OREGON OFFICE of RURAL HEALTH

40th Annual Oregon
Rural Health Conference

OPPORTUNITY Just knock.

Case Study: Asymptomatic Bacteriuria Quality Improvement Projects in Critical Access Hospitals

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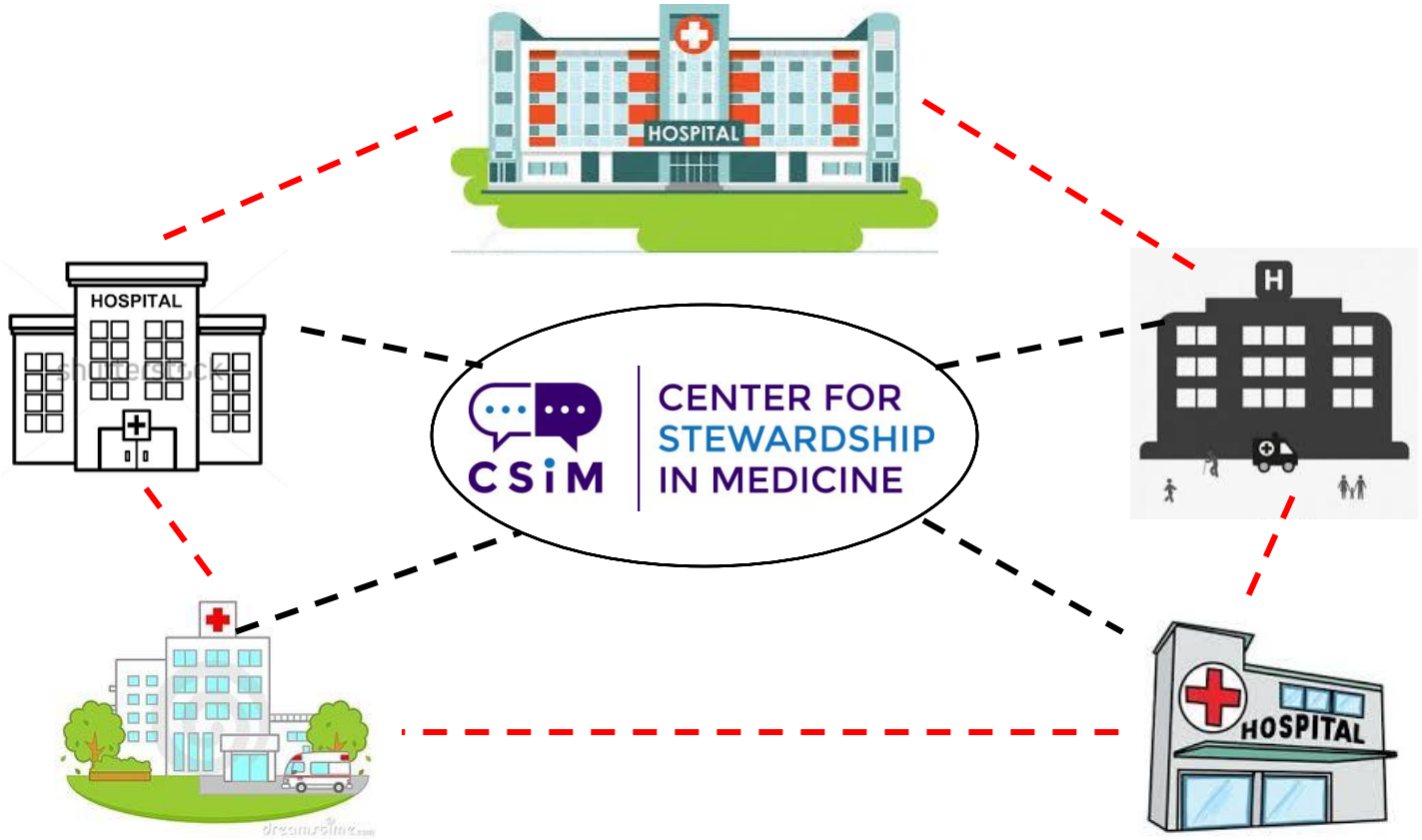
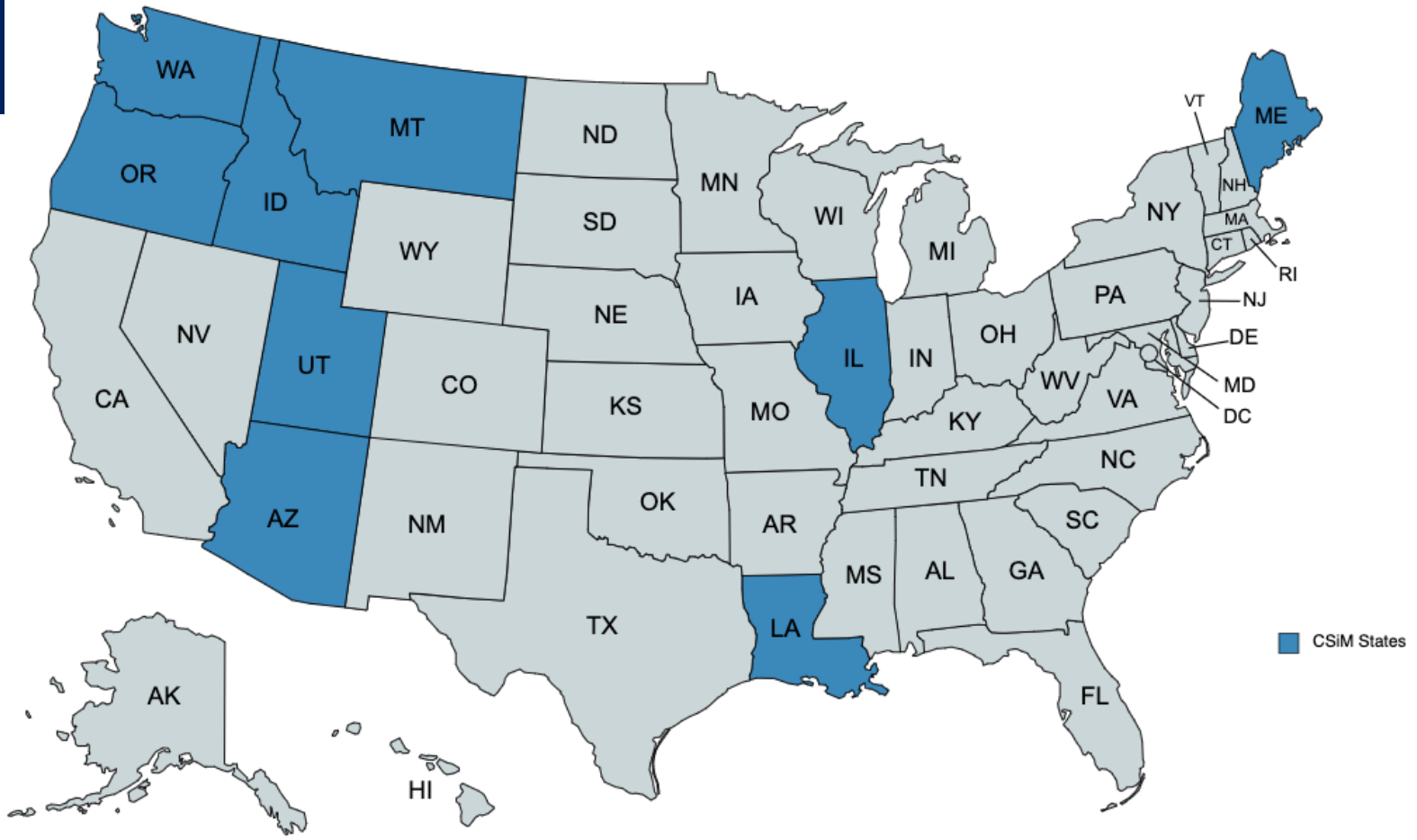
CSiM CENTER FOR STEWARDSHIP IN MEDICINE

