



# DEBUNKING THE MYTHS ASSOCIATED WITH UTIS

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WASHINGTON STATE SOCIETY  
FOR POST-ACUTE  
AND LONG-TERM CARE  
MEDICINE

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- Dr. Erica Stohs has the following financial relationships to disclose:
  - Grant/Research Support from: Merck & Co, Inc & BioMerieux for investigator-initiated studies
- Jessica Zering, PharmD has no financial relationships with an ineligible company relevant to this presentation to disclose.

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Please type any questions into the Q & A box. The moderator will review & select questions to answer live for 10 minutes following the presentation



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# Series Timeline

Session #1:  
Is it ASB or UTI? A Case-  
Based Approach  
[Access recording here](#)  
August 22<sup>nd</sup>, 2023

Session #3:  
Go With the Flow: A  
Case-Based  
Approach to  
Recurrent UTIs  
September 19<sup>th</sup>,  
2023

Session #2:  
Debunking the  
Myths Associated  
with UTIs  
August 29<sup>th</sup>, 2023

Session #4:  
Implementing  
Antibiotic  
Stewardship in a  
Long-Term Care  
Setting  
October 3<sup>rd</sup>, 2023

# Learning Objectives

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- List the most common myths associated with UTI
- Explain the evidence that debunks these common myths
- Identify the reasons why treating asymptomatic bacteriuria is harmful
- Name resources that are available to assist long-term care facilities with their stewardship program

# Poll Question 1

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- True or False Poll Question 1:
  - Failure to treat asymptomatic bacteriuria (ASB) will lead to sepsis



## Poll Question 2

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- True or False:
  - Malodorous urine is indicative of a urinary tract infection (UTI)





## Poll Question 3

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- True or False:
  - Fluoroquinolones are 2<sup>nd</sup>-line therapies for UTI



## Speaker Introduction

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DR. ERICA STOHS, MD, MPH

&

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# DIAGNOSTIC MYTHS

Erica Stohs, MD, MPH

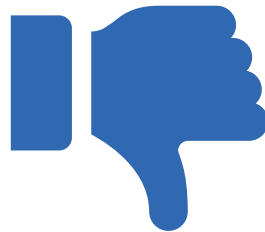


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## Myth #1

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IGNORING ASYMPTOMATIC BACTERIURIA (ASB)  
WILL LEAD TO SEPSIS AND DEATH



# ASB treatment Does Not Reduce Mortality

- Observational cohort clinical trial in 1491 ambulatory women with mean age 82 years living in retirement communities
- Urine cultures every 6 months + antibiotic treatment if positive

Variable	Controls		Treated		P-value
	Number	Mean	Number	Mean	
Age	192	82.0 y	166	81.8 y	>0.2
Number of diagnoses	165	5.4	148	5.2	>0.2
Number of drugs	165	5.7	148	6.2	>0.2
Hospitalizations	153	0.26	133	0.23	>0.2

- Bacterial cure (control vs treatment groups): 15.6% vs 82.9%
- Mortality: 15.1/100k vs 13.8/100k (Not statistically significant)

[Abrutyn et al. Ann Int Med 1994;120\(10\):827-33.](#)

# ASB treatment Does Not Reduce Mortality

## Meta-analysis/systematic review

- 9 RCTs, 1391 participants
- Treatment vs no treatment of ASB

## Outcomes: mortality, urinary tract infection (UTI) development

- Primary: mortality, UTI development – no difference between groups
- Secondary: antibiotic therapy-related adverse events

## Results: ASB treatment associated with

- Bacteriologic cure (RR 1.89, 95% CI: 1.08-3.32, p=0.03)
- More adverse events (RR 5.62, 95% CI: 1.07-29.55, p=0.04)

## Conclusion: Risks (AEs) > Benefit (cure the culture, not the patient)

[Krzyszaniak N et al. Brit J Gen Pract 2022;72\(722\):e649-58.](#)

# Antibiotic Harms

## Estimating Daily Antibiotic Harms

Umbrella Review and Meta-Analysis

Public Health  
Ontario

Santé  
publique  
Ontario

 **35** Systematic Reviews

 **71** Short vs. Long Antibiotic Duration Trials

 **92%** studies evaluated respiratory tract and urinary tract infections

 **23,174** patients evaluated



**Adverse Events**

N=20,345

**4%↑**

odds ratio/day



**Antibiotic Resistance**

N=2,330

**3%↑\***

odds ratio/day



**Super-infections**

N=5,776

**2%↓\***

odds ratio/day

\* Non-statistically significant difference

**Each Additional Day Can Cause Harm**

**5 vs 3**  
Days



**9%↑** odds ratio  
Of adverse events

**7 vs 3**  
Days



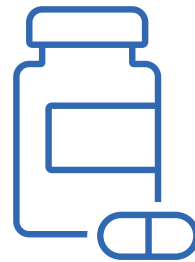
**19%↑** odds ratio  
Of adverse events

Source: Curran J et al. Estimating daily antibiotic harms: An Umbrella Review with Individual Study Meta-analysis Clin Micro Infect. 2021

## Myth #2

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TREATING ASB WILL STERILIZE THE URINE





# ASB Treatment Promotes Antibiotic Resistance

- RCT: 35 patients with long-term indwelling catheters
- Weekly urine cultures
- +Bacteriuria → received 10 days of cephalexin

