



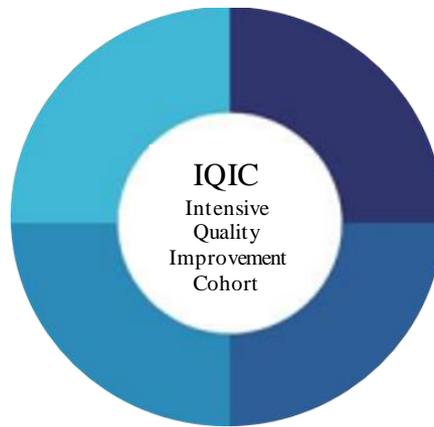
CENTER FOR
STEWARDSHIP
IN MEDICINE

September 21, 2023

IQIC 101 Open House

Agenda:

- Overview of IQIC Program
- Stewardship in Asymptomatic Bacteriuria
- Panel Q&A with Former IQIC Participants



ASB 101

Overview of the IQIC Program and Curriculum

Slide credits: Whitney Hartlage, PharmD and Zahra Kassamali Escobar, PharmD

The Goal of this Cohort

To locally adapt antimicrobial stewardship strategies and optimize patient care

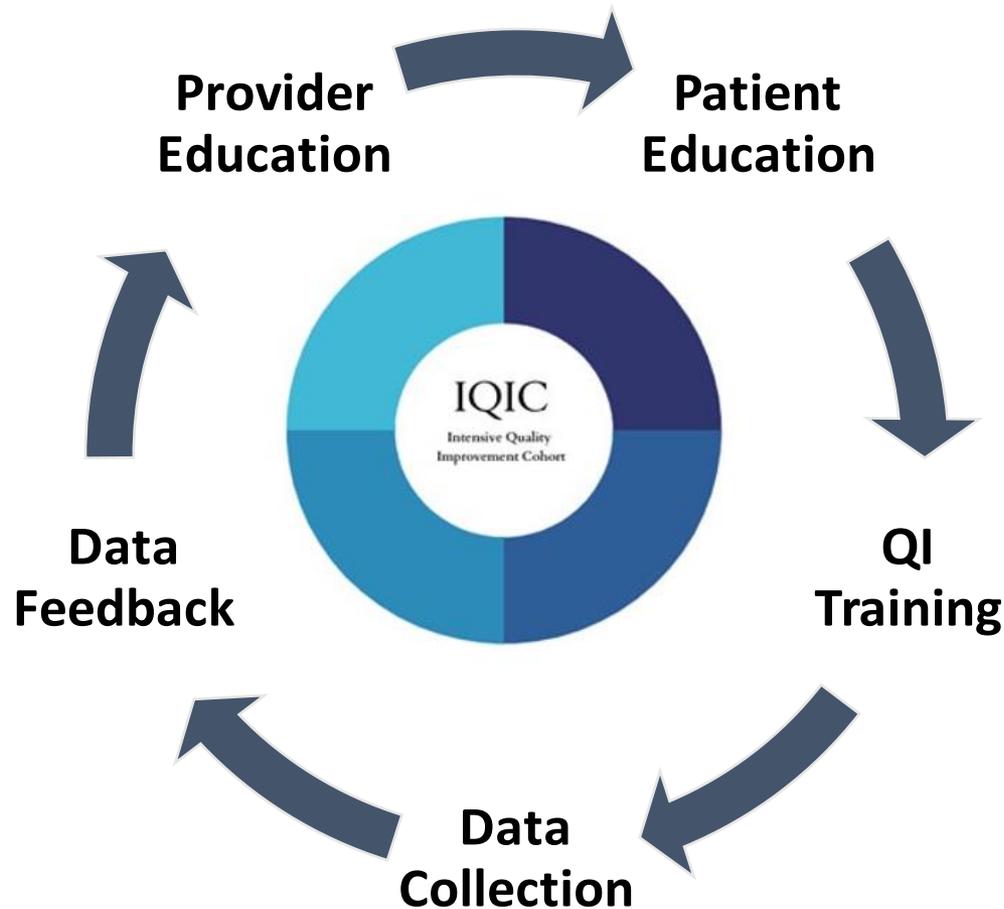
*With a Focus on
Asymptomatic Bacteriuria (ASB)!*



Behavioral Interventions Reduce Inappropriate Antimicrobial Prescribing

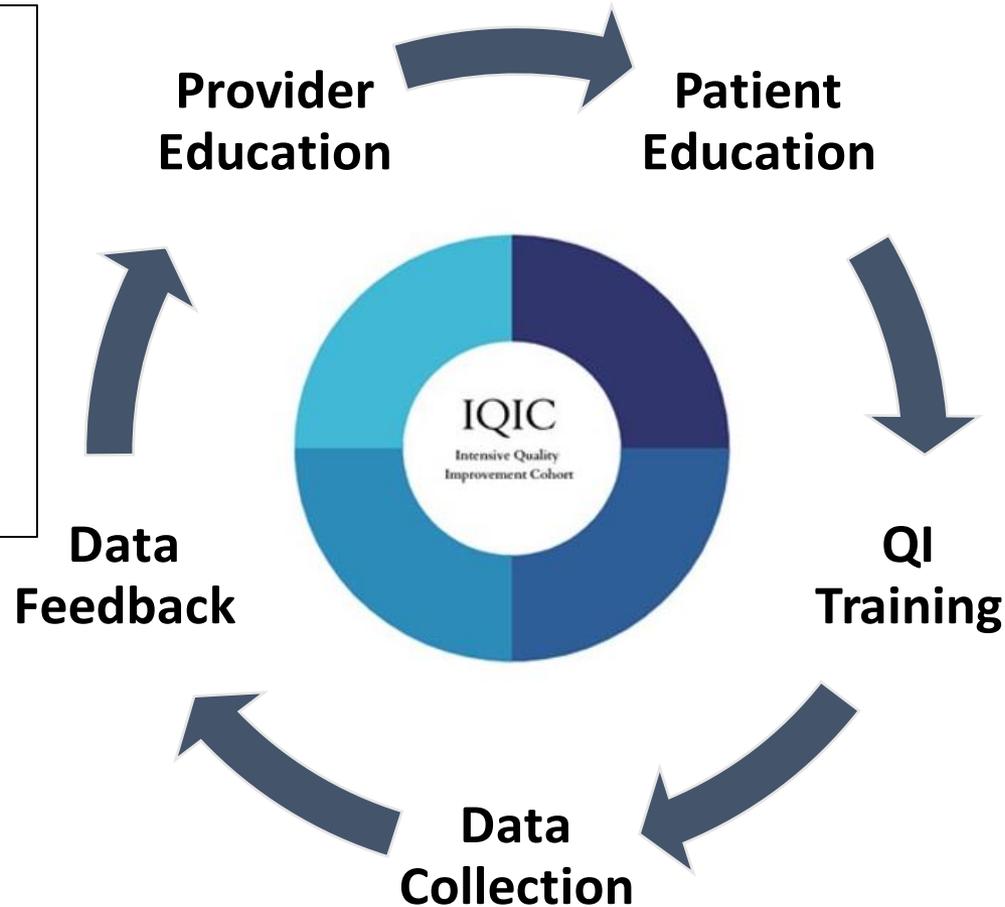


Utilizing a Multimodal Antimicrobial Stewardship Strategy



Utilizing a Multimodal Antimicrobial Stewardship Strategy

- Monthly didactics
- Distribute educational tools
 - Nursing huddles
 - Medical staff meetings
 - ED workgroup meetings
 - AMS meetings



Amazing Lineup for Monthly Didactics!