Building a Stewardship Workforce

Partnerships and Collaboration

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UW CSiM Structure

Learn together and educate others

Tele-Antimicrobial Stewardship Program (TASP ECHO)

- Didactics and education
- Discussion and debate
- Collaborative approach to learning and resource sharing

Build your team and strengthen your program

CSiM Technical Assistance

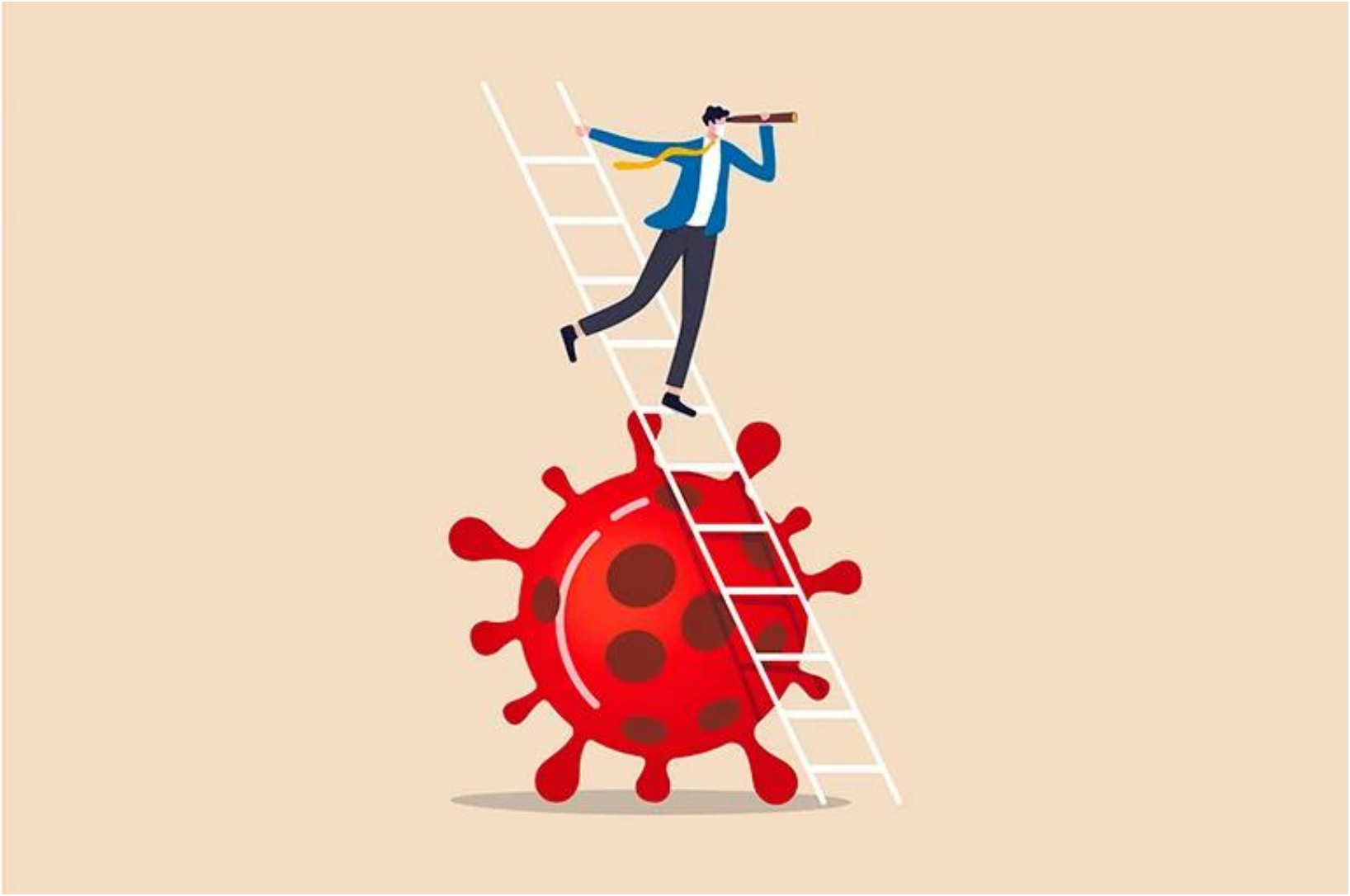
- Facility assessment and review
- Interactive Quality Improvement tools and resources
- Localized antibiotic prescribing guidelines
- Grand Rounds and site visit opportunities