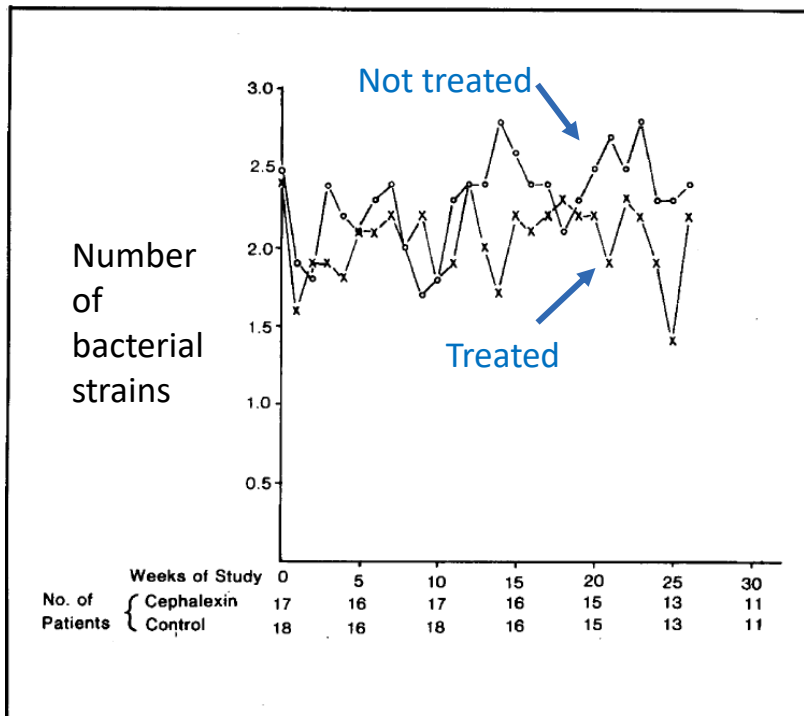
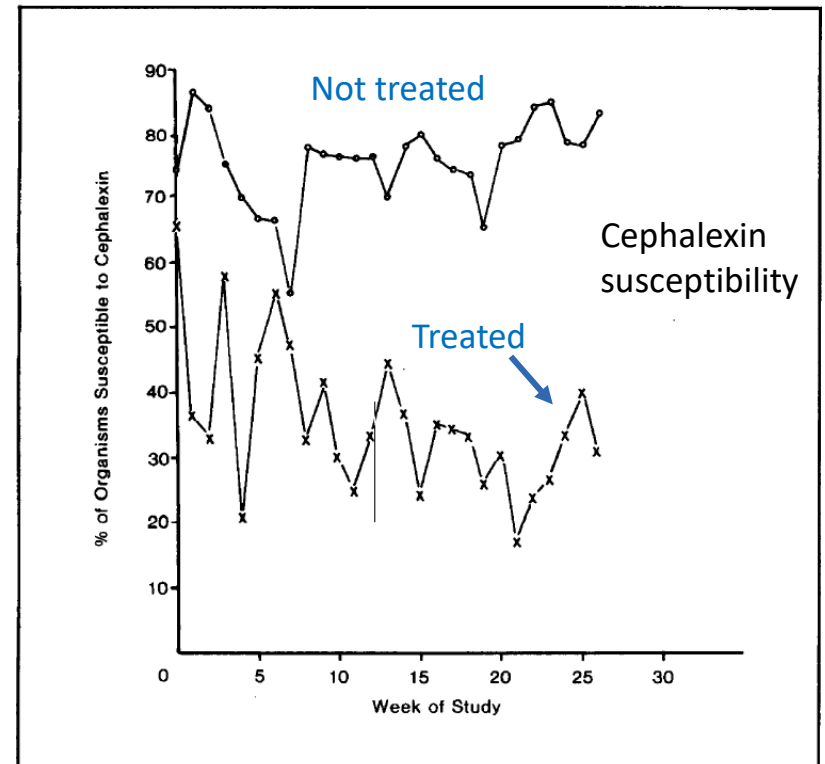


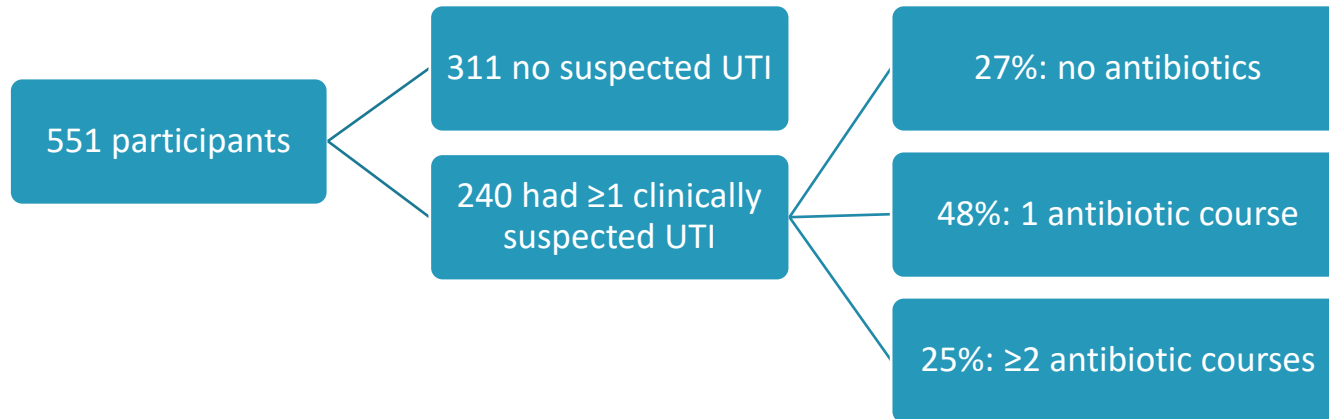
Fig 1.—Mean number of bacterial strains ( $\geq 10^5$  colony-forming units [cfu]/mL) per patient, isolated from weekly urine specimens. Xs indicate cephalexin monohydrate group; circles, controls.