Involving both clinical and quality improvement education

Session Topic Examples

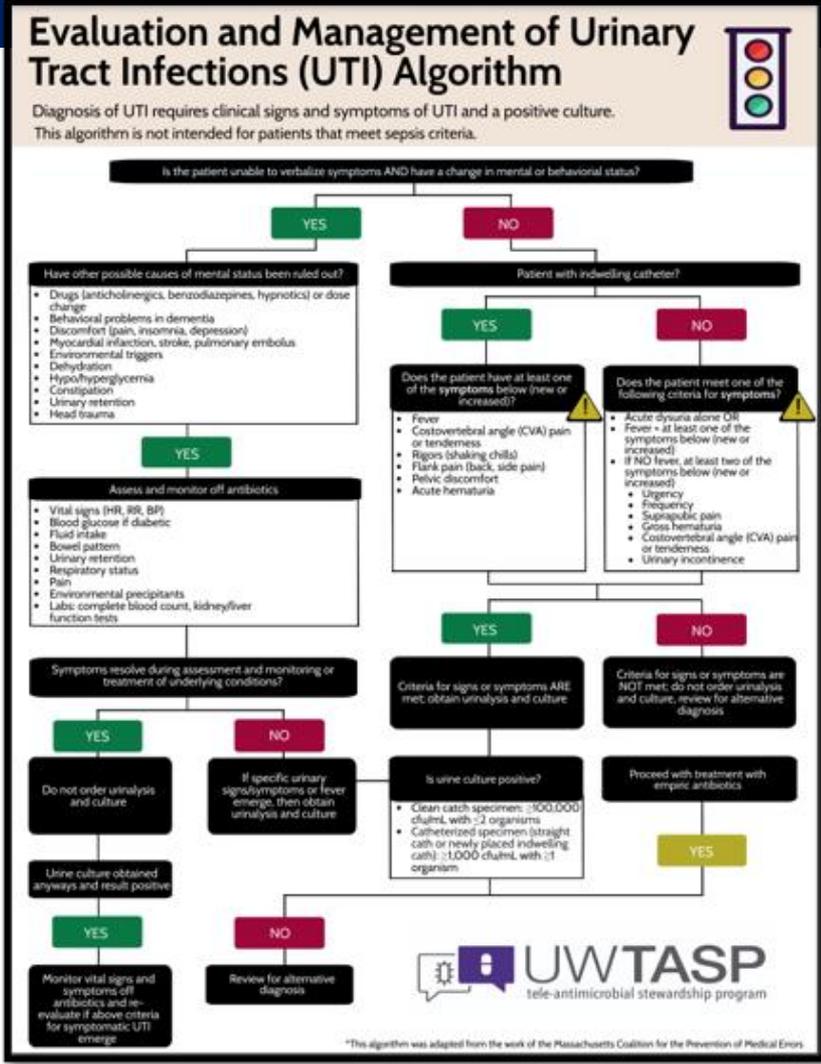
- Behavior Change and Productive Conversations
- SMART Goals
- Processing Mapping
- Reflexing UAs to Urine Culture: a Pro-Con Debate
- Deeper Dive into ASB cases
- Antibiotic Harms
- Project Management Fundamentals and Tools for Success

Speakers

- Chloe Bryson-Cahn, MD
- Alyssa Castillo, MD
- Jeannie Chan, PharmD
- Whitney Hartlage, PharmD
- Zahra Kassamali Escobar, PharmD
- John Lynch, MD
- Natalia Martinez-Paz, MA, MPA
- YOU ALL!



Nudging: Provider Education



*This algorithm was adapted from the work of the Massachusetts Coalition for the Prevention of Medical Errors

