The CAUTI Can-Can

Hennepin County Medical Center

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Background :

Been There. Done That.

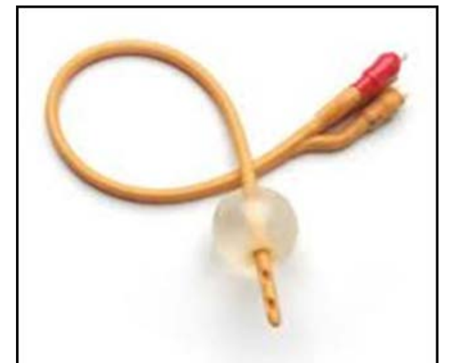
- Catheter orders in Epic
- Nurse driven protocol
- Insertion Training
- Care and maintenance training
- Proper UC collection training
- 2 person insertion requirement (and documentation)
- Care audits: pericare and bundle practices
- Third party point prevalence surveys
- Evaluated and modified products
- Moved non diagnostic catheter insertions out of ED

What didn’t work for us

- Nursing protocol
- Nursing documentation of catheter continuation
- Providers in a passive role
- General education sessions, newsletters, or “just do its”
- Separate provider and nursing work groups
- Passive expectation for providers to use UC algorithm

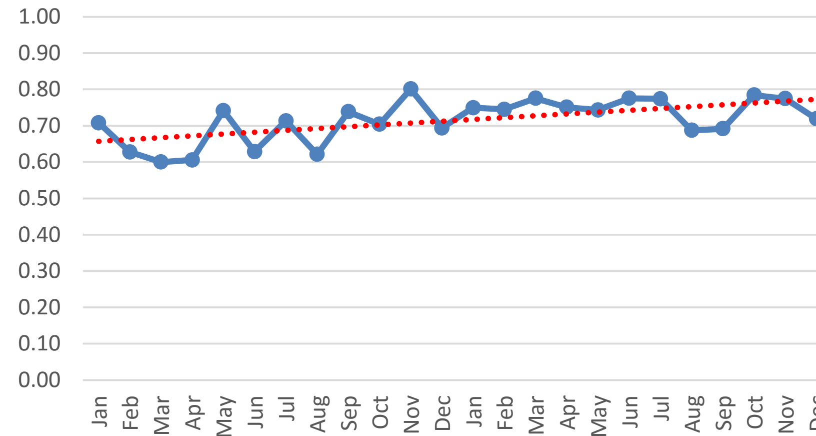
What's in the CAUTI gap?

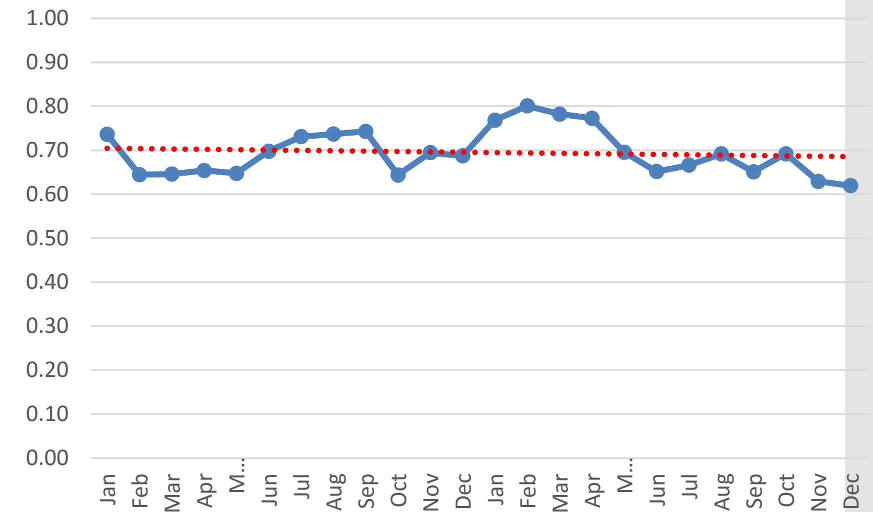
- Some unpreventable CAUTIs
- Many preventable CAUTIs
  - Catheter insertion technique
  - Catheter cares
  - Foley indication
  - Urine culture indication



Where is the gap? How was it determined?