Fig 2.—Bacterial strains susceptible to cephalaxin as percentage of total weekly urine isolates. Xs indicate cephalaxin monohydrate group; circles, controls.



# ASB Treatment Promotes Antibiotic Resistance

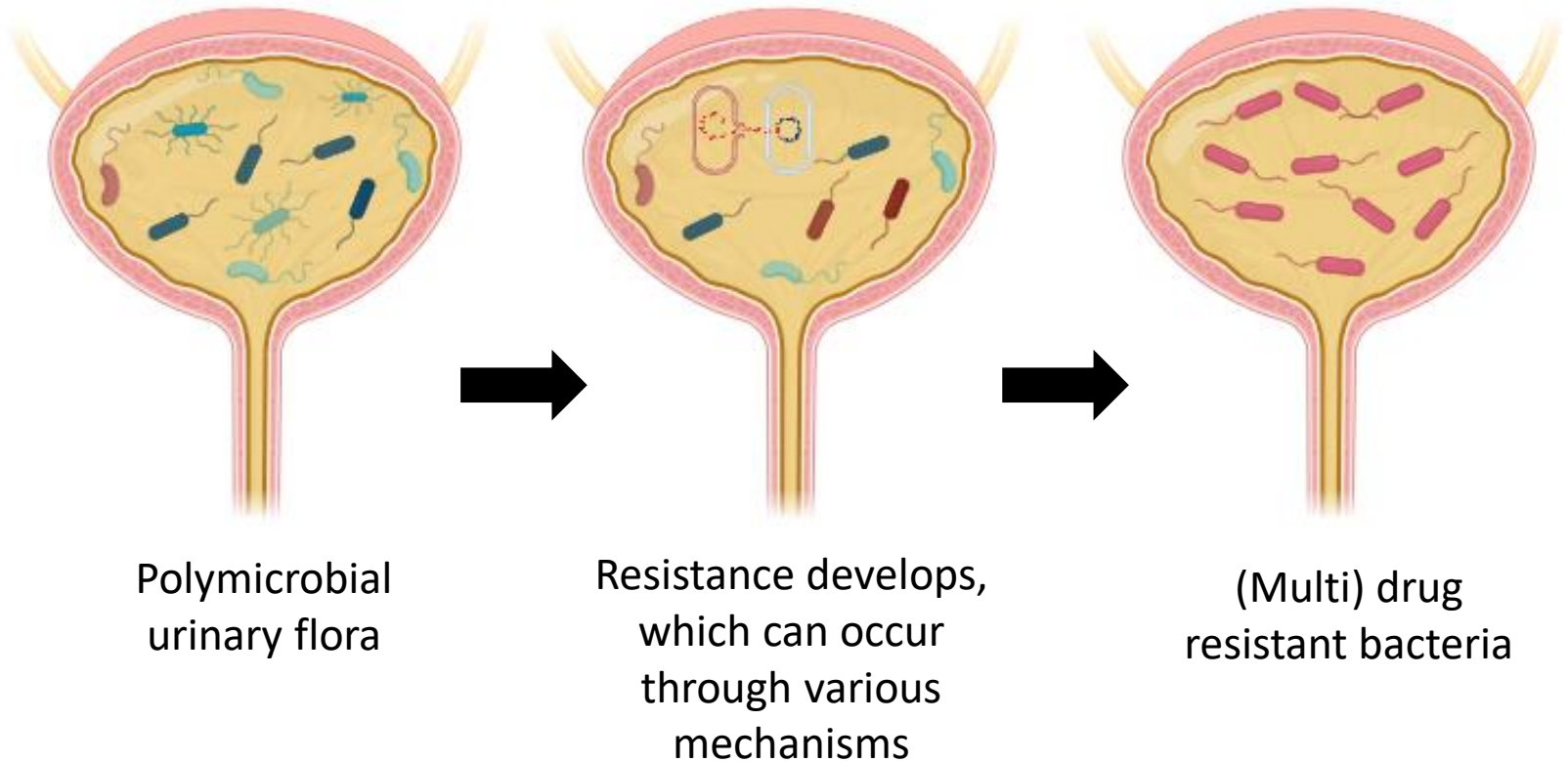
Study followed a cohort of non-catheterized residents from 5 nursing homes



Adverse Clinical Outcomes	Adjusted Odds Ratio (95% confidence interval)	P-value
Antibiotic utilization	30.57 (15.98, 58.49)	<0.001
<b>MDR GNR urinary isolates</b>	<b>1.91 (1.14, 3.18)</b>	<b>0.014</b>
Change in mental status	1.18 (0.80, 1.76)	0.405
Hospitalization for UTI	1.16 (0.67, 2.02)	0.595

[Das et al. ICHE 2011;32\(1\):84-6.](#)

