Addressing the Risk of CAUTIs with Innovative Thinking & Strategies

Kathleen Vollman
ADVANCING NURSING THROUGH KNOWLEDGE & INNOVATION

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Disclosures

- Consultant-Michigan Hospital Association Keystone Center
- Subject matter expert on CAUTI, CLABSI, HAPI, Safety culture for AHA
- Consultant and speaker bureau
  - Stryker's Sage business
  - LaJolla Pharmaceutical
  - Baxter healthcare
  - Potrero Medical

Objectives

- Describe the forces within the current healthcare environment that are targeting zero for device related infections.
- Identify and detail the evidence-based practices that go beyond the guidelines in preventing CAUTI's.
- Discuss possible barriers to practice changes and realistic solutions to assist the team in the implementation process.

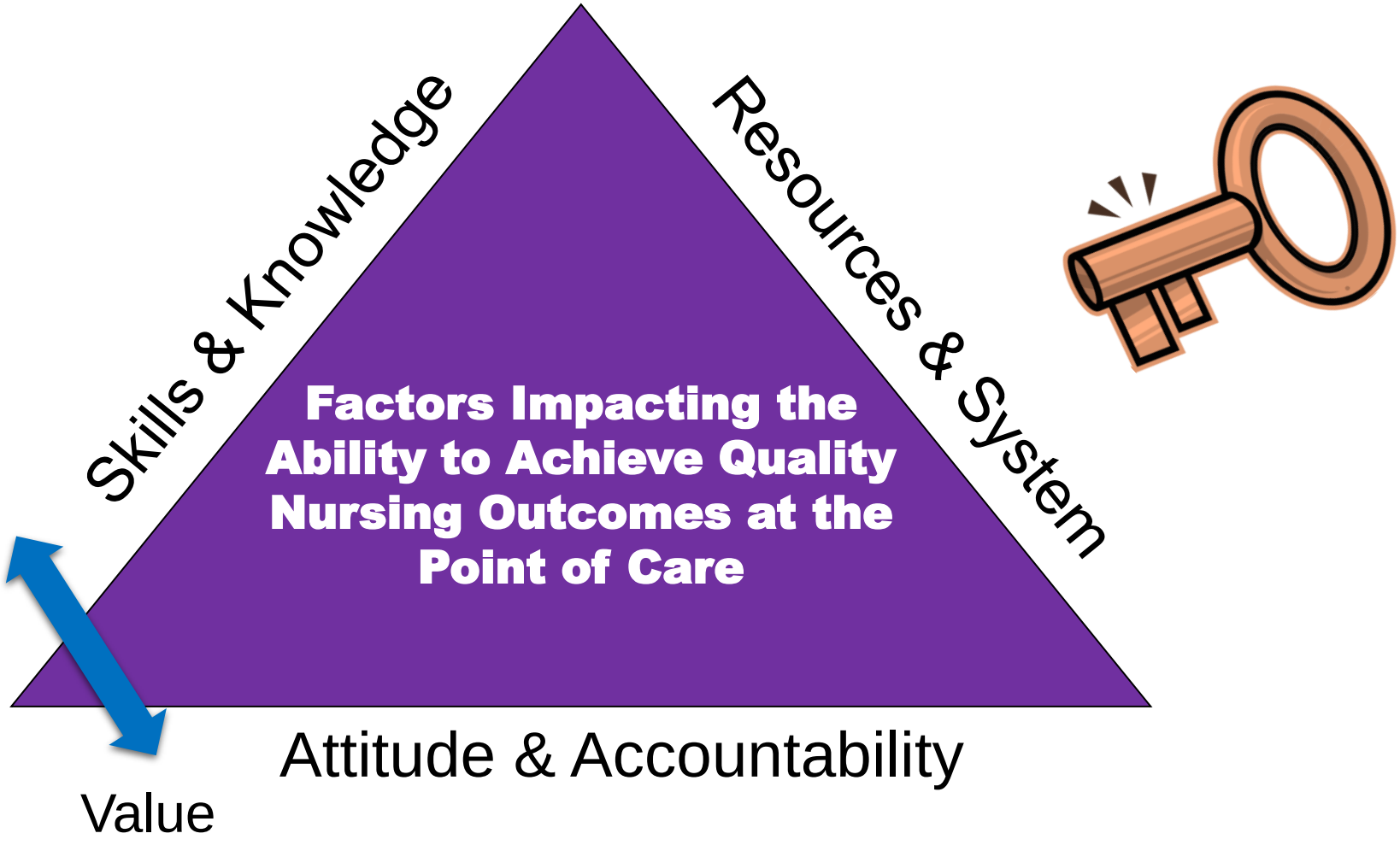
Notes on Hospitals: 1859

"It may seem a strange principle to enunciate as the very first requirement in a hospital that it should do the sick no harm."

- Florence Nightingale

Advocacy = Safety

Achieving the Use of the Evidence



Vollman KM. Intensive Crit Care Nurs, 2013;22(4): 152-154

The Why: CAUTI Incidence

- One of the most common healthcare acquired infections (HAIs)- nearly up to 40% of all HAIs[1,2]
- 70% urinary catheter associated HAIs; up to 95% in the intensive care setting[2]