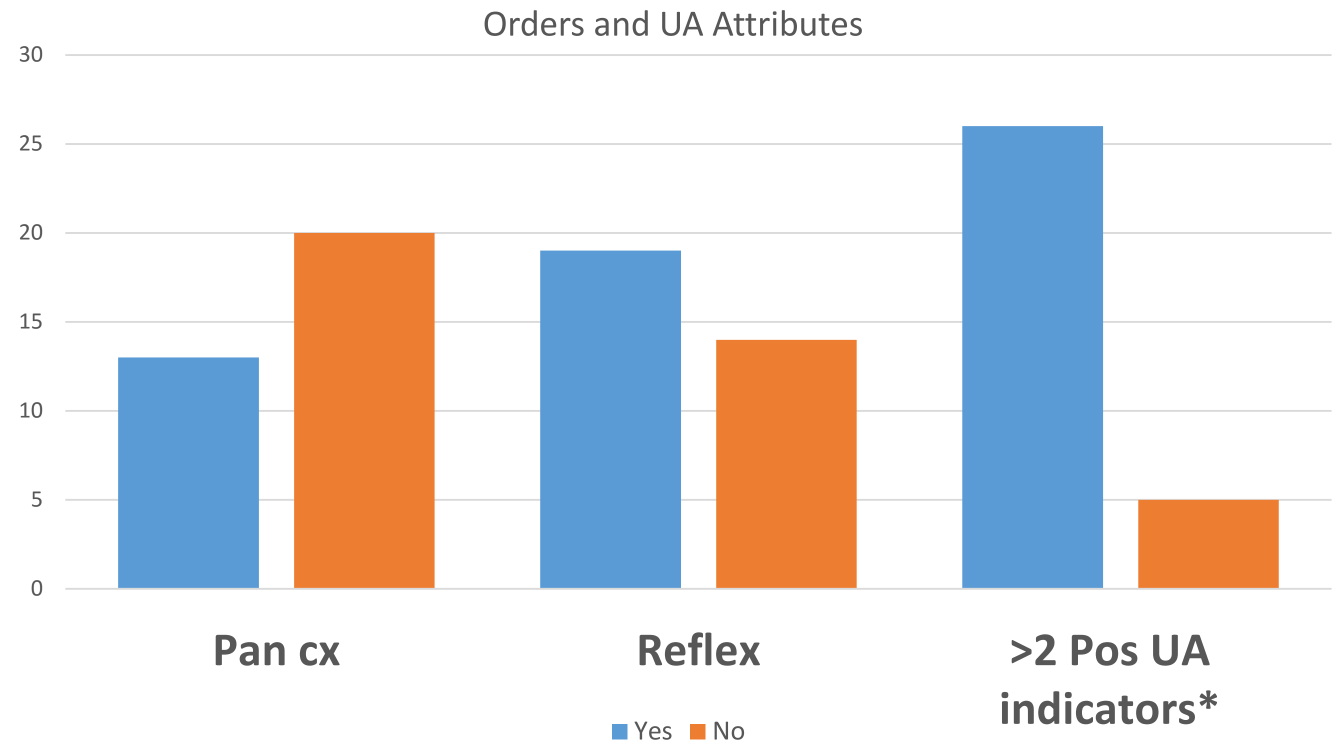
- A3 Problem analysis
- Device Utilization (DU):
  - High device utilization when comparing unit to NHSN DU median
  - Internal DU static or trending upward





Where is the gap? How was it determined?

- A3 Problem analysis
- Urine Culturing Practices:
  - Reviewed sample of UC's to learn why ordered
  - UC guidelines not understood or adopted by providers
  - Lack of understanding of a clinical UTI
  - Lack of consistent practice between hospital and rehab