# What Happens with Antibiotic Pressure?



# IDSA 2019 Guidelines - Management of ASB

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Recommend **AGAINST** screening for and treating asymptomatic bacteriuria in most clinical scenarios:

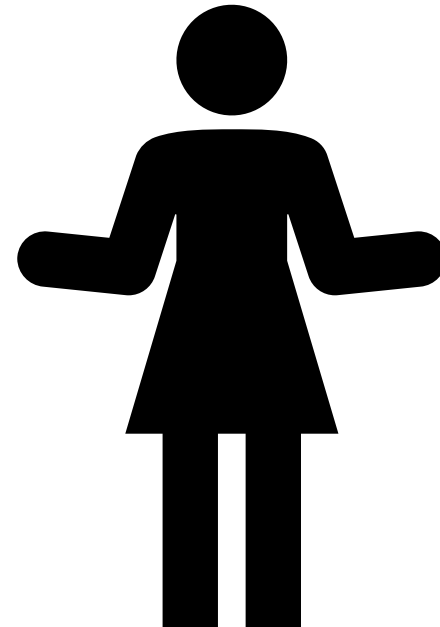
- Functionally impaired older people residing in LTCF
- Older, functionally or cognitively impaired patient with non-localizing symptoms
- Diabetics
- Kidney transplant >1 month; other transplant recipients
- Impaired voiding following spinal cord injury
- Patients with indwelling catheters
- Patients prior to undergoing non-urologic surgeries

[Nicolle LE et al. Clinical Infectious Diseases. 2019;68\(10\):e83-e110](#)

# When SHOULD ASB Be Treated?

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- Only 2 indications:
  - Pregnancy
  - Urological procedures associated with mucosal trauma
- As per IDSA:
  - There is a **high** certainty for harm and **low** certainty of any benefit from treatment of ASB in older adults
  - Treating them does not improve behavior or mortality



[Nicolle LE et al. Clinical Infectious Diseases. 2019;68\(10\):e83-e110](#)

## Myth #3

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SMELLY URINE MEANS UTI



# Urine Odor/Appearance – The Evidence

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Study and Procedure	<ul style="list-style-type: none"><li>• 6 nursing homes, 97 residents</li><li>• Wet incontinence pads assessed for odor + UAs</li></ul>
Population	<ul style="list-style-type: none"><li>• Residents who could give a clean-catch urine specimen, had no vaginal discharge, and were antibiotic-free for 14 days prior to the day of UA</li></ul>
Outcomes Measured	<ul style="list-style-type: none"><li>• Accuracy of smell for the diagnosis of UTI</li></ul>

[Midthun SJ et al. Journal of Gerontological Nursing 2004;30\(6\):4-9](#)

# Urine Odor/Appearance – The Evidence

**Table 1. Comparison of Pad Odor to Detection of UTI Defined as Bacteriuria**

Bacteriuria			
Odor	Negative	Positive	Total
No	52	17	69
Yes	13	15	28
Total	65	32	97

Sensitivity: 46.9%; specificity: 80%

**Table 2. Comparison of Pad Odor to Detection of UTI Defined as Bacteriuria and Pyuria**

Bacteriuria + Pyuria			
Odor	Negative	Positive	Total
No	59	10	69
Yes	20	8	28
Total	79	18	97

Sensitivity: 44.4%; specificity: 74.7%

[Midthun SJ et al. Journal of Gerontological Nursing 2004;30\(6\):4-9](#)



Myth #4

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UTIS CAUSE CONFUSION



# Mental Status Change & UTI

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Observational data suggests patients with delirium are more likely to have bacteriuria, likely due to age and comorbidities.

- Delirious patients with ASB → treated vs not treated
  - No significant functional recovery
  - No change in mortality for inpatients
  - Treated patients had poorer functional outcome (Adj OR 3.45 [95%CI 1.27-9.38])
  - Treated patients more likely to develop *C. diff* infection (OR 2.45 [95%CI 0.86-6.96])
- **Don't miss what is causing the patient's delirium!**

[Nicolle LE et al. Clinical Infectious Diseases. 2019;68\(10\):e83-e110](#)

# Altered Mental Status – The Evidence

- 33 predisposing factors

Table 2. The 33 Predisposing Factors Associated With Delirium

Predisposing factor	No. Studies
Advanced age	112
Cognitive impairment <sup>a</sup> or dementia	130
Functional impairment (physical, vision, hearing, or frailty)	48
Cardiovascular disease <sup>b</sup>	18
Cumulative comorbidities <sup>c</sup>	26
Central nervous system disorder <sup>d</sup>	24
Alcohol use	12
Male sex	15
Depression	19
Lower educational attainment	8
Malnutrition or undernutrition	9
Diabetes	6
Tobacco use	7
Anemia	5

- 112 precipitating factors

- Surgery/anesthesia
- Organ dysfunction
  - Kidney, liver, respiratory, etc.
  - Pain
  - Urinary RETENTION
  - “Infection”
- Metabolic abnormalities
- Medications
- Iatrogenic / environmental factors
- Trauma
- Biomarkers
- Neurotransmitter levels

[Ormseth CH et al. JAMA Network Open. 2023;6\(1\):e2249950](https://doi.org/10.1093/jama-networkopen/nkab001)

# IDSA Guideline Recommendation

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## **V. In an Older, Functionally or Cognitively Impaired Patient, Which Nonlocalizing Symptoms Distinguish ASB From Symptomatic UTI?**

### *Recommendations*

1. In older patients with functional and/or cognitive impairment with bacteriuria and delirium (acute mental status change, confusion) and without local genitourinary symptoms or other systemic signs of infection (eg, fever or hemodynamic instability), we recommend assessment for other causes and careful observation rather than antimicrobial treatment (*strong recommendation, very low-quality evidence*).