- Approximately 20% of hospital patients have urinary catheter at some point in their stay[3]

1. Magill et al NEJM 2014; APIC Guide to Prevention of CAUTI, 2014;
2. Chenoweth, C. et al. *Infectious Disease Clinics of North America*, 2014 28(1), pp.105-119.
3. Saint, S et al. *Clinical Infectious Diseases*, 2008 46(2), pp.243-250

Associated CAUTI Costs

- Catheter associated urinary tract infections (CAUTIs) are associated with increased morbidity, mortality, and costs
  - Leads to ↑ increased morbidity, ↑ LOS 2-4 days
  - CAUTIs are associated with an ↑ cost of $400 million to $500 million annually
  - Estimated additional inpatient CAUTI costs:
    - $4694-29,743 (Review of 6 studies)
- Specific patient impact---
  - Discomfort r/t to mild signs of infection
  - Potential urethral trauma
  - Embarrassment
  - Pyelonephritis
  - Urosepsis leading to potential death

Zimlichman E, et al. JAMA Intern, 2013;17:373:2039-2046;
Agency for Healthcare Research and Quality (2017). Retrieved from https://www.ahrq.gov/hai/pfp/haccost2017-results.html.

Addressing CAUTIs Through Evidence Based Care Practices

CUSP & CAUTI Interventions

Adaptive /Cultural

CUSP

- Educate on the Science of Safety
- Identify Defects (Staff Safety Assessment)
- Senior Executive Partnership
- Learn from Defects
- Implement Teamwork & Communication Tools