Treating Asymptomatic Bacteriuria

Frequently Asked Questions

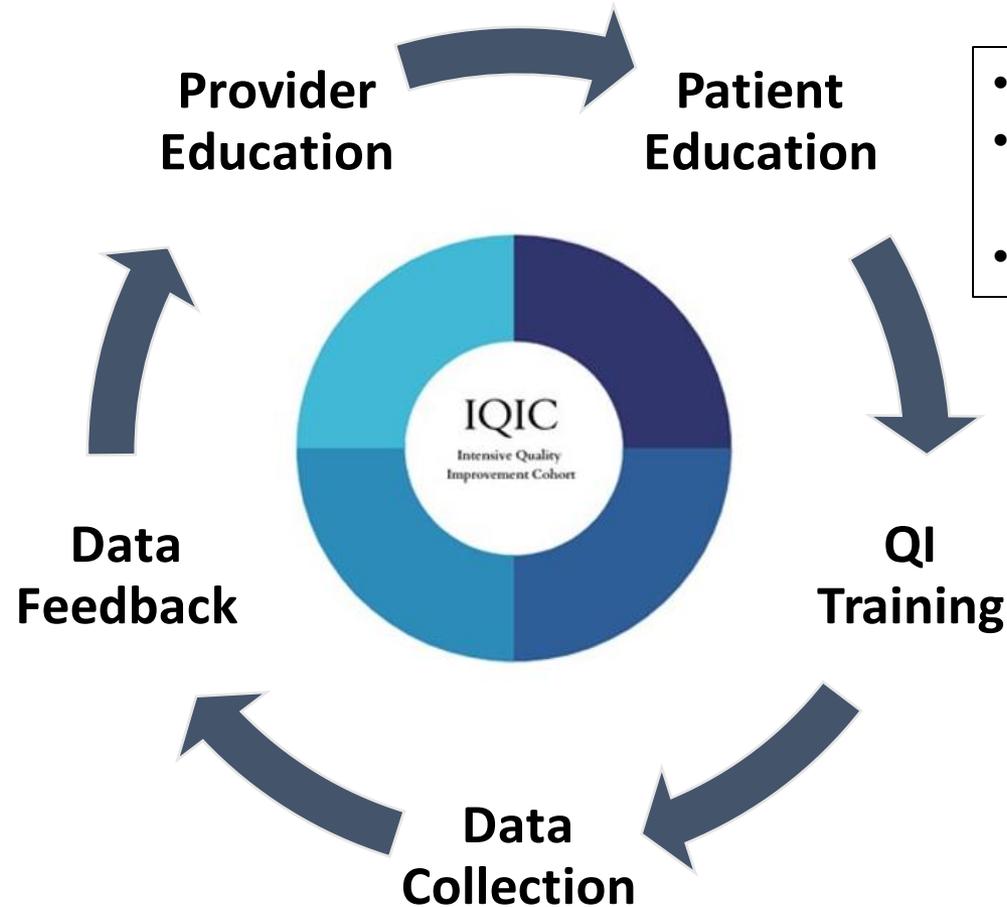
- How prevalent is asymptomatic bacteriuria?**
 - In seniors over 80 years, it can be seen in as many as 50% of long-term care patients and as many as 19% of those in the community
- How should a positive urine test be approached when collected for no apparent reason?**
 - Treatment decisions should not be made based on test results alone
 - Evaluate the patient clinically and consider a period of observation for development of specific signs or symptoms of UTI prior to the initiation of antibiotics
- Should antibiotics be initiated if there is a positive urine culture and abnormal urinalysis (positive nitrates or leukocytes, increased white blood cells or pyuria)?**
 - Positive urine culture and abnormal urinalysis in a patient without symptoms is consistent with asymptomatic bacteriuria, which would be considered colonization and not a true infection
 - Treatment with antibiotics is not indicated
- Does a patient with a chronic indwelling catheter that has a positive urine culture require antibiotics?**
 - A chronic indwelling catheter is commonly associated with bacteriuria
 - There is no need to treat unless the patient has specific symptoms of UTI
- If an elderly patient presents with no specific symptoms except a change in mental status or delirium, should UTI treatment be initiated?**
 - UTI is much less likely without specific urinary symptoms or sepsis symptoms
 - Non-specific symptoms, such as a change in mental status, delirium, fatigue, or a fall may be due to a variety of non-infectious causes, including: pain, depression, constipation, dehydration, poor sleep, or medication side effects
- What should be done when a patient's family wants a urine test and antibiotic treatment in the setting of asymptomatic bacteriuria?**
 - Educate the family about the prevalence of asymptomatic bacteriuria, and tell them you do not suspect UTI on clinical grounds
 - Emphasize the dangers of antibiotic overuse, such as resistance and side effects
 - Antibiotics have not been shown to provide any benefit in asymptomatic bacteriuria, and thus antibiotics cause only risk with no benefit

UWTASP
tele-antimicrobial stewardship program

*This handout was adapted from the work of the Massachusetts Coalition for the Prevention of Medical Errors

Utilizing a Multimodal Antimicrobial Stewardship Strategy

- Monthly didactics
- Distribute educational tools
 - Nursing huddles
 - Medical staff meetings
 - ED workgroup meetings
 - AMS meetings



- Clinics
- Emergency department
- Nursing stations



Passive Education: Patient Education

Did You Know That...

Bacteria in the urine is common! As many as 15% of people aged 65-80 and 50% of people older than 80 years have bacteria in their urine, **without actually have a UTI.**



How is a urinary tract infection diagnosed?

Requires **both** findings of bacteria in a urine test **and** the presence of specific symptoms.



Having both is important, because bacteria can and do live naturally in the bladder without causing any pain or symptoms. This is commonly referred to as **asymptomatic bacteriuria.**

If you or someone you know is concerned about a UTI, see if any specific symptoms are present:

-  A burning feeling, discomfort or pain with urination
-  Pain the the lower abdomen or back
-  Increase in frequency (needing to urinate more often than usual).
-  Repeated strong urges to urinate
-  Blood in the urine

These symptoms may or may not be accompanied by fever.

What about other symptoms, such as confusion or sudden change in behavior?

UTI is less likely without the specific symptoms previously listed.

Non-specific symptoms such as confusion, a sudden change in behavior, fatigue, or a fall may be caused by other factors, including:

- Dehydration
- Depression
- Inadequate nutrition
- Medication side effects
- Poor sleep
- Constipation



- Cause **nausea or vomiting**
 - Cause a painful, highly contagious **diarrhea** that results from the bacteria *Clostridioides difficile* ("C.diff")
 - Cause **rashes or allergic reactions**
 - Harm your **kidneys or other organs**
- 2. Antibiotic Resistance**
- The overuse of antibiotics has contributed to an **increase in the ability of the bacteria to resist** the effect of antibiotics
 - When resistance occurs, there may be fewer good antibiotic options to **treat future infections**

Understanding the risks of using antibiotics when not needed leads to good, safe care.

What You Can Do to Help

Whenever you are prescribed antibiotics, make sure you understand why you need them.

Here are some questions for you or your loved one to ask your doctor:

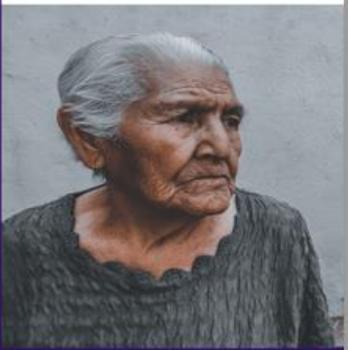
- Why do I need antibiotics?
- What are common side effects?
- When should I stop the medication?
- What I do if I do not feel better in a few days?

.....

Other Resources For You:
<https://www.cdc.gov/antibiotic-use/uti.html>

*This brochure was adapted from the work of the Massachusetts Coalition for the Prevention of Medical Errors