Drive change and continuously adapt

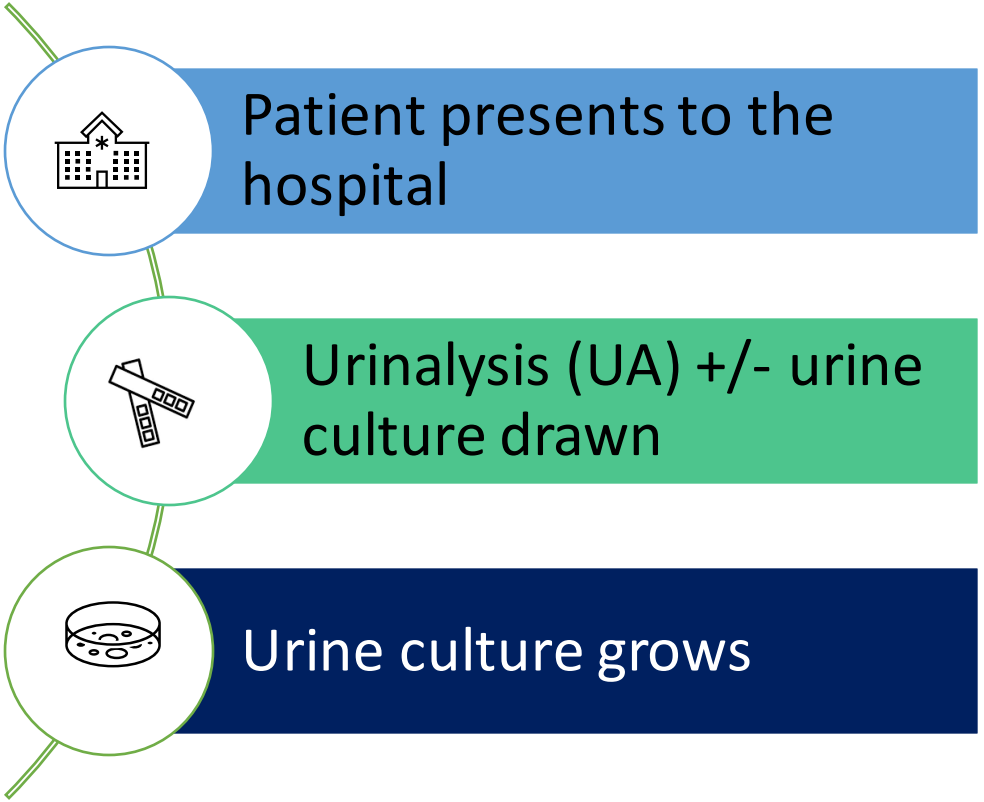
Intensive Quality Improvement Cohort (IQIC)

- 12-month cohort lead by expert CSiM faculty
- Monthly learning labs and quarterly one on one meetings
- Personalized support and tailored interventions
- Individualized hospital data analysis

New Normal, More Limitations



Background: UTIs are Over-diagnosed



Program Goals: Asymptomatic Bacteriuria (ASB)

Implementation and Feasibility

Primary endpoint:

- Assess the feasibility of implementing a quality improvement program on antibiotic prescribing for ASB