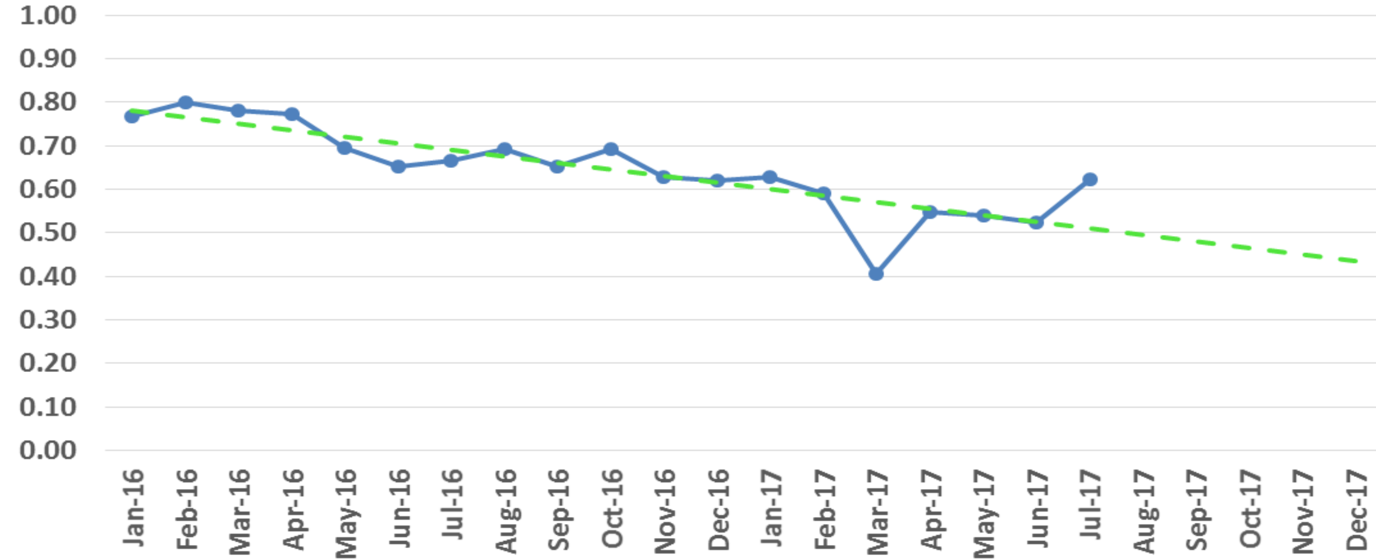
Mobilizing the levers:

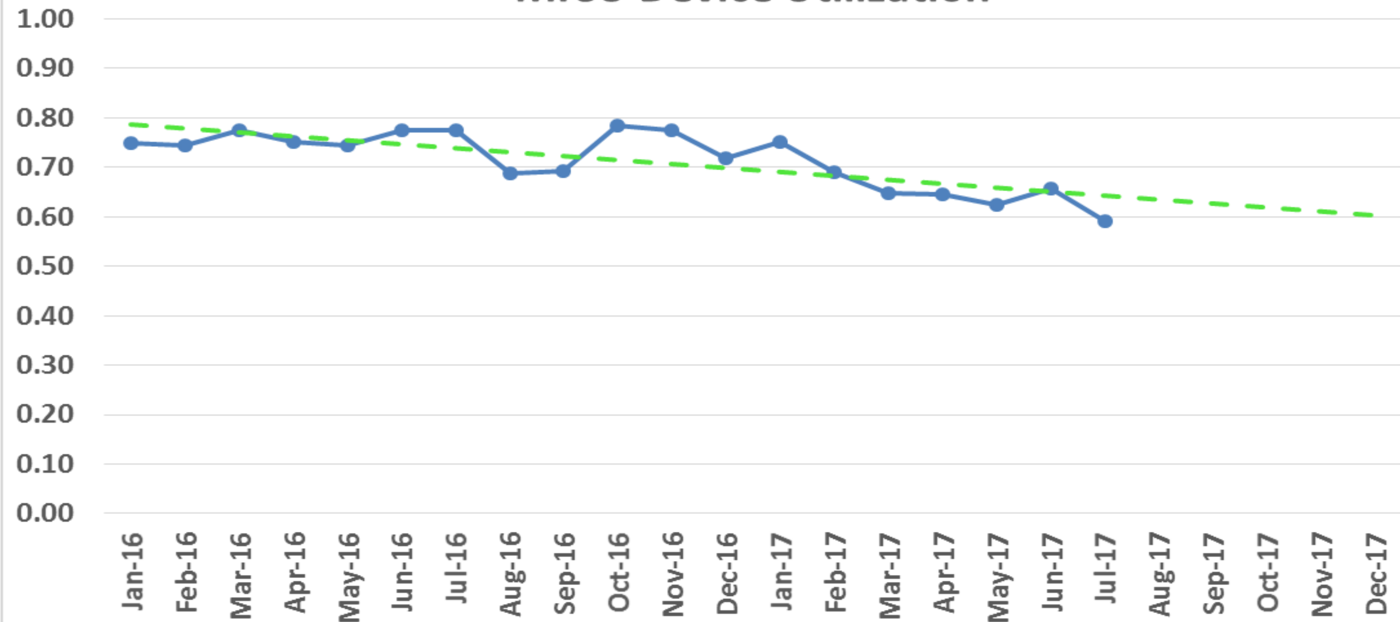
Catheter Utilization

- Test of Change #1:
  - **If** we discuss Foley days on MDR rounds daily

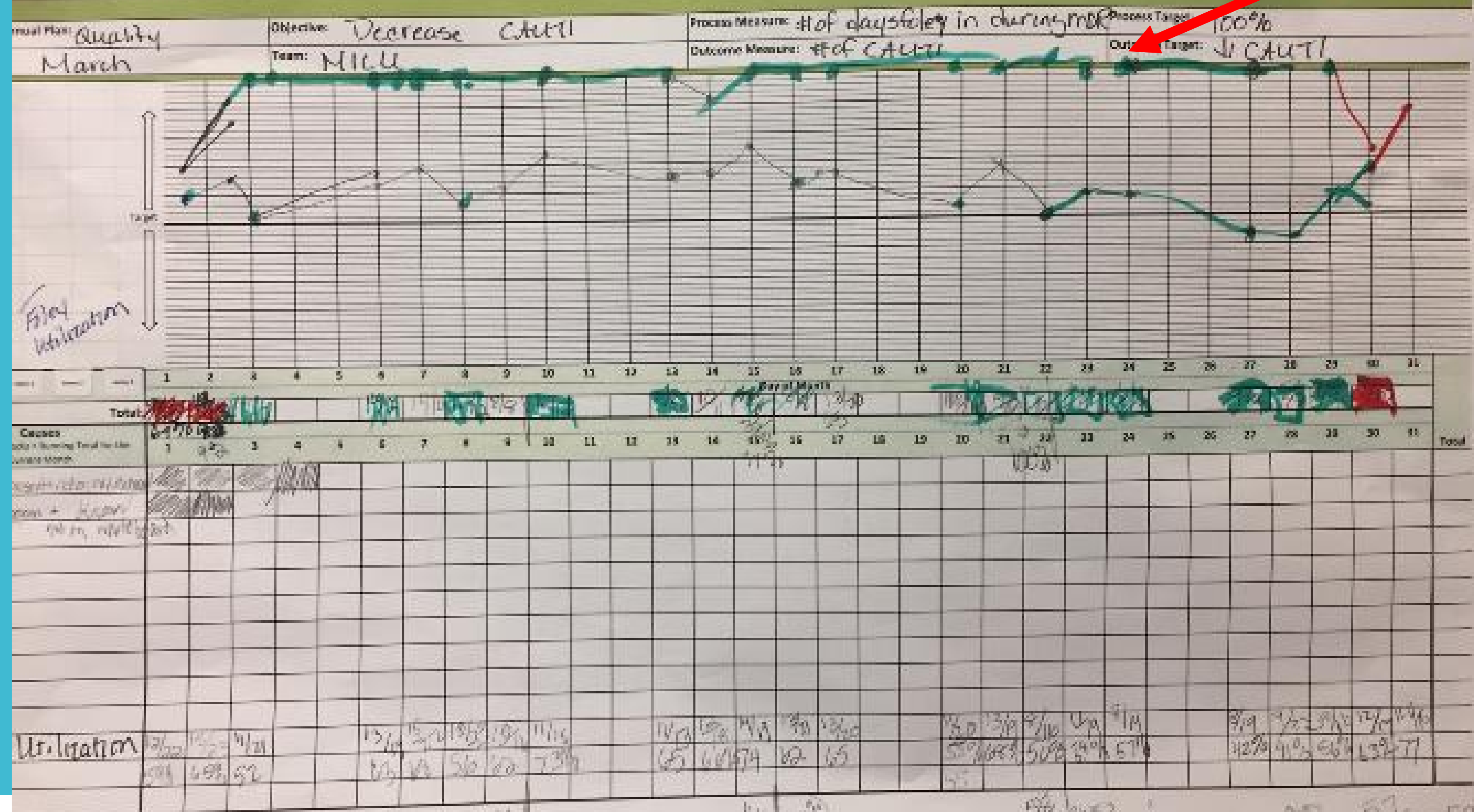
    then Foley utilization will go down
- 2 unit focus
- Gaps:
  - Started with nursing: some improvement but not what was expected
  - Daily rounds discussion focus was on foley "yes" or "no"
- Implementation:
  - Incorporated discussion into multidisciplinary rounds
  - Changed the conversation from "do they have a foley" to "how long have they had the foley and what is the indication"
  - "The Richardson" event

Test of Change #1 Results:





Process Measure:
% pts with foley discussed on MDR



Process measure: 100%!