Technical

CAUTI

Insertion

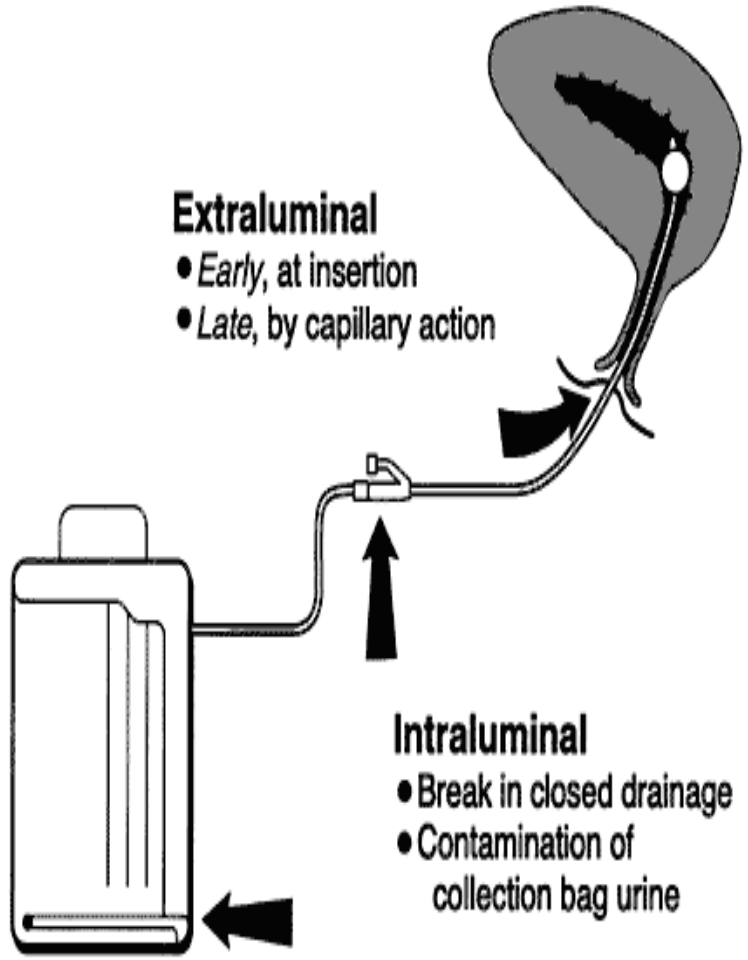
- Limiting use
- Using aseptic technique for site prep, equipment & supplies

Maintenance

- Securing the catheter for unobstructed flow
- Maintaining the sterility of the urine collection system
- Replacing the urine collection system when required
- Collecting urine samples

Pathogenesis of CAUTI

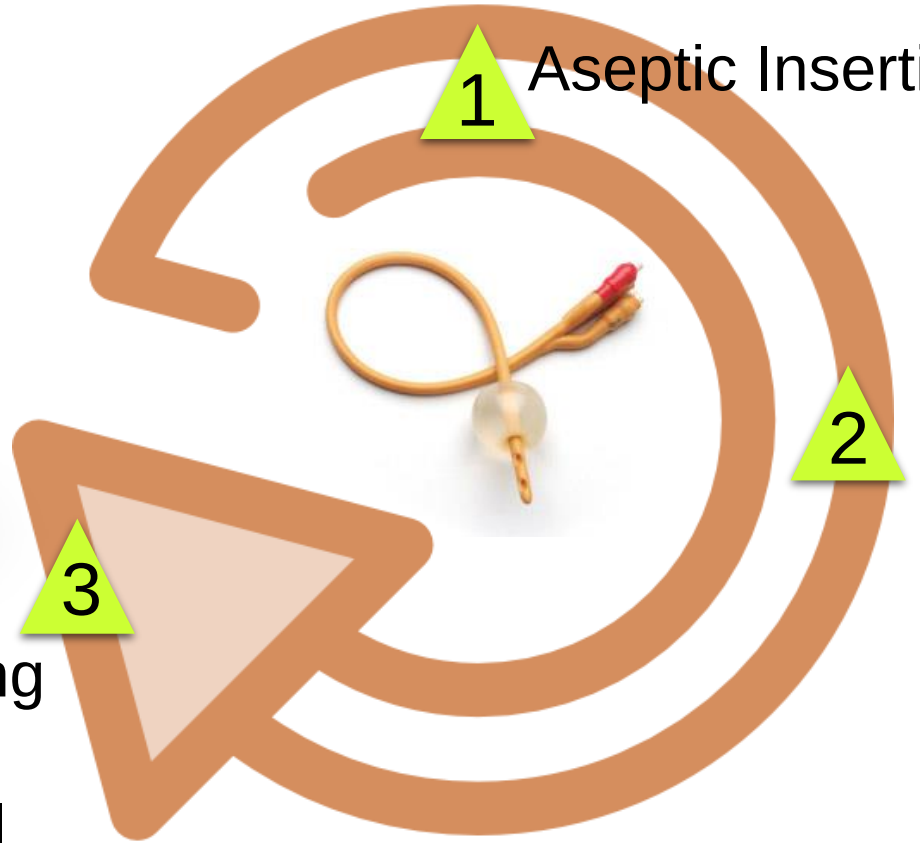
- Source: colonic or perineal flora on hands of personnel
- Microbes enter the bladder via extraluminal {around the external surface} (proportion = 2/3) or intraluminal {inside the catheter} (1/3)
- Daily risk of bacteriuria with catheterization is 3% to 10%; by day 30 = 100%