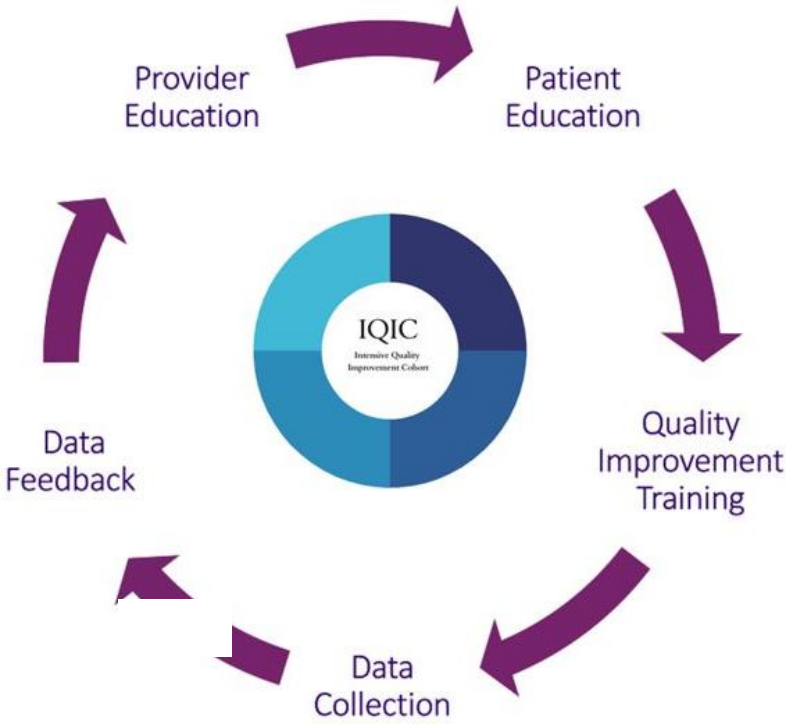
Assessment of ASB

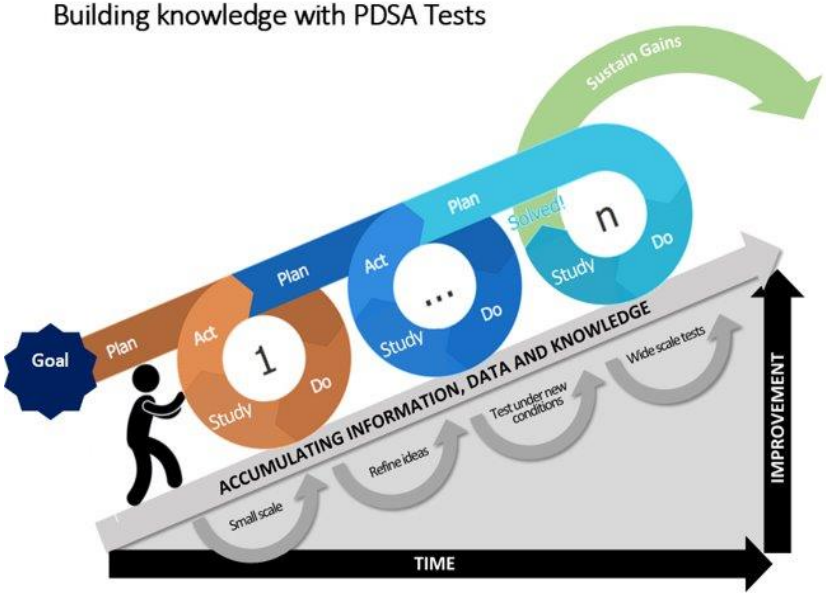
Secondary endpoint:

- Assess the prescribing rate of unnecessary antibiotics for ASB

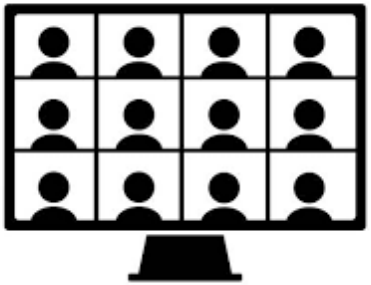
Design of Quality Improvement Initiative