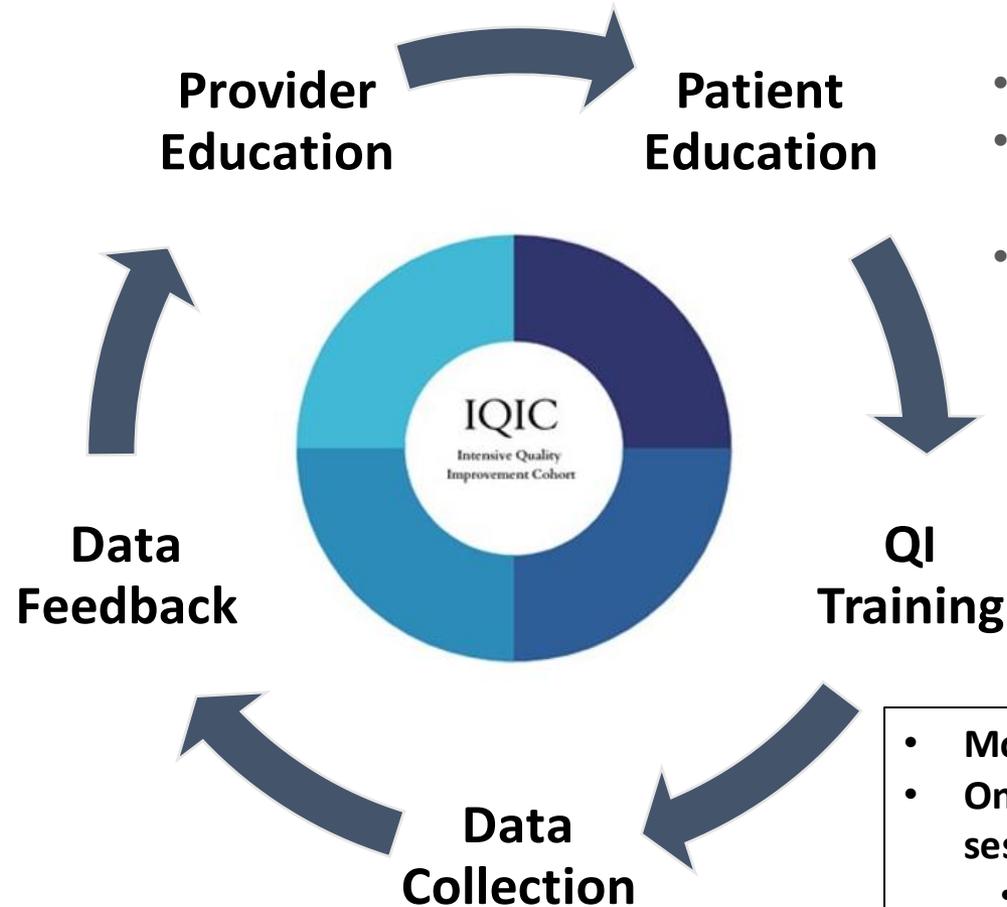
Worried About a Urinary Tract Infection?



Learn about when an antibiotic is and is not needed.

Utilizing a Multimodal Antimicrobial Stewardship Strategy

- Monthly didactics
- Distribute educational tools
 - Nursing huddles
 - Medical staff meetings
 - ED workgroup meetings
 - AMS meetings



- Clinics
- Emergency department
- Nursing stations

- Monthly didactics
- One-on-one coaching sessions (30 min)
 - SMART goal creation
 - Process mapping
 - Data collection

One-on-One Meeting Topics

Hospital demographics

Data collection abilities

SMART goals

Process mapping

Barriers

Hospital needs

Next steps in project

Other!



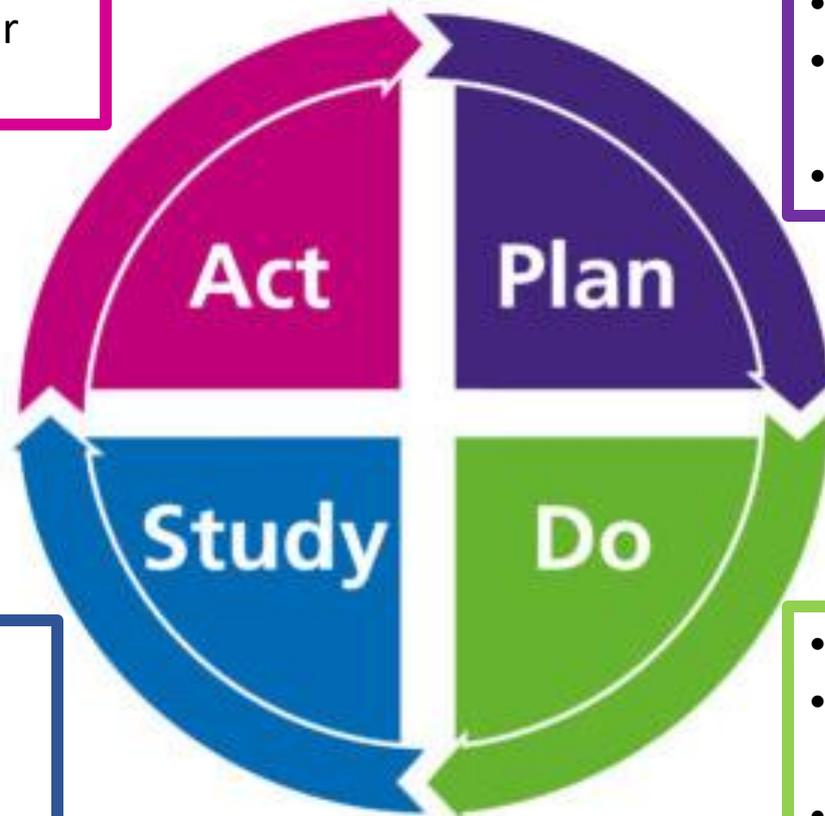
SMART Goals Vary & Are Institution Specific

- Initial goals will focus on understanding your system
 - Process mapping
 - Data collection
- Subsequent goals will focus on creation of an intervention
 - Education
 - Diagnosis workflow
 - Treatment



Tracking Impact: PDSA Cycle

- Adopt, adapt, or abandon cycle



- Set improvement goal
- Predict what will happen
- Plan who, what, when, where, how
- Decide what data to gather