100%

0%

Reducing Catheter Use Additional Activities:

- Products:
  - Condom cath updated
  - Female urinal implemented
  - Periwipe kit implemented
  - Bladder scanners, additional purchased
- Straight Cath Indications:
  - Developed protocol for all admissions to clarify
- Early Mobility initiative:
  - Reducing urinary catheter use aligns with mobilizing the patient

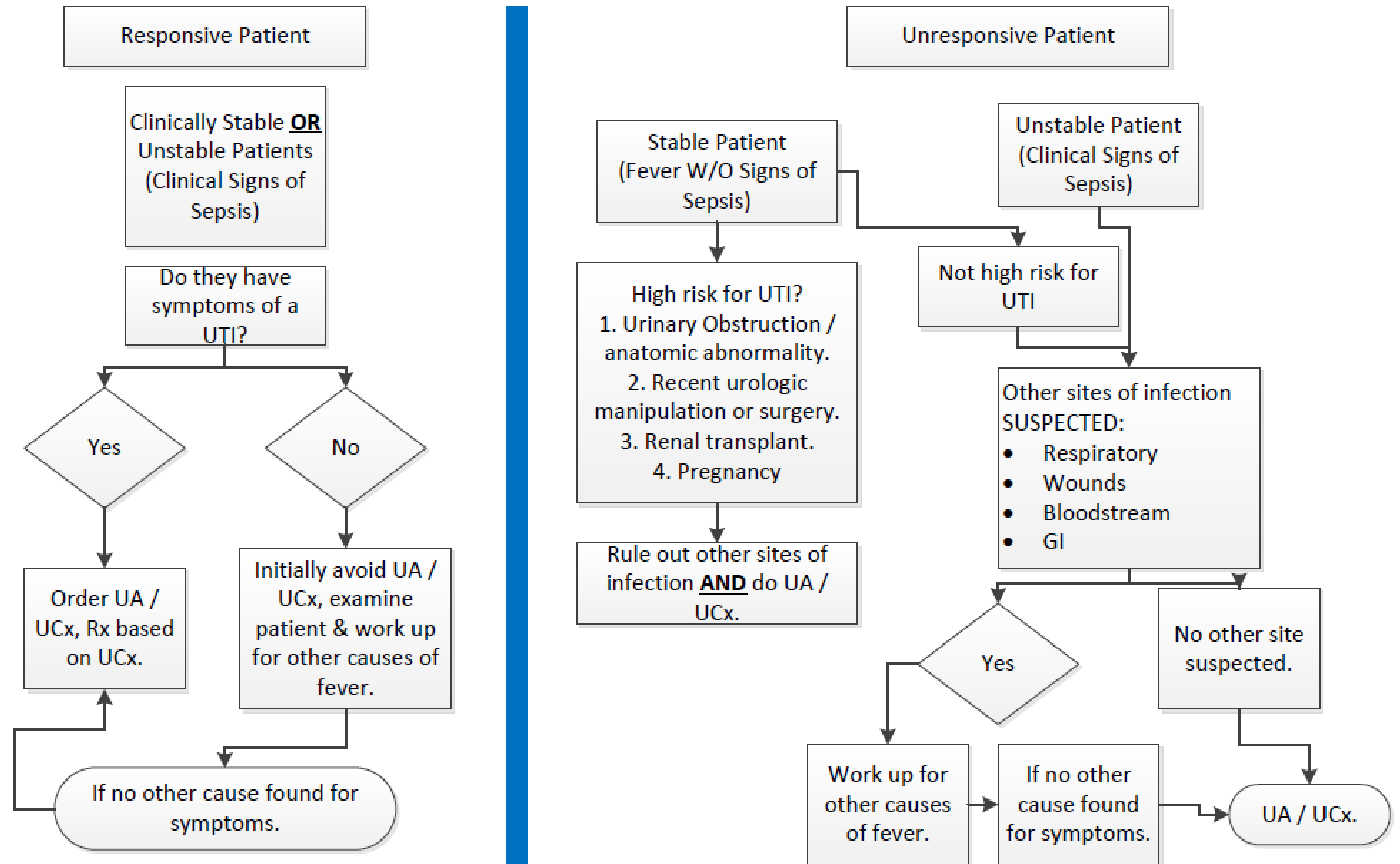
Mobilizing the levers:

Appropriate Urine Cultures

- Test of Change #2
  - **If** we Implement best practices for clinically appropriate UC's

    then CAUTI cases will be reduced
- 20-30% of 2016 CAUTI were not clinical CAUTI, but had inappropriate (not clinically indicated) urine cultures ordered
- Worked in conjunction with Antimicrobial Stewardship Program
- Gaps:
  - Lack of understanding of colonization
  - PAN culturing practices
  - Staff not engaged to use UC algorithm
- Implementation:
  - A3 team reviewed UC's to check for gaps
  - Daily UC list provided to unit champion for review of appropriateness per algorithm and feedback within 48 hours to ordering provider

UC Algorithm



Reference: IDSA CAUTI (2009) and Asymptomatic Bacteriuria (2005) guidelines

Myths

Myths vs Truths:
Urinary Tract Infections in Adults

What is the significance of "abnormal" urine?

- **MYTH: Cloudy, smelly or dark urine are indicative of a UTI.**
  TRUTH: These characteristics do NOT correlate with the presence of a UTI and should NOT be used as a criteria to obtain a urine culture.

- **MYTH: Bacterial growth in a urine culture is diagnostic of a UTI and should always be treated.**
  TRUTH: Up to 25% of diabetic women and 50% of nursing home residents have bacteria colonizing their urine at baseline; in the absence of urinary symptoms most do not require treatment. Treating asymptomatic bacteriuria only increases risk of medication side effects and antibiotic resistance! It does NOT decrease the likelihood of having future UTIs or urinary bacterial colonization.

- **MYTH: Altered mental status (AMS), delirium, and falls in nursing home residents are often due to UTIs and patients should receive antibiotic treatment in bacteria is seen on a urine culture.**
  TRUTH: The evidence that falls or delirium in nursing home residents are due to UTIs is virtually nonexistent! Treating asymptomatic bacteriuria has no effect on incidence of delirium or falls in nursing home residents.

What are the effects of a catheter on the urinary tree?

- 15-20% of hospitalized patients have a urinary catheter placed during hospitalization.
- Bacteriuria incidence in catheterized patient is 3-8% per day.
  → After 7 days, nearly **50%** of patients will have bacteria in their urine.
  → After 1 month of catheter use, nearly **ALL** patients will have bacteria in their urine.
- Bacteremia is a **rare** complication of catheter associated bacteriuria in **<1%** of cases and **<1%** of hospital deaths are due to bacteremic UTIs.

When is it appropriate to treat asymptomatic bacteriuria?

The only times you should treat asymptomatic patients with bacteria in their urine:

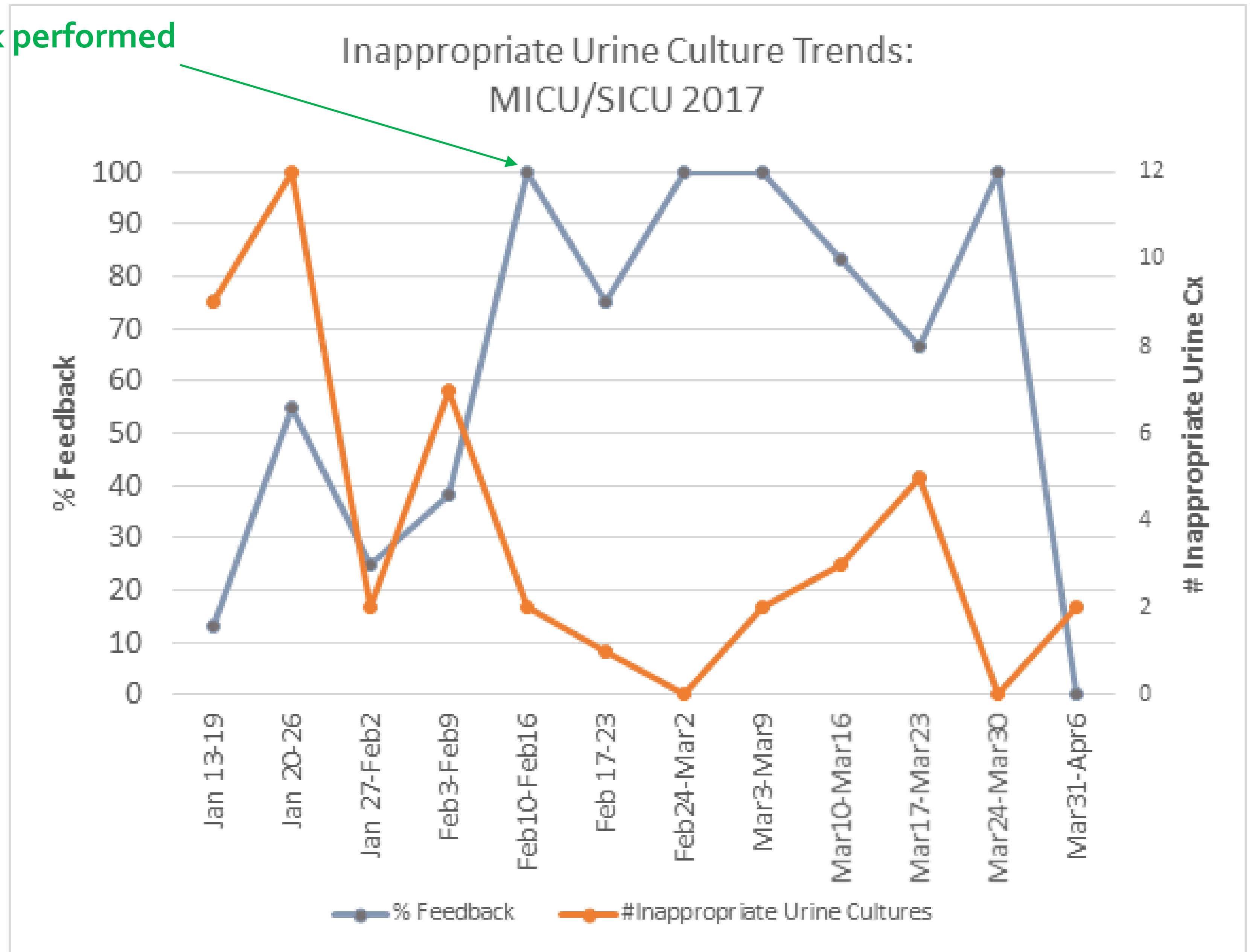
1) Pregnant
2) Having urologic surgery
3) Having prostate surgery

References: IDSA CAUTI (2009) and Asymptomatic Bacteriuria (2005) guidelines

For more information or questions regarding this content, please contact the Antimicrobial Stewardship Program

Version: December 2016

Test of Change #2 Results:



Test of Change #2 Results:

SICU	Year total	Admit Day 1,2	Admit Day>2	# CAUTI
2016	189	55	134	16
2017H1	42	21	21	4

MICU	Year total	Admit Day 1,2	Admit Day>2	# CAUTI
2016	419	184	235	11
2017H1	120	80	40	5

What happens when there is a positive urine culture?

Nursing to complete		**Patient information**	**Name**	**MRN**	**Admit Date**	**Admit Reason**
		Brief patient history				
	1.	**Catheter Information**	Date inserted: Days from most recent foley to UC:	Catheter inserted on unit? **Y/N**	Was catheter changed out prior to collecting UC? **Y/N**	Was pericare documented 24 hour prior to UC? **Y/N**
	2.	**Nursing**	**Reason(s) # for foley at time of CAUTI** (Indicate all that apply)	1. ICU output for active resuscitation/bleeding 2. ICU unstable hemodynamics 3. Neurogenic Bladder 4. Epidural/Intrathecal Catheter 5. Unstable spine or pelvic fracture 6. GU/GYN Procedure	7. Urinary retention 8. Gross Hematuria 9. Incontinence w/healing open wounds 10. OR Prone >2hours 11. OR Supine >4hours 12. End of life 13. Other (describe)	
Provider to complete	**3.**	**Provider**	**Reason(s) # for foley order** (Indicate all that apply)			
	4.	**Did provider daily note include need for foley?**	**Y/N**			
	5.	**Patient symptoms which initiated culture** (circle all that apply)	• Fever • AMS • Pt unable to communicate	• Malaise/Lethargy • Flank pain • CVA tenderness • Acute hematuria • Pelvic discomfort	High risk for UTI • Obstruction • recent urological manipulation • transplant • pregnancy	Spinal cord injury patients: • Inc spasticity • Autonomic dysreflexia
	6.	**Other site(s) of infection?**				
	7.	**Discussion at MDR?** **Plan from MDR?**				
	8.	**How does case fit with Myths/Algorithm?**	Appropriate or inappropriate (please circle)	Why/Why not?		
	9.	**Comments**				