Multimodal Design





Intensive Quality Improvement Cohorts



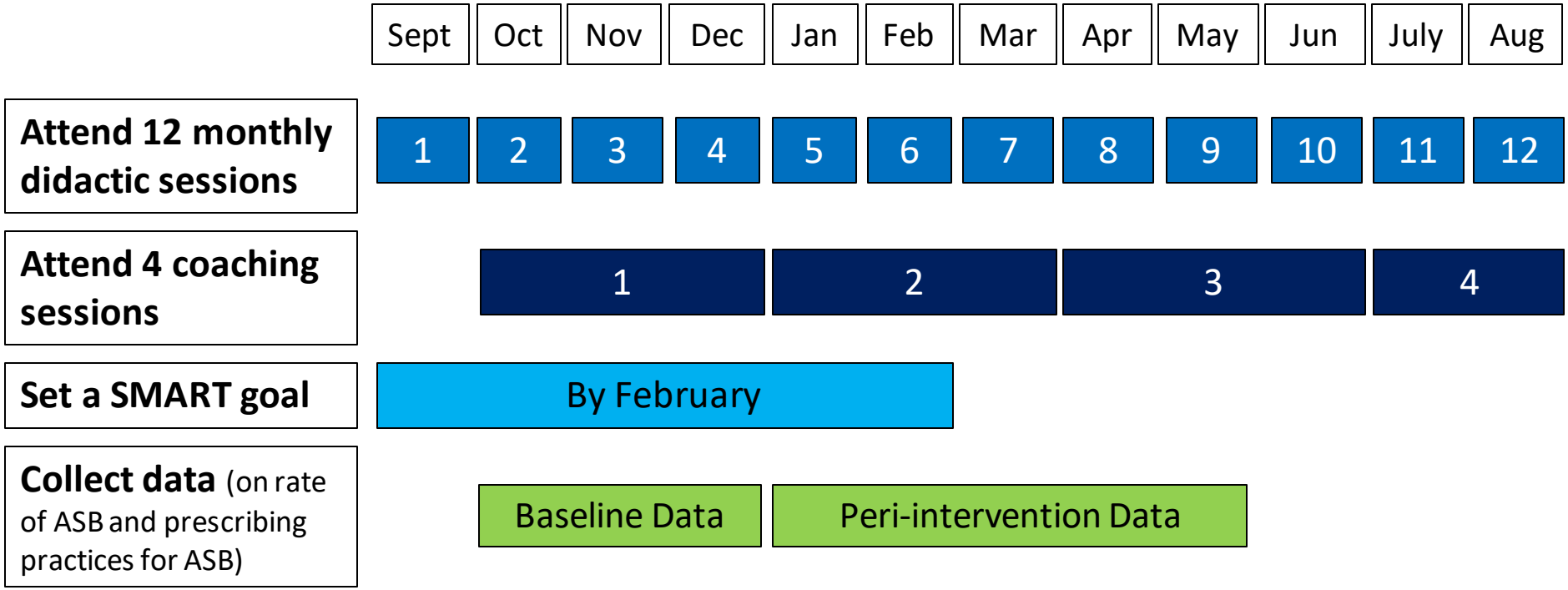
Meetings

- Monthly meeting (1h)
- Coaching sessions (30 min)
  - Monthly- Bimonthly

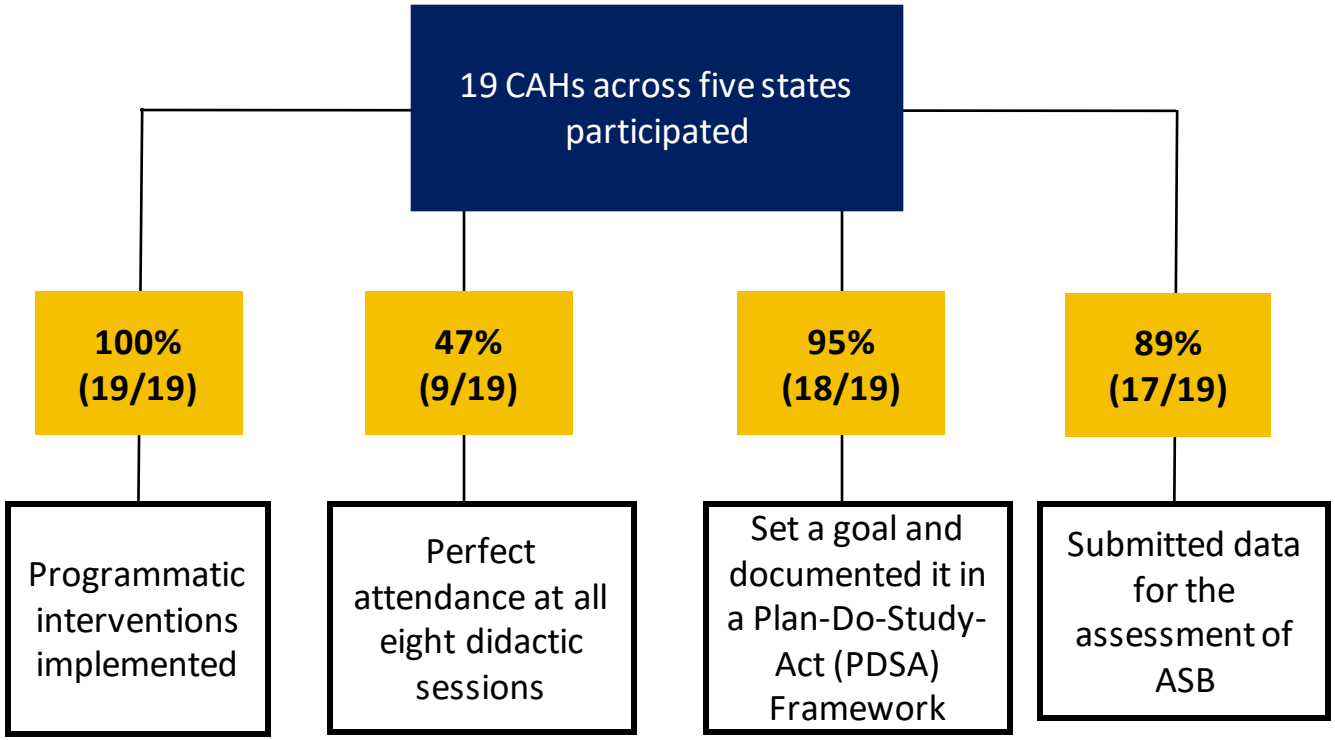
Day to Day Work

- Distributing education
  - Nursing huddles
  - Provider meetings
  - To Patients
- Tracking impact
  - Quality improvement goal
  - Antibiotic prescribing rates