[Nicolle LE et al. Clinical Infectious Diseases. 2019;68\(10\):e83-e110](#)



# ANTIBIOTIC MYTHS

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## Myth #5

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FLUOROQUINOLONES (FQS) ARE THE BEST  
TREATMENTS FOR UTI



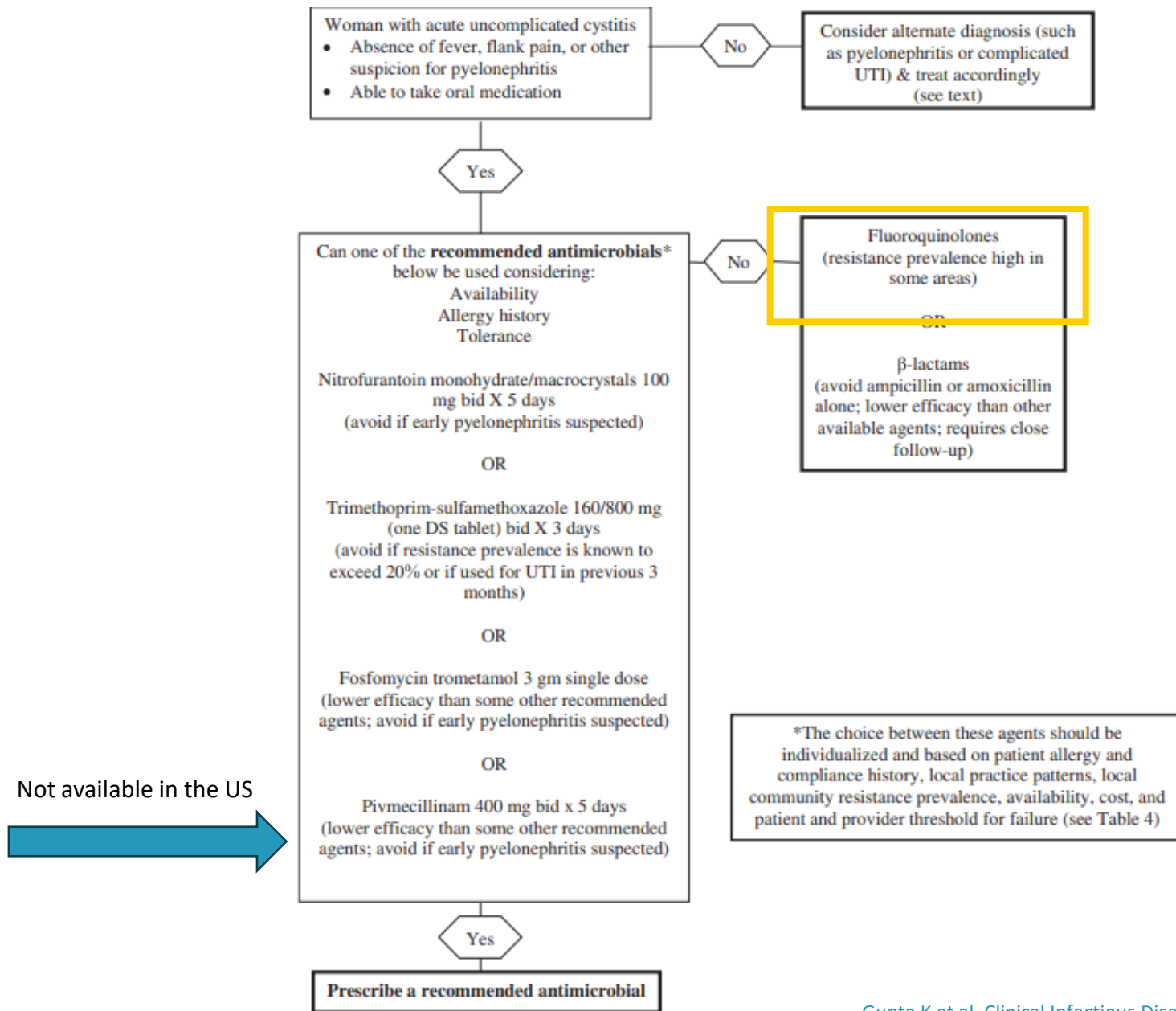
**Table 2. Top 20 Antibiotics Prescribed to Long-Stay Nursing Home Residents With Medicare Part D Coverage, 2013–2017**

