UTIs – to treat or not to treat?

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1

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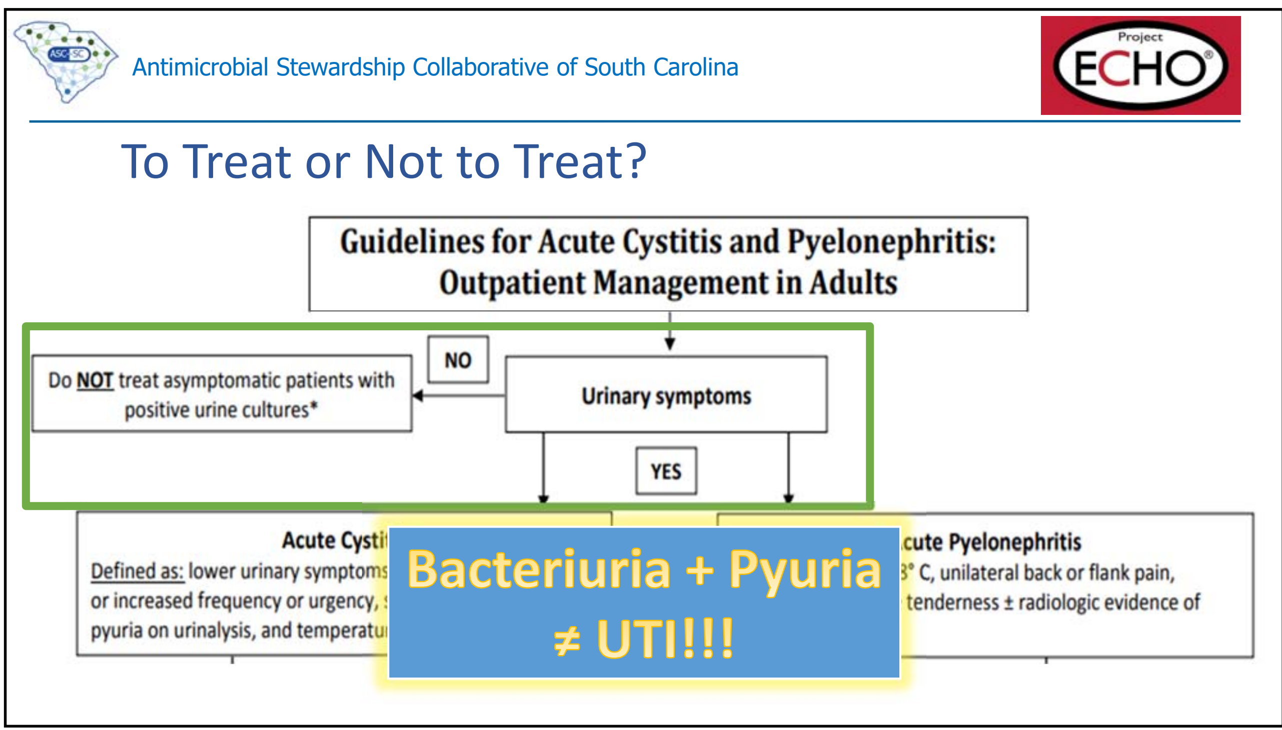
Outpatient Series Objective

Apply the current standards for outpatient antimicrobial stewardship practice when solving complex patient or system challenges and improving antibiotic prescribing in ambulatory care settings

