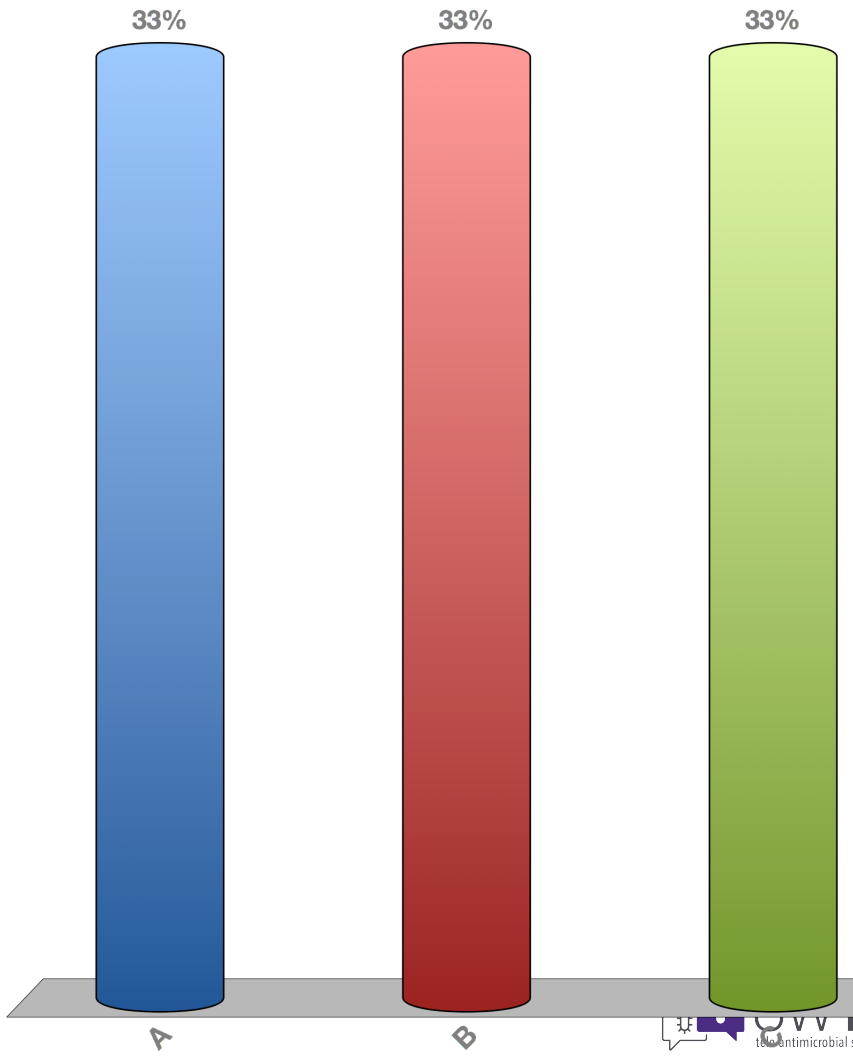
How many times in the last few years have you discharged an IDU pt with a PICC for OPAT?

A. Never
B. 1-5
C. > 5



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Thank you!
See you next week!
Tuesday March 28, 2017

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