N = 1 375 062 Residents

Rank	Antibiotic	Residents Prescribed, No. (% [99% CLs])	Residents Prescribed per 1000 PY (99% CLs)	Antibiotic DOT per 1000 Days of Care (99% CLs)
1	Levofloxacin	303 845 (22.1 [22.0, 22.2])	129 (129, 130)	4.2 (4.2, 4.2)
2	Ciprofloxacin	266 110 (19.4 [19.3, 19.4])	113 (113, 114)	3.8 (3.8, 3.9)
3	Sulfamethoxazole-trimethoprim	218 380 (15.9 [15.8, 16.0])	93 (92, 93)	4.7 (4.7, 4.7)
4	Cephalexin	214 067 (15.6 [15.5, 15.6])	91 (91, 92)	4.2 (4.2, 4.2)
5	Azithromycin	181 095 (13.2 [13.1, 13.2])	77 (77, 78)	1.7 (1.7, 1.7)
6	Nitrofurantoin	170 071 (12.4 [12.3, 12.4])	72 (72, 73)	5.5 (5.4, 5.5)
7	Amoxicillin-clavulanate	151 771 (11.0 [11.0, 11.0])	65 (64, 65)	2.1 (2.1, 2.1)
8	Doxycycline	140 080 (10.2 [10.1, 10.3])	60 (59, 60)	3.3 (3.3, 3.3)
9	Ceftriaxone	133 881 (9.7 [9.7, 9.8])	57 (57, 57)	1.1 (1.1, 1.1)
10	Amoxicillin	98 623 (7.2 [7.1, 7.2])	42 (42, 42)	1.3 (1.3, 1.3)
11	Cefuroxime	68 087 (5.0 [4.9, 5.0])	29 (29, 29)	0.9 (.9, .9)
12	Metronidazole	63 474 (4.6 [4.6, 4.7])	27 (27, 27)	1.2 (1.2, 1.2)
13	Clindamycin	55 742 (4.1 [4.0, 4.1])	24 (24, 24)	0.8 (.7, .8)
14	IV vancomycin	41 751 (3.0 [3.0, 3.1])	18 (18, 18)	1.2 (1.2, 1.2)
15	Cefdinir	35 533 (2.6 [2.5, 2.6])	15 (15, 15)	0.5 (.5, .5)
16	Ampicillin	27 860 (2.0 [2.0, 2.1])	12 (12, 12)	0.4 (.4, .4)
17	Moxifloxacin	19 721 (1.4 [1.4, 1.5])	8 (8, 9)	0.2 (.2, .2)
18	Ertapenem	18 326 (1.3 [1.3, 1.4])	8 (8, 8)	0.2 (.2, .2)
19	Cefpodoxime	15 532 (1.1 [1.1, 1.2])	7 (7, 7)	0.2 (.2, .2)
20	Gentamicin	15 428 (1.1 [1.1, 1.1])	7 (6, 7)	0.2 (.2, .2)

Residents contributed 2 349 937 PY of follow-up time.

Abbreviations: CLs, confidence limits; DOT, days of therapy; IV, intravenous; PY, person-years.



**Figure 1.** Approach to choosing an optimal antimicrobial agent for empirical treatment of acute uncomplicated cystitis. DS, double-strength; UTI, urinary tract infection.



# Why Are FQs 2<sup>nd</sup>-Line Therapies?

## Boxed Warnings

- **Tendonitis/tendon rupture**
- Exacerbation of myasthenia gravis

## Adverse Drug Reactions

- **Central nervous system (CNS) effects**
- **Increase in suicidal behaviors**
- **Aortic aneurysm**
- **Blood sugar disturbances (high and low)**
- Drug-drug interactions (i.e. warfarin)
- *C. difficile* infections
- & more!

[Food and Drug Administration. 2018](#)  
[Cipla USA, Inc. Levaquin Medication Guide. 2022](#)  
[Chou et al. Clin Inf Dis. 2013;57\(7\):971-980](#)  
[Werner et al. BMC Inf Dis. 2011;11](#)

# CNS Effects

- Tome et al. analyzed 206 neurologic & psychiatric adverse drug reactions in individuals who received FQs
- The most reported reactions were:

Neurological Reactions	Psychiatric Reactions
Grand-mal convulsion	Mania
Confusion	Insomnia
Convulsions	Acute psychosis
Myoclonus	Delirium

- Average onset = 1 week, but these can occur after just 1 dose

[Tome et al. Drug Saf. 2011 Jun 1;34\(6\):465-88](#)  
[Bayer. Ciprofloxacin Package Insert. 2011](#)

# Aortic Aneurysm & Tendon Rupture

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## Study Type & Procedure

- Population-based longitudinal cohort
- Analysis of a health insurance claims database



## Population

- 65-year-olds given an RX for a FQ



## Outcomes Measured

- Collagen-associated adverse events diagnosed in the hospital or ED within 30 days of receiving antibiotic

# Aortic Aneurysm & Tendon Rupture

**Table 2** Current fluoroquinolone use\* and the hazard of collagen-associated adverse events†

Antibiotic exposure outcome event	Unadjusted HR	95% CI	Adjusted† HR	95% CI
<b>Fluoroquinolones</b>				
Tendon rupture	3.13	2.98 to 3.28	2.40	2.24 to 2.57
Retinal detachment	1.28	0.99 to 1.65	1.47	1.08 to 2.00
Aortic aneurysm	2.72	2.53 to 2.93	2.24	2.02 to 2.49
<b>Amoxicillin (negative tracer)</b>				
Tendon rupture	1.56	1.46 to 1.66	1.41	1.29 to 1.54
Retinal detachment	1.44	1.14 to 1.81	1.47	1.08 to 2.00
Aortic aneurysm	1.74	1.59 to 1.90	1.50	1.32 to 1.70

\*Patients considered exposed during fluoroquinolone course and for 30 days following treatment.

†Adjusted for baseline characteristics including sex, income quintile, prior hospital admissions, prior physician visits, diabetes mellitus, hypertension, atherosclerosis, chronic kidney disease, chronic obstructive pulmonary disease, hypothyroidism, depression, inflammatory bowel disease, malignancy, liver disease, prior pneumonia, prior urinary tract infection.