2



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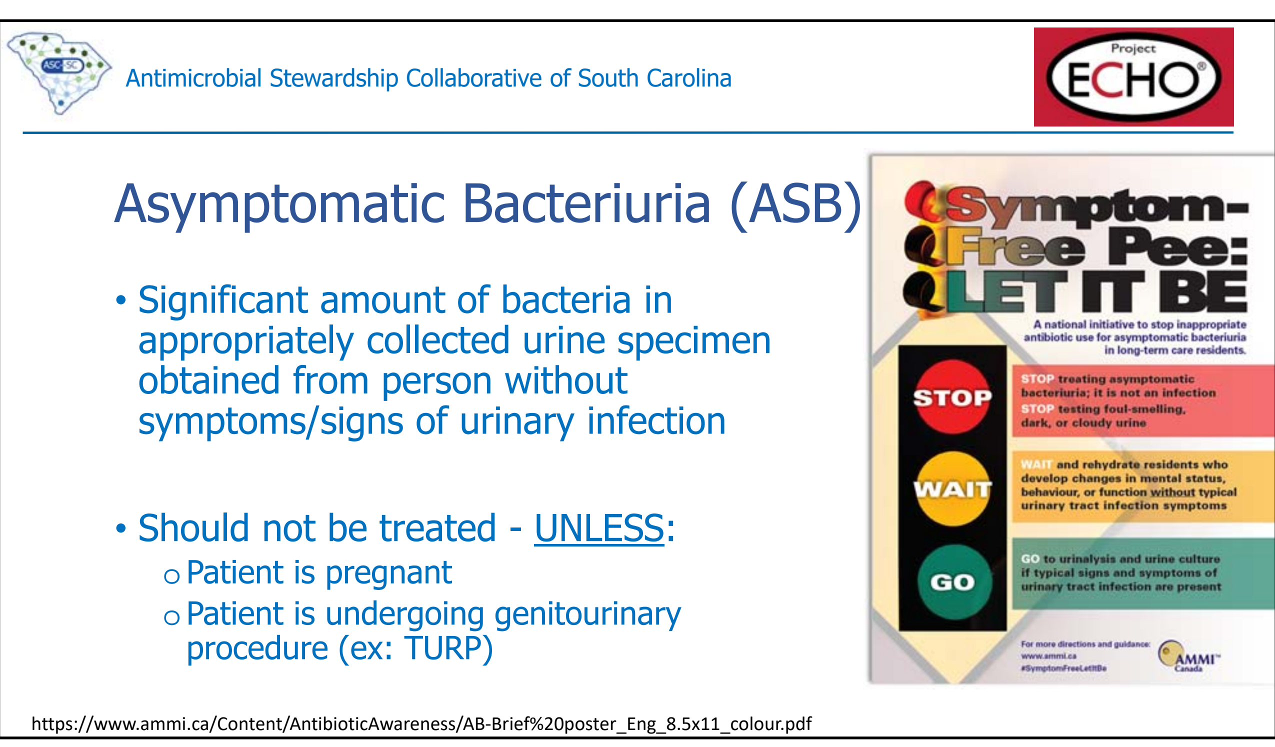

4

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What about older, functionally or cognitively impaired patients?

- With bacteriuria and delirium (acute mental status change, confusion) but NO local genitourinary symptoms or other systemic signs of infection (e.g., fever, hemodynamic instability)
  - Look for other causes of delirium (e.g., dehydration, constipation, medications, sleep deprivation)
  - Do NOT give antibiotics

Falls/AMS ≠ UTI!!!

Nicolle LE. CID. 2019 Mar 21. doi: 10.1093/cid/ciy1121.