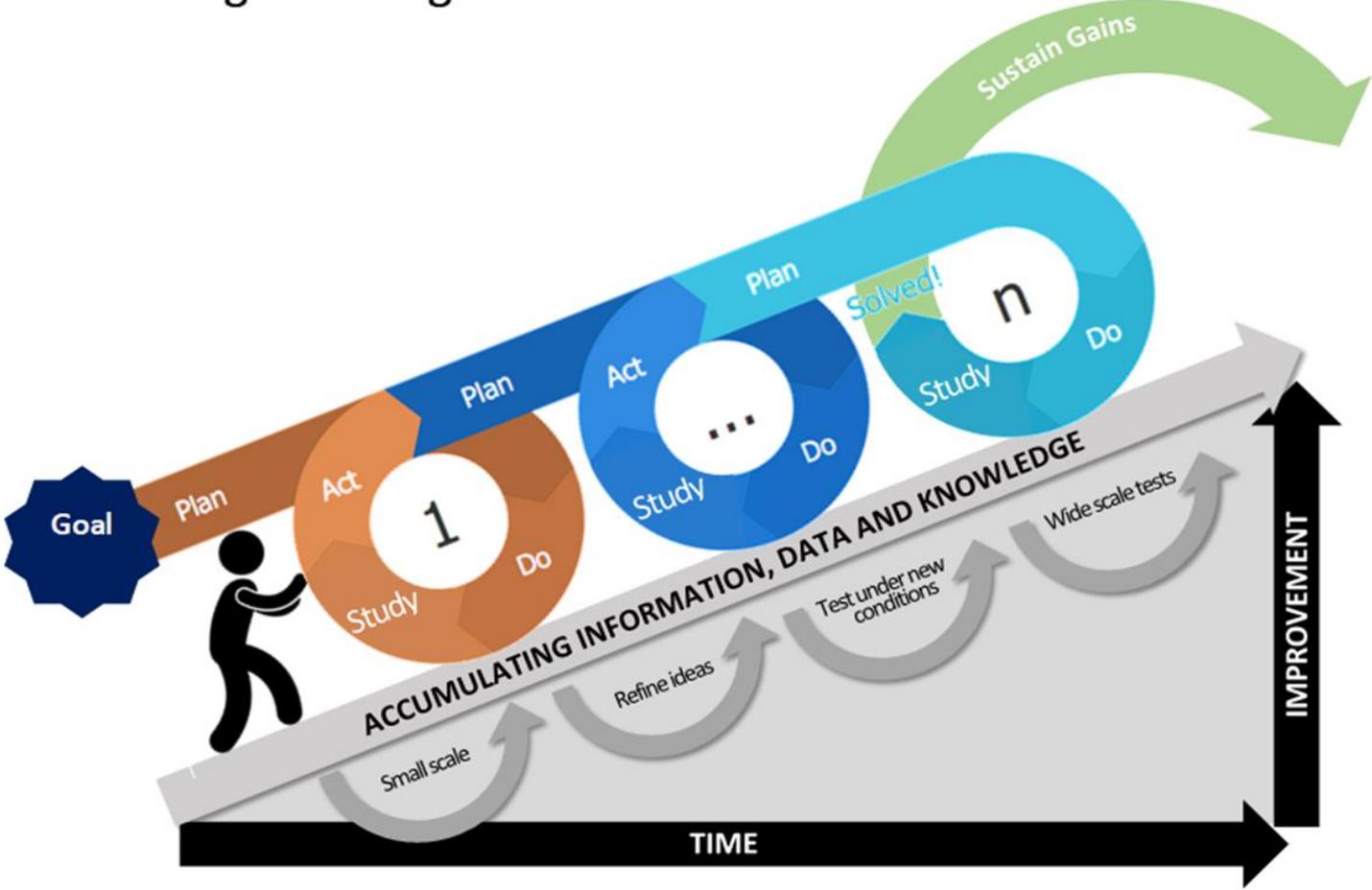
- Analyze
- Compare data vs. prediction
- Examine learning

- Carry out the plan
- Document observations & any problems encountered
- Gather data



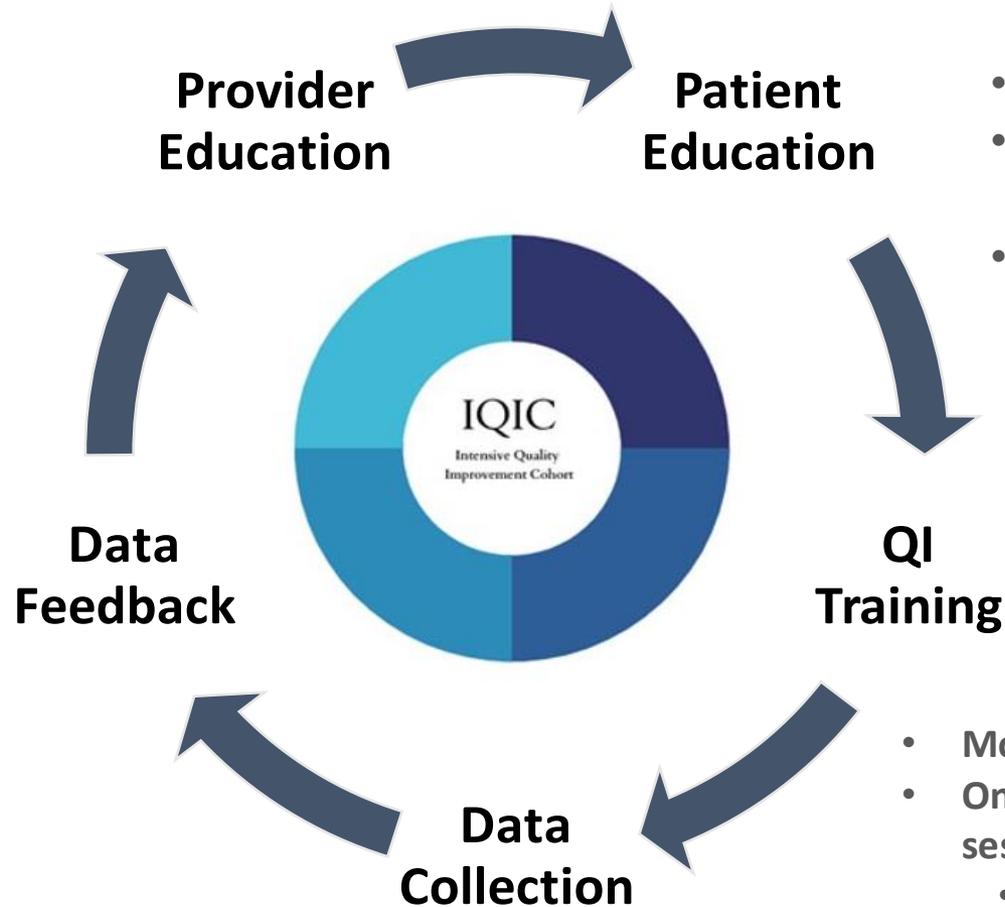
PDSAs are a Process

Building knowledge with PDSA Tests



Utilizing a Multimodal Antimicrobial Stewardship Strategy

- Monthly didactics
- Distribute educational tools
 - Nursing huddles
 - Medical staff meetings
 - ED workgroup meetings
 - AMS meetings



- Clinics
- Emergency department
- Nursing stations

- Monthly didactics
- One-on-one coaching sessions (30 min)
 - SMART goal creation and record progress in PDSA cycle

Urine cultures collected:

- Inpatient
- Emergency department***

Data Collection Results Will Help Identify Opportunities for Future Stewardship Interventions

Data Phase	Case Goal	Progress Goal	Start Date	Last Submission Date
Baseline	≥30 cases	1-2 cases/week <u>or</u> 5 cases/month	10/5/2023	3/31/2023
Intervention	>50 cases	1-2 cases/week <u>or</u> 5 cases/month	8/1/2023	3/31/2024



Utilizing a Multimodal Antimicrobial Stewardship Strategy

- Monthly didactics
- Distribute educational tools
 - Nursing huddles
 - Medical staff meetings
 - ED workgroup meetings
 - AMS meetings