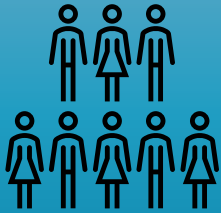
- FQs were associated with a 2 to 3-fold increase in tendon rupture and aortic aneurysm
- Reducing unnecessary FQs treatments/durations might have prevented more than 200 aortic aneurysms in this population

# Dysglycemias



## Study Type & Procedure

- Population-based inception cohort
- Analysis of a health insurance claims database



## Population

- Diabetic patients given a new RX for a FQ
- Average age: 62-67 years old



## Outcomes Measured

- Dyglycemic episodes that led to an ED visit or hospitalization within 30 days of receiving antibiotic

**Table 2. Risk of Hyperglycemia and Hypoglycemia Associated With Antibiotic Use in Each Group of Antibiotics**

Antibiotic Group	No.	Events	Incidence (%)	Time to Event, d, Mean ± SD	Crude OR (95% CI)	Adjusted OR (95% CI)
<b>Hyperglycemia</b>						
Macrolides	29 565	48	1.62	7.92 ± 9.46	1.00	1.00
Cephalosporins	20 317	42	2.07	8.17 ± 9.23	1.27 (.84–1.93)	1.36 (.87–2.13)
Moxifloxacin	4221	29	6.87	3.90 ± 7.20	4.25 (2.68–6.75)	2.48 (1.50–4.12)
Levofloxacin	11 766	46	3.91	6.22 ± 8.49	2.41 (1.61–3.62)	1.75 (1.12–2.73)
Ciprofloxacin	12 564	50	3.98	5.60 ± 8.12	2.46 (1.65–3.65)	1.87 (1.20–2.93)
<b>Hypoglycemia</b>						
Macrolides	29 565	110	3.72	6.32 ± 6.81	1.00	1.00
Cephalosporins	20 317	65	3.20	7.72 ± 9.83	0.90 (.63–1.17)	0.94 (.68–1.32)
Moxifloxacin	4221	42	9.95	7.02 ± 9.51	2.69 (1.88–3.85)	2.13 (1.44–3.14)
Levofloxacin	11 766	109	9.26	7.12 ± 8.48	2.50 (1.92–3.27)	1.79 (1.33–2.42)
Ciprofloxacin	12 564	99	7.88	9.16 ± 9.40	2.12 (1.62–2.79)	1.46 (1.07–2.00)

Abbreviations: CI, confidence interval; OR, odds ratio.

- 215 hyperglycemic events & 425 hypoglycemic events were identified
- Average time to onset of event: 4 – 8 days for hyper and 6-9 days for hypo

# Suicidal Behaviors

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## **Central Nervous System Effects**

Convulsions, increased intracranial pressure (including pseudotumor cerebri), and toxic psychosis have been reported in patients receiving fluoroquinolones, including ciprofloxacin. Ciprofloxacin may also cause central nervous system (CNS) events including: dizziness, confusion, tremors, hallucinations, depression, and, rarely, suicidal thoughts or acts. These reactions may occur following the first dose. If

**Table 1**  
Patient characteristics of reviewed patients who had FQ associated completed or attempted suicides.

Parameter	≤ 2 weeks			> 2 weeks <sup>#</sup>		
	Levofloxacin n = 11	Ciprofloxacin n = 15	Other FQ** n = 19	Levofloxacin n = 16	Ciprofloxacin n = 33	Other FQ** n = 16
Drug used	Levofloxacin n = 11	Ciprofloxacin n = 15	Other FQ** n = 19	Levofloxacin n = 16	Ciprofloxacin n = 33	Other FQ** n = 16
Median age (years) (range)	45 (23–84)	49 (21–84)	50.5 (17–87)	51.5 (22–80)	47 (12–68)	43.5 (19–88)
Male n, (%)	7 (64%)	12 (80%)	15 (79%)	10 (63%)	18 (55%)	6 (38%)
Psychiatric history present n, (%)	0 (0%)	4 (27%)	4 (21%)	1 (6%)	1 (3%)	3 (19%)
Suicide details						
Attempted n, (%)	9 (82%)	3 (20%)	10 (53%)	6 (38%)	18 (55%)	11 (69%)
Completed n, (%)	2 (18%)	12 (80%)	9 (47%)	10 (63%)	15 (45%)	5 (31%)

- Analysis of suicide-related events reported to the FDA’s Adverse Event Reporting System uncovered 108 suicide-related events
  - Age range: 17-88 years old
  - Psychiatric history was rarely present
  - 50% of the reported events were completed suicides



# Scenario

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- Your resident, Mrs. Johnson, is a 70-year-old female with new onset confusion

Past Medical History	Medication
<ul style="list-style-type: none"><li>• Coronary artery disease</li><li>• Obesity</li><li>• Chronic kidney disease</li><li>• Hypertension</li><li>• Diabetes mellitus type 2</li></ul>	<ul style="list-style-type: none"><li>• Aspirin 81mg PO QD</li><li>• Atorvastatin 20mg PO QD</li><li>• Duraglutide 1.5mg SC QWK</li><li>• Losartan 50mg PO QD</li><li>• Ciprofloxacin 250mg PO BID x 3 days, started 3 days ago</li></ul>

- A physical exam reveals that she is afebrile with normal vital signs and a blood glucose level that is within expected limits.
- Reviewing past notes, you see that there was a positive urinalysis 3 days ago but no documented urinary symptoms