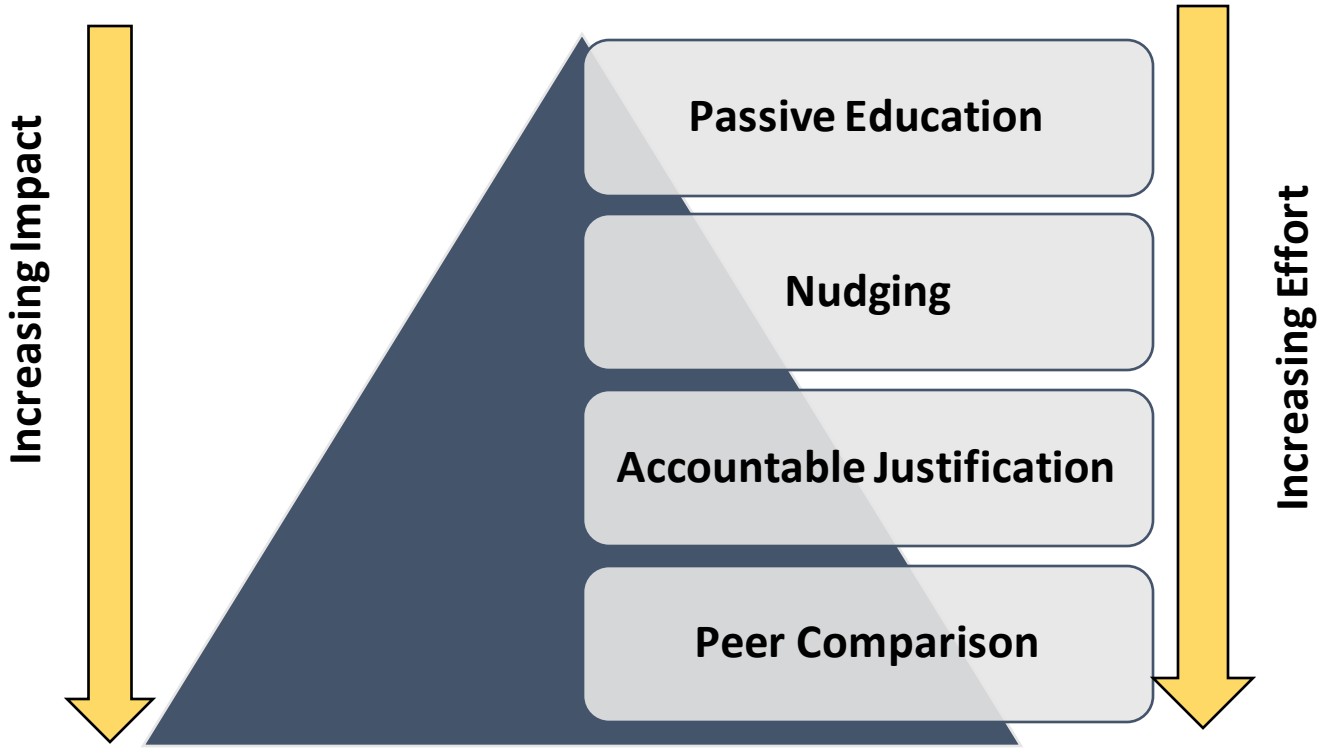
Goals & Deliverables



Goals Achieved/ Site Engaged



Behavorial Interventions Reduce Inappropriate Antimicrobial Prescribing



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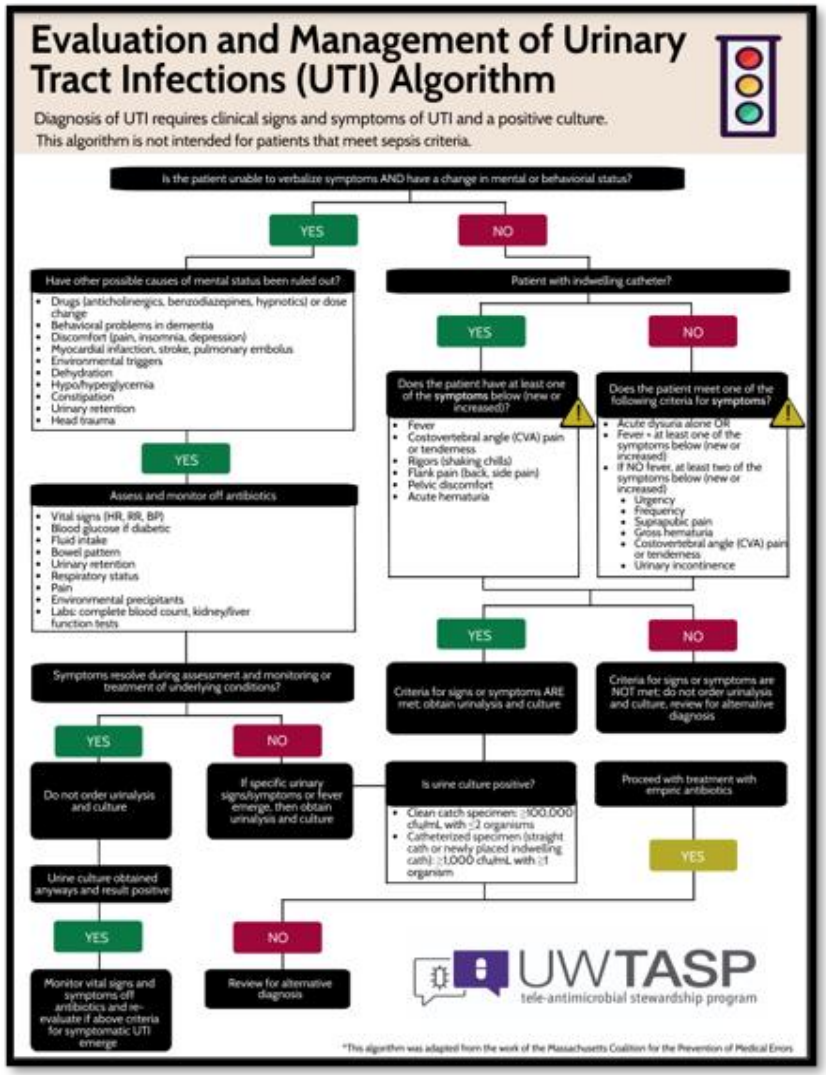
Meeker D et al. JAMA Intern Med. 2014; 174(3):425-31. doi: 10.1001/jamainternmed.2013.14191

Nudging: Provider Education



Evaluation and Management of Urinary Tract Infections (UTI) Algorithm

Diagnosis of UTI requires clinical signs and symptoms of UTI and a positive culture.
This algorithm is not intended for patients that meet sepsis criteria.

Is the patient unable to verbalize symptoms AND have a change in mental or behavioral status?

YES

Have other possible causes of mental status been ruled out?