Provider Education

Patient Education

- Clinics
- Emergency department
- Nursing stations

Data Feedback

QI Training

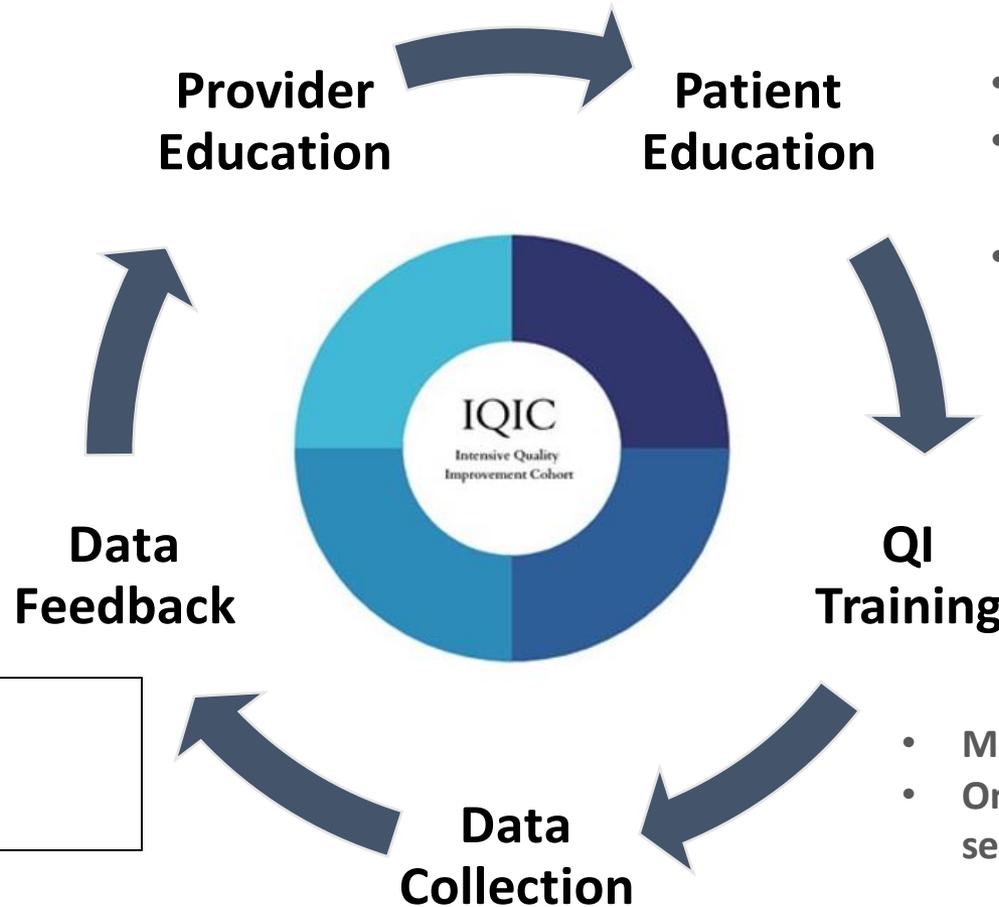
Analyze data → provide results and feedback to hospital staff

Data Collection

Urine cultures collected:

- Inpatient
- Emergency department***

- Monthly didactics
- One-on-one coaching sessions (30 min)
 - SMART goal creation and record progress in PDSA cycle



Summarized Expectations & Deliverables

Sept Oct Nov Dec Jan Feb Mar Apr May Jun July Aug

Attend 12 monthly didactic sessions



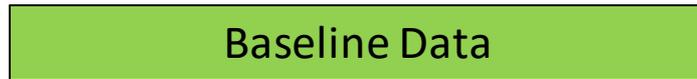
Attend 4 coaching sessions



Set SMART goals



Collect data (on rate of ASB and prescribing practices for ASB)



Record process in PDSA cycle

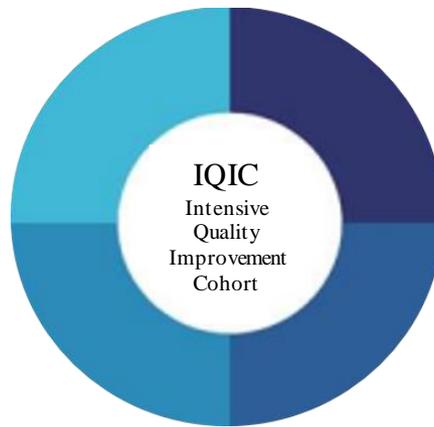


Present 5 min final presentation



Questions?





ASB 101

Stewarding Asymptomatic Bacteriuria

Slide credits: Chloe Bryson-Cahn, MD

There are three truths:
death, taxes, and the urine
culture is gonna grow

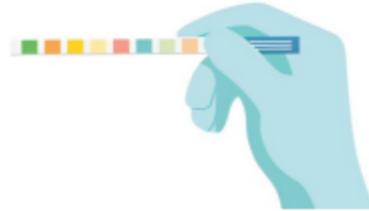


Paul Pottinger MD



Diagnostic Testing

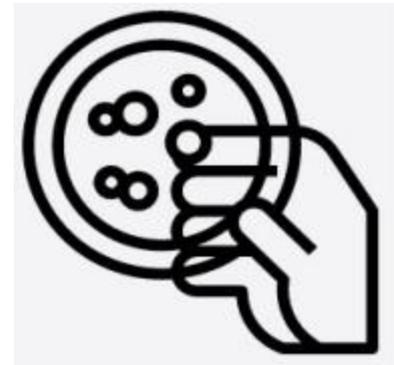
Urinalysis



- POC or Auto
- POC results: specific gravity, pH, protein, glucose, crystals, ketones **leukocyte esterase, nitrite**, blood
- Automated: **WBC**, RBC, bacteria, epithelial cells

Urine Culture

- Quantitative results of predominant bacteria
- Sometimes non-significant: “flora” or “polymicrobial” or “yeast”



Diagnostic Testing

- A la carte
- Reflex Urine Culture
 - If the UA is “positive” -> lab automatically does the culture
- 2-step Urine Culture
 - If the UA is “positive” -> someone then orders the culture

MYTHS: We Were All Taught Wrong



≠

UTI

What is Asymptomatic Bacteriuria?

Isolation of bacteria in the urine of a person without symptoms of a UTI

What Symptoms Am I Looking For?

Symptoms of UTI

- Hypotension
- Fever
- Urgency
- Frequency
- Dysuria
- Suprapubic or Costovertebral Angle (CVA) tenderness

Myths of UTI

- Dark, foul-smelling, cloudy urine
- Dizziness
- Falls
- Decreased appetite
- AMS

*Don't check
the urine!!!*

The TRUTH about ASB

Table 2. Prevalence of asymptomatic bacteriuria in selected populations.

Population	Prevalence, %	Reference
Healthy, premenopausal women	1.0–5.0	[31]
Pregnant women	1.9–9.5	[31]
Postmenopausal women aged 50–70 years	2.8–8.6	[31]
Diabetic patients		
Women	9.0–27	[32]
Men	0.7–11	[32]
Elderly persons in the community ^a		
Women	10.8–16	[31]
Men	3.6–19	[31]
Elderly persons in a long-term care facility		
Women	25–50	[27]
Men	15–40	[27]
Patients with spinal cord injuries		
Intermittent catheter use	23–89	[33]
Sphincterotomy and condom catheter in place	57	[34]
Patients undergoing hemodialysis	28	[28]
Patients with indwelling catheter use		
Short-term	9–23	[35]
Long-term	100	[22]

^a Age, ≥ 70 years.