5

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Findings on Diagnostics

Urinalysis

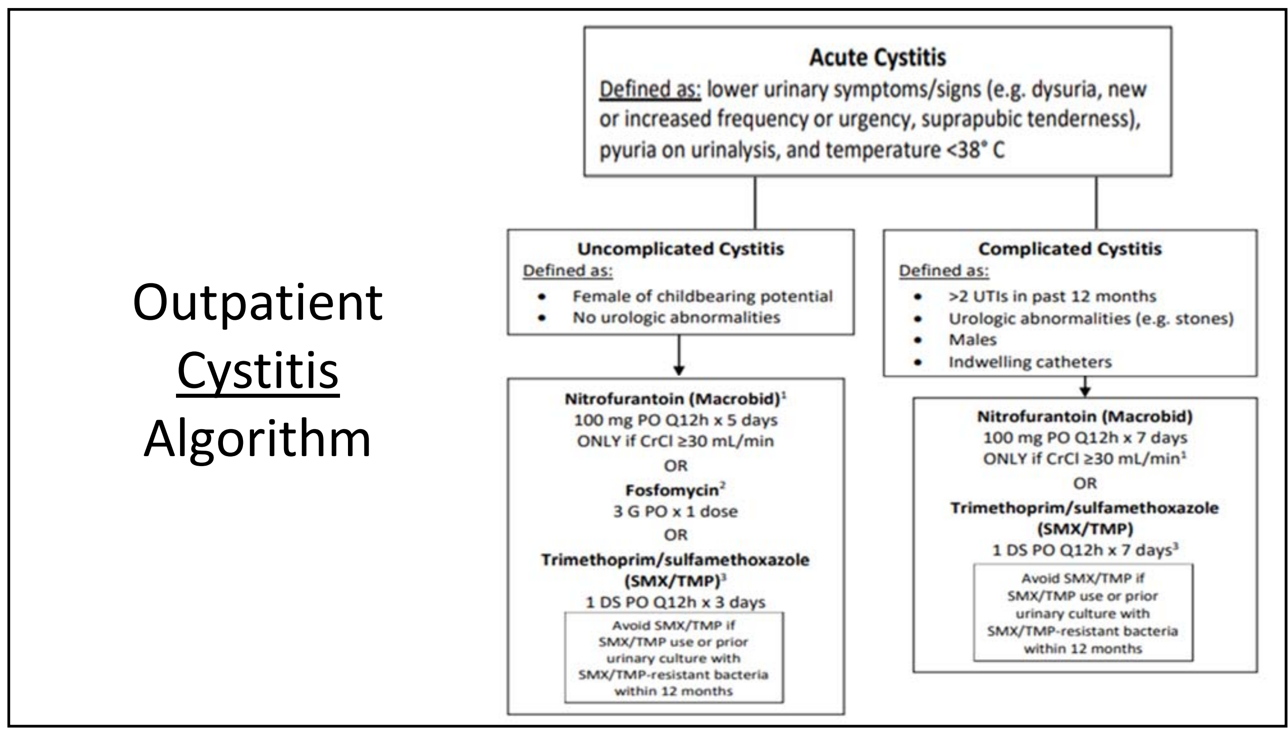
- + Leukocyte esterase
- + Nitrites
  - More likely Gram-negative rods
- + WBCs
- + RBCs

Culture

- Positive urine culture = >10^5 CFU/mL
- Most common pathogens
  - *Escherichia coli* - large majority
  - *Proteus mirabilis*
  - *Klebsiella spp.*
  - *Pseudomonas aeruginosa*
  - *Staphylococcus saprophyticus*

6

Outpatient Cystitis Algorithm



7

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Acute Cystitis

- Fluoroquinolone use is strongly discouraged!
  - Risk of AE (e.g., CDI, tendonitis, neurotoxicity, QTC prolongation, induction of resistance) exceeds potential benefit
- Oral 3rd generation cephalosporins should be avoided
  - Low urinary concentrations
  - High risk of AE such as induction of resistance (ESBL)

8

Acute Cystitis – Alternative Regimens

Contraindications to 1st line therapy

- Cephalexin 500mg q8h x 7-10d
- Amoxicillin/clavulanic acid 500mg/125mg q12h x 7-10d
- Last resort ONLY in pts with no risk factors for FQ resistance: ciprofloxacin 250mg q12h x 3-5d

ESBL-producing *Enterobacteriaceae*

- Non-beta-lactams often retain activity
- If fosfomycin used, 3G q72h x 3 doses

Vancomycin-resistant *Enterococcus* (VRE)

- Often colonization rather than infection
- For symptomatic patients, fosfomycin 3G q72h x 2 doses

9

Outpatient Pyelonephritis Algorithm

Acute Pyelonephritis
Defined as: fever >38° C, unilateral back or flank pain, costovertebral angle tenderness ± radiologic evidence of kidney involvement

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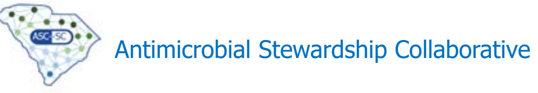
Risk factors for fluoroquinolone resistance
(Any of the following)
- Use of fluoroquinolones in the past 12 months
- Outpatient gastrointestinal or genitourinary procedure in past 30 days
- Resident of a nursing home/skilled nursing facility

NO →
Levofloxacin[4]
750 mg PO Q24h x 5 days ♀
or 14 days ♂
OR
Ciprofloxacin[5]
500 mg PO Q12h x 7 days ♀
or 14 days ♂

YES →
Ceftriaxone 1g IV/IM x 1
PLUS
SMX/TMP[3]
1 DS PO Q12h x 14 days
Avoid SMX/TMP if SMX/TMP use or prior urinary culture with SMX/TMP-resistant bacteria within 12 months

10



Acute Pyelonephritis

- Nitrofurantoin and fosfomycin should be AVOIDED
- Oral 3rd generation cephalosporin use is discouraged
  - Low urinary concentrations
  - Higher risk of treatment failure in comparison to FQ and SMX/TMP

11

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Case 1

- Patient CS is a 24-year old female who presents to her PCP with complaints of dysuria, urinary frequency, and suprapubic tenderness for 3 days.
- Vitals: 37 C , HR 90 bpm, RR 16 breaths/min, BP 118/79 mm Hg
- Treatment?