- Drugs (anticholinergics, benzodiazepines, hypnotics) or dose change
- Behavioral problems in dementia
- Discomfort (pain, insomnia, depression)
- Myocardial infarction, stroke, pulmonary embolus
- Environmental triggers
- Dehydration
- Hypo/hyperglycemia
- Constipation
- Urinary retention
- Head trauma

YES

Assess and monitor off antibiotics

- Vital signs (HR, RR, BP)
- Blood glucose if diabetic
- Fluid intake
- Bowel pattern
- Urinary retention
- Respiratory status
- Pain
- Environmental precipitants
- Labs: complete blood count, kidney/liver function tests

Symptoms resolve during assessment and monitoring or treatment of underlying conditions?

YES

Do not order urinalysis and culture

NO

If specific urinary signs/symptoms or fever emerge, then obtain urinalysis and culture

Urine culture obtained anyways and result positive

YES

Monitor vital signs and symptoms off antibiotics and re-evaluate if above criteria for symptomatic UTI emerge

NO

Review for alternative diagnosis

NO

Patient with indwelling catheter?

YES

Does the patient have at least one of the symptoms below (new or increased)?

- Fever
- Costovertebral angle (CVA) pain or tenderness
- Rigors (shaking chills)
- Flank pain (back, side pain)
- Pelvic discomfort
- Acute hematuria

NO

Does the patient meet one of the following criteria for symptoms?

- Acute dysuria alone OR
- Fever + at least one of the symptoms below (new or increased)
- If NO fever, at least two of the symptoms below (new or increased)
  - Urgency
  - Frequency
  - Suprapubic pain
  - Gross hematuria
  - Costovertebral angle (CVA) pain or tenderness
  - Urinary incontinence

YES

Criteria for signs or symptoms ARE met: obtain urinalysis and culture

NO

Criteria for signs or symptoms are NOT met: do not order urinalysis and culture; review for alternative diagnosis

Is urine culture positive?

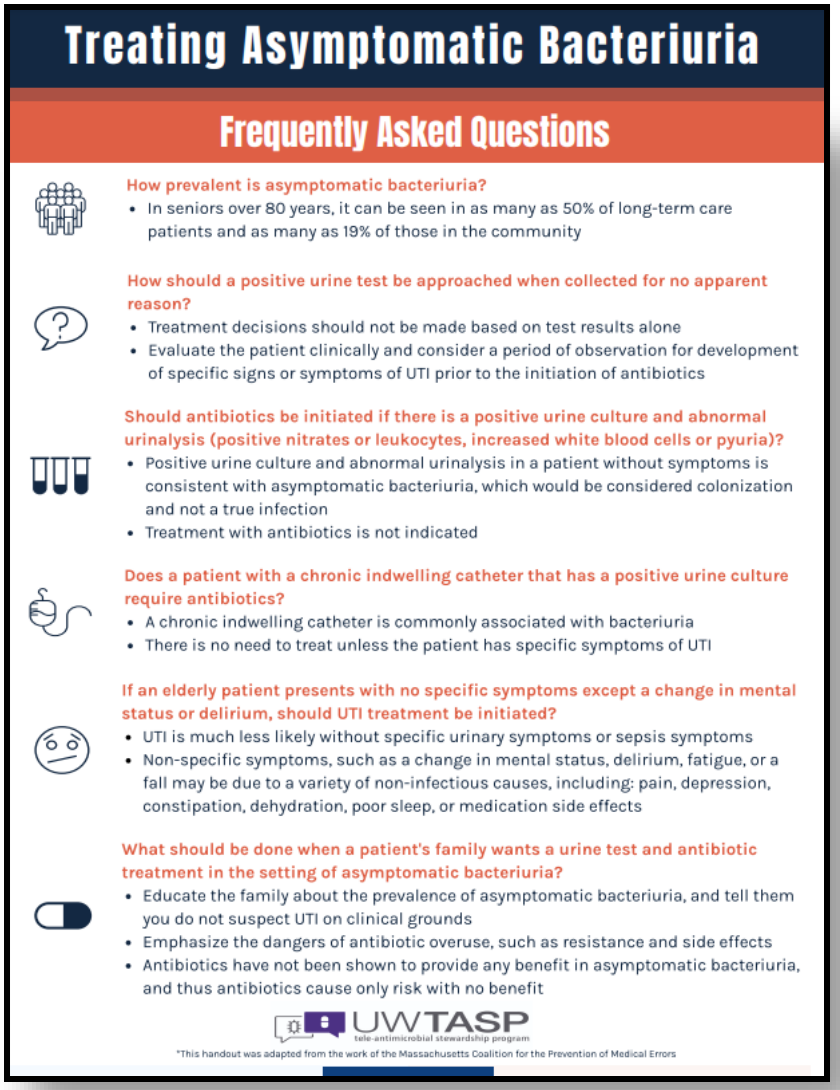
- Clean catch specimen: ≥100,000 cfu/mL with ≤2 organisms
- Catheterized specimen (straight cath or newly placed indwelling cath): ≥1,000 cfu/mL with ≤1 organism

Proceed with treatment with empiric antibiotics

YES

UWTASP tele-antimicrobial stewardship program

*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

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

...biotics Can ...re Harm Than

...g drugs that fight infections. ...rugs can cause problems, ...ly be used when needed.

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...antibiotics can:

- **drug interaction** with other medications
- 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.

UWTASP tele-antimicrobial stewardship program

UWTASP tele-antimicrobial stewardship program

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

One-on-One Meeting Topics

- Hospital demographics
- Data collection abilities
- SMART goals
- Process mapping
- Barriers
- Hospital needs
- Next steps in project
- Other!