# Which Medication(s) Could Be Causing The Confusion?

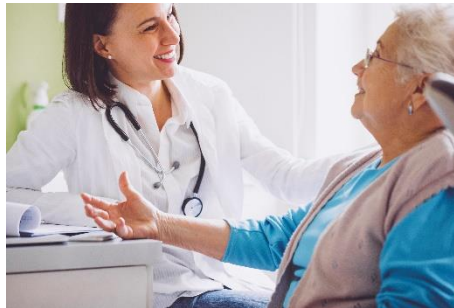
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- Losartan
- Ciprofloxacin
- Duraglutide
- Losartan and duraglutide

# Scenario Follow-Up

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- Ciprofloxacin is likely causing her confusion
- Further considerations:
  - Mrs. Johnson likely has ASB, so antibiotics are not indicated
  - Fluoroquinolones can cause dysglycemias, especially in a diabetic resident
  - Mrs. Johnson has also received 3 days of therapy, which is a complete course

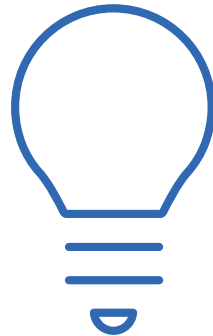


Microsoft Stock Image

# Quick Takeaway

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- FQs are 2<sup>nd</sup>-line for UTIs due to their harms
- Reserve FQs for those who have no other treatment options for UTI
  - Refer to the IDSA guidelines or presentation #1 in our series



[FDA Drug Safety Communication. 2016](#)

## Myth 6

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LONGER DURATIONS OF ANTIBIOTICS ARE BETTER  
FOR UTI



# Poll Question

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- Where do long ( $\geq 7$  days) durations of therapy for antibiotics come from?
  - Randomized clinical trials
  - Other evidence (e.g., case studies)
  - Expert opinion
  - Unsure



# The Origin of Long Durations

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- 7-to-14-day durations
  - Based on a decree by Constantine the Great in 321 AD that stated a week = 7 days
- 5-to-10-day durations
  - Based on the # of metacarpal bones that evolved in the hominid hand



Microsoft Stock Image

[Davar K et. al. Open Forum Infectious Diseases. 2022; 10\(1\): ofac706](#)  
[Spellberg, B et. al. JAMA Internal Medicine. 2016;176\(9\):1254](#)

# Durations of Therapy

## Uncomplicated UTIs in Women

- **1<sup>st</sup> line:**
  - Nitrofurantoin – 5 days
  - Sulfamethoxazole-trimethoprim (SMZ/TMP) – 3 days
  - Fosfomycin – 1 day
    - Not a preferred choice – logistics, pricing, only covers *E. coli*
- **2<sup>nd</sup> line:**
  - Ciprofloxacin/levofloxacin – 3 days
  - Beta-lactams:
    - See prescribing reference, typically 5-7 days

## Afebrile UTIs in Men

- **If complicated UTI:**
  - SMZ/TMP or ciprofloxacin - 7 days
- **If uncomplicated UTI:**
  - Nitrofurantoin – 5 days

Funnce, L. Are male urinary tract infections always complicated? [PowerPoint Lecture]. UW-CSiM. 2021

[Gupta K et al. Clinical Infectious Diseases. 2011;52\(5\):e103-e120](#)

[Drekonja DM et. al. JAMA. 2021;326\(4\):324](#)



# Takeaways:

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- Treating ASB does not reduce mortality and only promotes antibiotic resistance
- Smelly urine does not indicate UTI
- There are many, many factors associated with confusion in an older adult
- Using antibiotics when not needed and for longer than needed exposes residents to potentially horrific harms without any benefits



# Post-Lecture Poll Questions

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- True or False Poll Question 1:
  - Failure to treat asymptomatic bacteriuria (ASB) will lead to sepsis
- True or False Poll Question 2:
  - Smelly urine is indicative of a urinary tract infection (UTI)
- True or False Poll Question 3:
  - Fluoroquinolones are 2<sup>nd</sup>-line therapies for UTI

# Resources

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## Guidance for Creating/Maintaining Stewardship Programs

- [WA DOH's AMS Resources for Nursing Homes](#)
- [CDC's Core Elements of Antibiotic Stewardship for Nursing Homes](#)
- [CDC's Core Elements of Antibiotic Stewardship for Nursing Homes Checklist](#)

## Antibiotic Guide

- [UW's Centers for Stewardship in Medicine \(UW-CSiM\) Antibiotic Guide](#)

## Clinical Guidance

- [Infectious Diseases Society of America \(IDSA\) - Uncomplicated Cystitis and Pyelonephritis Guideline](#)
- [Infectious Disease Society of America \(IDSA\) - Management of Asymptomatic Bacteriuria](#)

## Education (Residents and Families)

- [Antibiotics for UTI in Older Adults \(Eng\)](#)
- [Antibiotics for UTI in Older Adults \(Spanish\)](#)
- To implement: Put into resident orientation, hand these to residents and families when an antibiotic isn't a part of the care plan, print these and put them on tables near facility entrance

## Join Us Next Time...

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- Tuesday, September 19<sup>th</sup>, 1-2pm:
- Go With the Flow: A Case-Based Approach to Recurrent UTIs
  - Come and learn about strategies to manage this confusing diagnosis!
  - [Register Now](#)





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