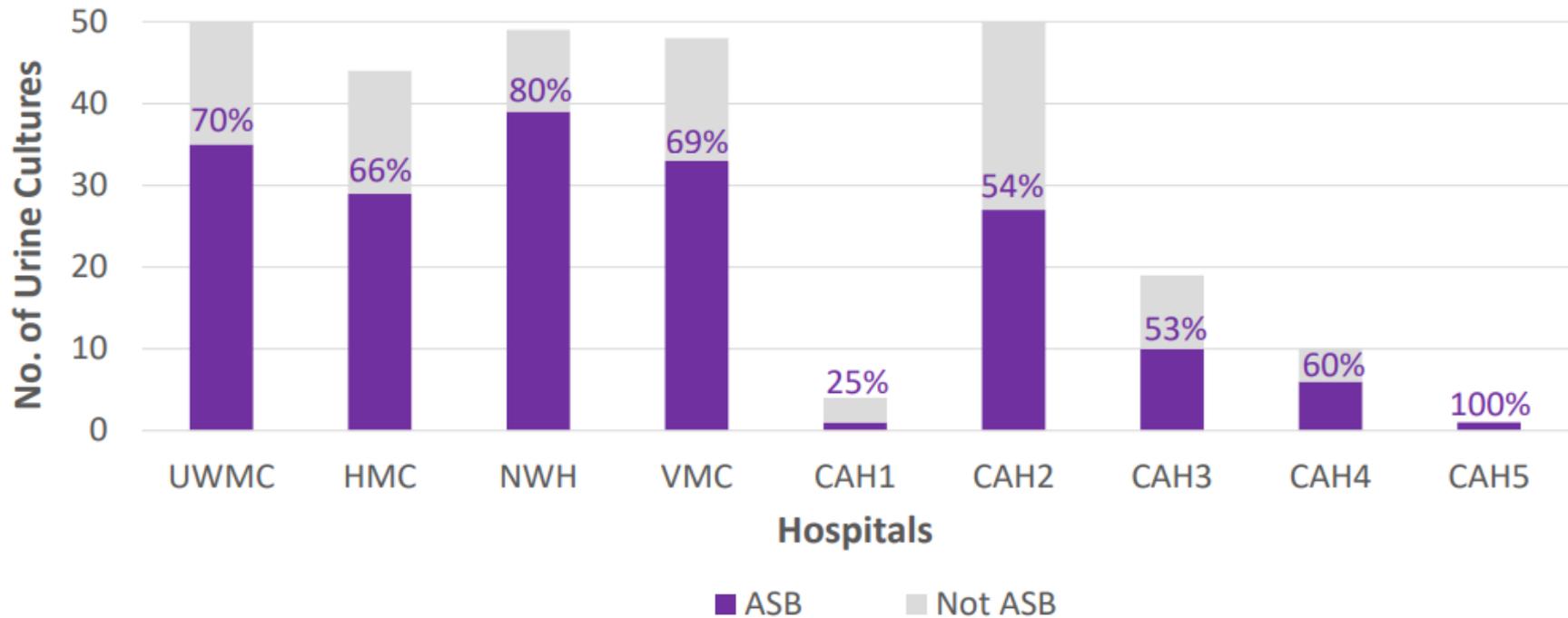
Treatment Triggers

Misleading symptoms associated with ASB treatment

Demographics and known predictors*	Univariate association	
	OR (95% CI)	P-value
Age		
< 75 y	Ref.	—
> 75 y	1.21 (1.003 - 1.46)	.046
Ethnicity		
Non-Hispanic	Ref.	—
Hispanic	2.04 (1.24 - 3.37)	.005
Confusion	1.49 (0.99 - 2.22)	.054
Disorganized thinking [†]	1.91 (1.27 - 2.89)	.002
Gram-negative organisms	3.70 (2.60 - 5.25)	< .001
Leukocytosis	1.96 (1.4 - 2.75)	< .001
Organism count > 10 ⁵ CFU/mL	5.66 (3.92 - 8.16)	< .001
Pyuria/positive urinalysis	5.40 (3.11 - 9.38)	< 0.001
Urinary catheter		
None	Ref.	Ref.
Condom or intermittent	1.42 (1.03 - 1.95)	.030
Transurethral or suprapubic	1.46 (1.12 - 1.89)	.005
<u>Misleading Symptoms</u>		
Abdominal pain	1.57 (1.04 - 2.35)	.030
Decreased urine output	2.13 (1.55 - 2.92)	< .001
Falls	2.09 (1.38 - 3.17)	< .001