2017 Test of Change Goal:

No more CAUTIs with reds

All new CAUTIS have all green

Event Date	Unit	Foley indicated	UC indicated?
1/17/2017	STN	NO	NO
2/11/2017	MICU	NO	YES
2/16/2017	BURN	YES	YES
2/17/2017	Med	NO	NO
3/2/2017	MICU	YES	NO
3/3/2017	Med	YES	YES
3/5/2017	MSO	YES	YES
3/5/2017	MICU	YES	YES
3/13/2017	MICU	NO	NO
3/25/2017	PEDS	n/a	n/a
3/26/2017	SICU	YES	YES
4/24/2017	STN	YES	YES
4/30/2017	Med	YES	YES
5/6/2017	SICU	YES	NO
5/23/2017	SICU	YES	NO
6/6/2017	STN	YES	YES
6/6/2017	CaRe	YES	YES
6/6/2017	SICU	YES	YES
6/6/2017	MSO	NO	NO
6/11/2017	MICU	NO	NO

Daily/Weekly Responsibilities

Spreading the Work

Engaging Providers

Leadership

- Barrier busting
- Going out and talking to end users working with tl they are asking chan

Unit Manager/Unit lead

- Daily management boards
  - Daily device utilization
  - Rounds discussion
  - Misses
- Challenge nursing when they want to leave the cath in
- Daily huddle messages to staff

Patient care staff (nursing, HCA)

- Increased daily patient care work
- Challenging providers for cath need
- Cost – need more bladder scanners
- Changed from pericare 2/day to 1/day and after each fecal incontinence

Providers

- Incentivized to pull them to the "believer" group
- Engage into daily rounds
- Educate residents
- Move away from PAN cultures (feedback education)

Using EPIC as a tool to guide practice

- Changed Reflex UA/UC Order
  - **Inpatients** no longer can have reflex UA/UC ordered
  - Provider must UA and UC separately
    - Goal: providers will review UA before deciding if UC needed
- Foley Change Prior to UC alert
  - If UC ordered on a patient with a foley >5days, the order includes a remove/replace order prior to collecting the UC (if the foley is safe to change out)
- Urine culture algorithm built into Orders
  - Building cascading questions from the UC algorithm within the UC order
- Foley duration and UC review columns on Patient lists

EPIC as a tool example on patient list

Kathleen MICU1234 51 Patients

Admit Date	MRN	Name/age/sex	Unit	Service	Infection	Isolation	Foley Duration	UC Review
07/07/15	4039903	Zzsimmaster, Cardiology	MICU 2 MEDICAL ICU	Emergency Medicine	—	—	—	—
07/08/15	4039912	Zzaclsmaster, Steven	MICU 2 MEDICAL ICU	Medicine	—	—	—	—
07/19/15	4040641	Zzsim, Christopher	MICU 2 MEDICAL ICU	Medicine	—	—	—	—
02/05/16	4111691	Zzsimmaster, Ralph	MICU 2 MEDICAL ICU	Medicine	—	—	—	—
06/06/16	4147087	Zzradmaster, Patientsix	MICU 1 MEDICAL ICU	Medicine	—	—	—	—
01/18/17	4192259	Zzivmaster, Donald	MICU 3 MEDICAL ICU	Medicine ICU	—	—	—	—
08/19/17	999902536	Radiology, Patientsix	MICU 1 MEDICAL ICU	Medicine	—	—	—	—
08/19/17	999902537	RadResident, Patientsix	MICU 1 MEDICAL ICU	Medicine	—	—	—	—

Next Steps

- Spread to all units
- Develop sustainment measures – who what where when

Continued Challenges

- Spread of information –
  - Big system – new providers, residents
  - Expanding work to new units with different daily operations (closed units vs open units, provider oversight different, different rounding practices)
  - Motivating providers in an already busy day with competing priorities, significant burnout

Questions?

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