Lessons Learned

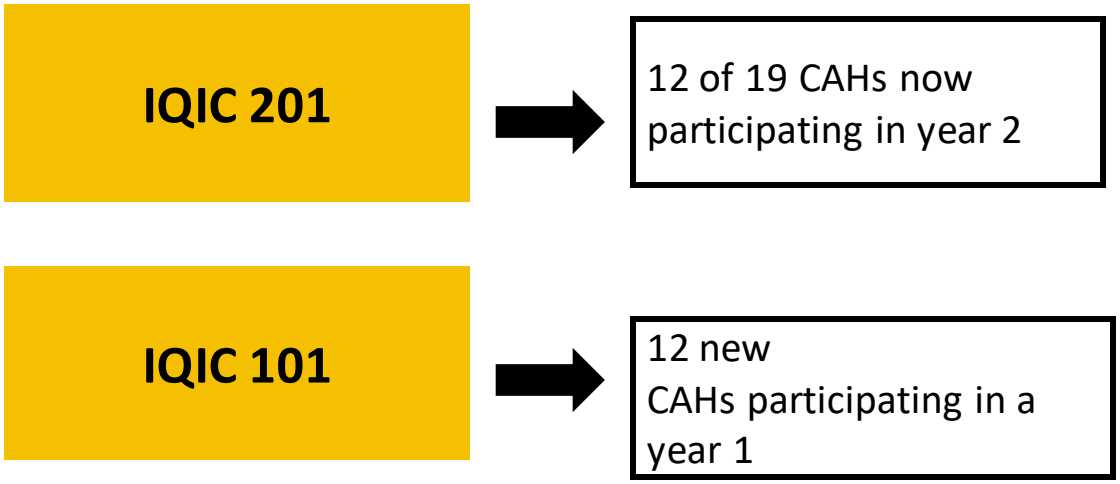
- Feasible? Yes
- One-size-fits-one approach
- CAH are motivated to (quickly) make changes and adapt
- 76% of asymptomatic bacteriuria was treated with antibiotics (= increase risk of harm/adverse events)
- Intensive quality improvement cohorts (IQIC) were an effective way to implement antimicrobial stewardship among our CAH partners

Wins

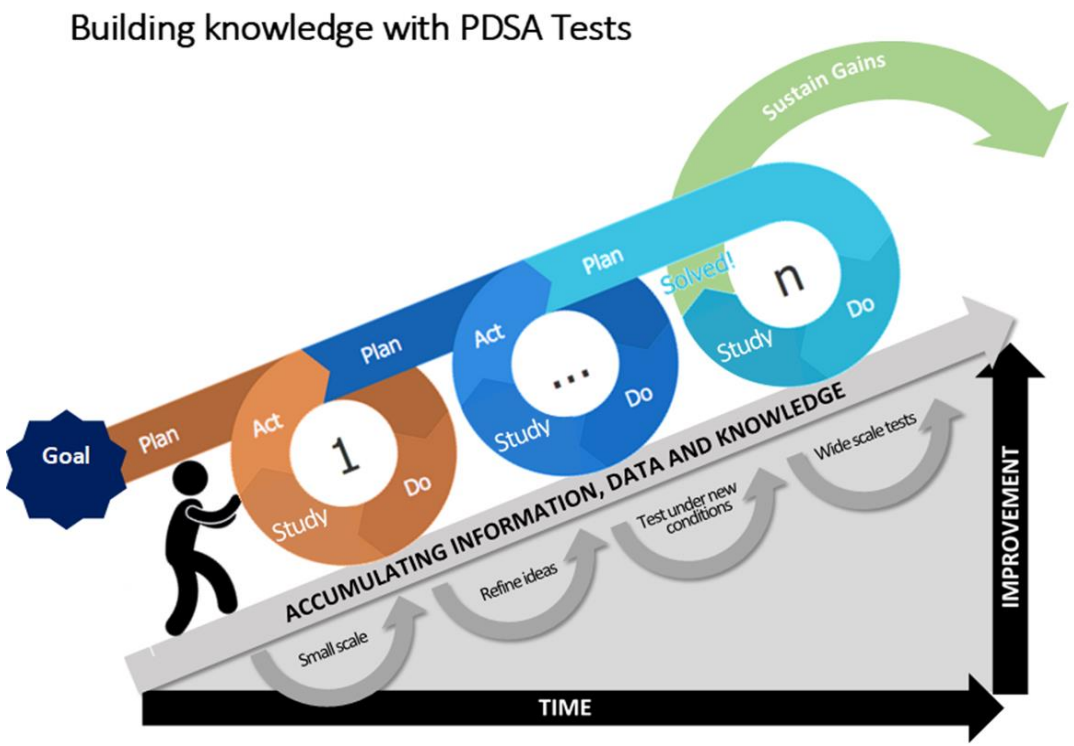
Distributed education and references to staff	Created provider peer comparison reports	Nursing questioning utility of unnecessary urine cultures and need for abx
Hospitalist calling out ASB in assessments and plans	Created urinary tract infection order set to guide treatment	Surgeons removed pre-op testing on asymptomatic patients (ie. Ortho)
Added "antibiotic time out" to interdisciplinary rounds	Identified institution specific opportunities to intervene	Found allies!

New Year, New Goals

Lessons learned from pilot program resulted in change for 2022-2023 cohorts



PDSAs are a Process



Successful Collaboration is Built Upon a Strong Network

Building relationships = building your antimicrobial stewardship program

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Thank You Partners!