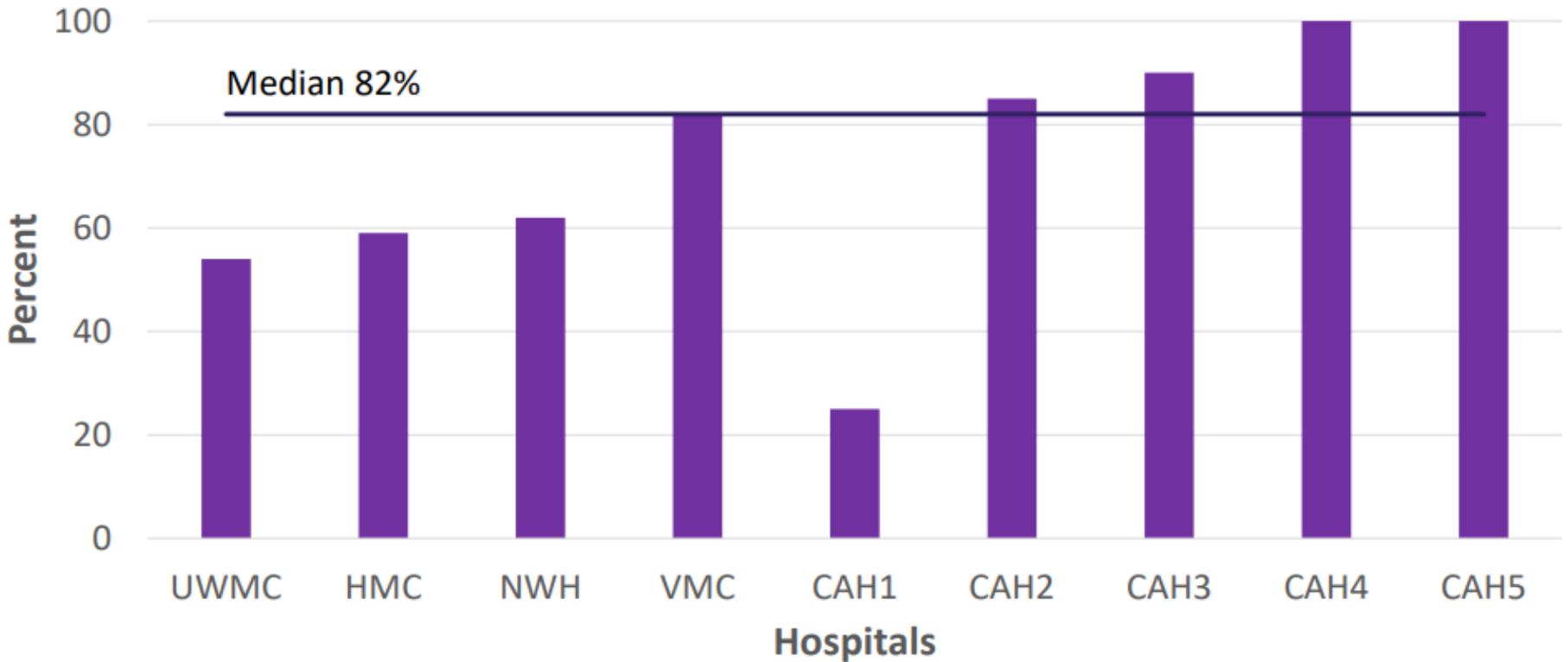
Huge Opportunity for All of Us

Proportion of All Urine Cultures that are ASB



Huge Opportunity for All of Us

Proportion of ASB Cases that Received Antibiotic



How do I find a target?



Show Me the Data – A real-life example from HMC!

Hi All,

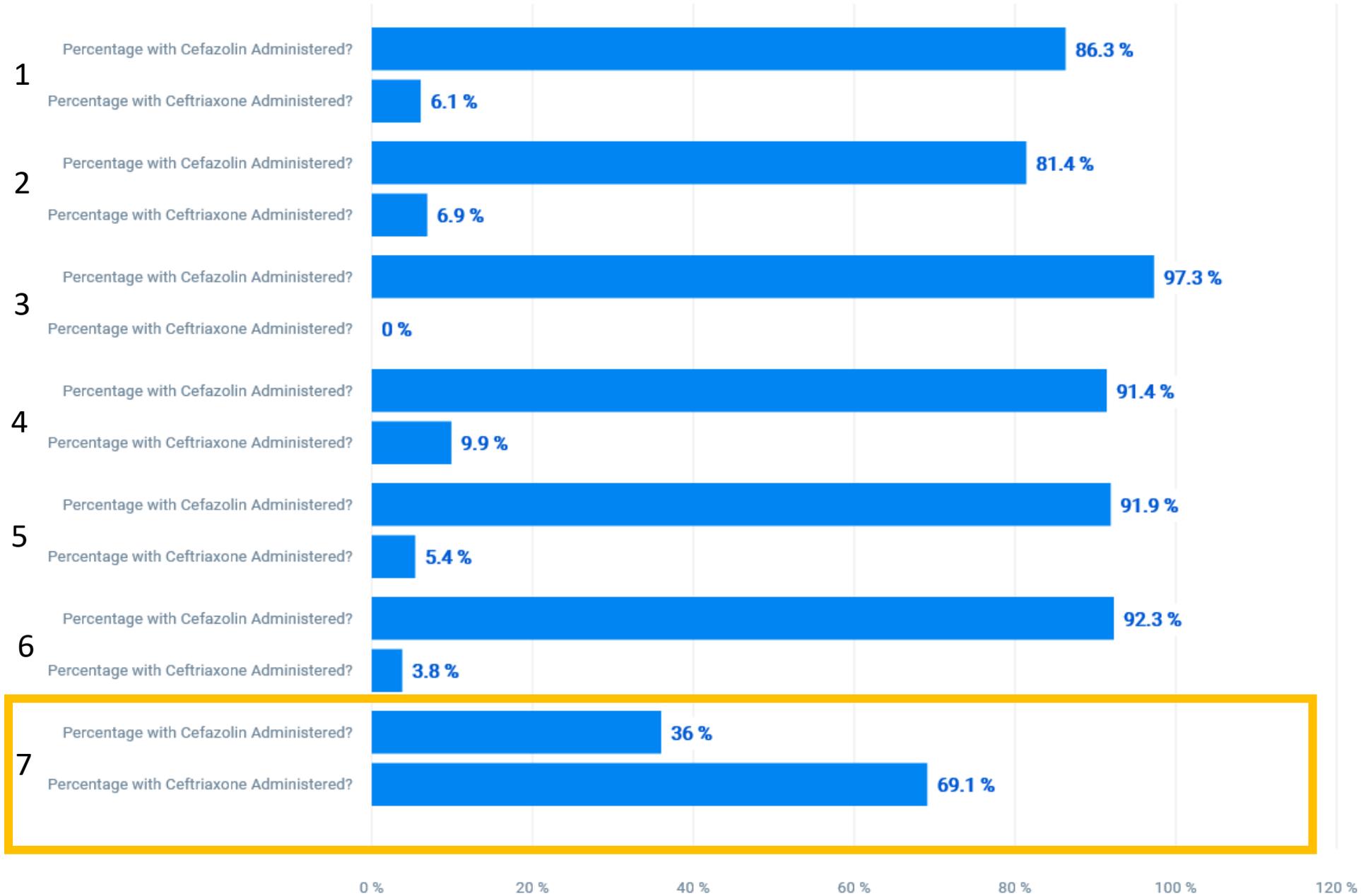
In the Surgical ICU, we had a patient who received days of inappropriate peri-operative antibiotics, CTX + vanco, as recommended by the surgeon. We have been seeing this more and more lately. Please help.

Sincerely,

ICU Anesthesiologists

Percentage with Cefazolin Administered? and Percentage with Ceftriaxone Admini...

Between 3/1/2022 and 9/29/2022



The Power of the Data

- Submit cases to see the problems (and establish a baseline for further comparison)
- What you may find:
 - Inspiration
 - One problematic department
 - One problematic provider
 - Unnecessary duration
 - Weird antibiotic choices
 - Cultures aren't the problem
 - *Allies!*

Panel Discussion and Q&A

- **Jake Chaffee, Coulee Medical Center**
- **Merilla Hopkins, Lincoln Hospital**
- **Mia Ha, Salem Health**

Questions

- Tell us about you, your hospital, and the project you created as part of the IQIC program.
- How did the IQIC program support you in this work?
- How did the IQIC experience differ from what you expected? What surprised you?
- What advice or wisdom do you have for hospitals considering joining the IQIC 101 cohort this year?

Thank you!

First session:
Thursday, October 5
12:00 pm PST

Questions?

Alyssa.Castillo@ucdenver.edu