12

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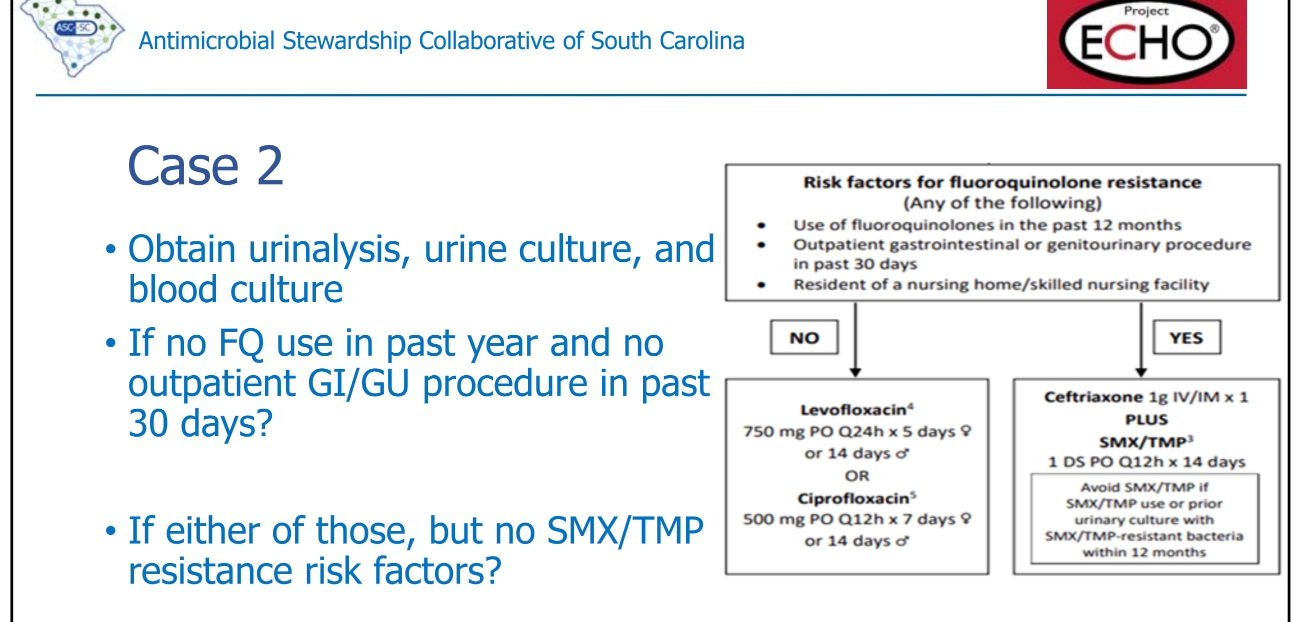
Case 2

- Patient UT is a 60-year old female comes to the ED with complaints of right-sided lower back pain, urinary frequency, and subjective fevers.
  - PMH: HTN, dyslipidemia, nephrolithiasis
  - Medications: lisinopril, amlodipine, atorvastatin
  - Vitals: Tmax: 101 F, BP: 130/90 mm Hg, HR: 80 bpm, RR: 18 bpm
  - Labs: SCr: 1.49 mg/dL, CrCl: 38, Electrolytes: WNL, WBC: 15,000 cells/L

13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Case 2

- Obtain urinalysis, urine culture, and blood culture
- If no FQ use in past year and no outpatient GI/GU procedure in past 30 days?
- If either of those, but no SMX/TMP resistance risk factors?

14

Who falls outside the treatment algorithms?

- Patients with history of positive cultures with multi-drug resistant organisms (e.g., CRE, MDR-pseudomonas)
- Pregnant patients
- Pediatric patients

15

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16