APIC Guide to Preventing CAUTI: 2014

Disrupting the Lifecycle of the Urinary Catheter

Step 0:
Avoid
Catheter is
Possible



www.catheterout.org, (Adapted Meddings. Clin Infect Dis 2011)

Before Placing an Indwelling Catheter

Please Consider if These Alternatives Would be Appropriate:

- **Bedside commode, urinal, or continence garments:** to manage incontinence.
- **Bladder scanner:** to assess and confirm urinary retention, prior to placing catheter to release urine.
- **Straight catheter:** for one-time, intermittent, or chronic voiding needs.
- **External catheter:** appropriate for cooperative patients without urinary retention or obstruction.

Nurse Driven Removal Protocol:
ER/ICU/OR & Floor

- Assessment of criteria for insertion
- Use of the bedside bladder ultrasound to assess urinary retention (reduce rates by 30-50%)[1]
  - If minimal or no urine found in the bladder alternative strategies should be considered prior to catheterization
- Examine alternatives to indwelling catheters
  - Intermittent catheterization several times per day (post –op)
  - External catheters for male patients or female patients without urinary retention or bladder outlet obstruction[2]
- Prevalence evaluation to determine number of catheters versus the number of catheters that met criteria[1]

1. Saint S, et al. Clin Infect Dis. 2008;46(2):243-250,
2. *Saint S, et al. J am Geriatr Sco. 2006;54(7)1055-1061

Intermittent Catheterization Program

If retention is suspected pre or post catheter:

- If no voiding within 4-6 hours of assessment pre insertion or post removal, a bladder scan ultrasound used
- Volume < 500mL, encourage the patient to void by using techniques to stimulate bladder reflex (cold water to abdomen, stroke inner thigh, run water, flush toilet)
- Continue to assess the patient and repeat the bladder scan in 2 hours if no voiding
- If the bladder volume > 500mL, and intake is less than 3 L a day-catheterize for residual urine volume rather than place an indwelling catheter
- If volumes are greater/catheter goes back in 24hrs

STOP CAUTI Sample Policy and Procedure
http://www.ucdenver.edu/academics/colleges/medicalschool/departments/medicine/hcpr/cauti/documents/Sample%20Policy%20and%20Procedures.pdf
University of Virginia Health System nurse driven intermittent cath program

iPCaRe: Evidence-Based Algorithms

Continence Care

J Wound Ostomy Continence Nurs. 2020;47(6):601-618.
Published by Lippincott Williams & Wilkins

Interventions Post Catheter Removal (iPCaRe) in the Acute Care Setting

An Evidence- and Consensus-Based Algorithm

Mikel Gray ◆ Terrie Beeson ◆ Dea Kent ◆ Dianne Mackey ◆ Laurie McNichol ◆ Donna L. Thompson ◆ Sandra Engberg

iPCaRe
Interventions Post Catheter Removal

Image retrieved from https://www.wocn.org/blog/the-latest-decision-support-tool-from-wocn/.

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- **External catheter:** appropriate for cooperative men without urinary retention or obstruction.

Challenges with Current Appropriate Alternatives: External Catheters for the Male Anatomy

1 out of every 200 men is born with what's medically known as 'micro-penis'

Buried & Micro Penis

Condom Catheter

Common Problems

- Most common problems are:
  - Skin irritation and maceration
  - Difficult to keep the condom from falling off/retraction of the penis or decrease size
  - Ischemia and penile obstruction/tightness
  - Adherence: required to secure on the shaft & adhesive mechanisms are challenging

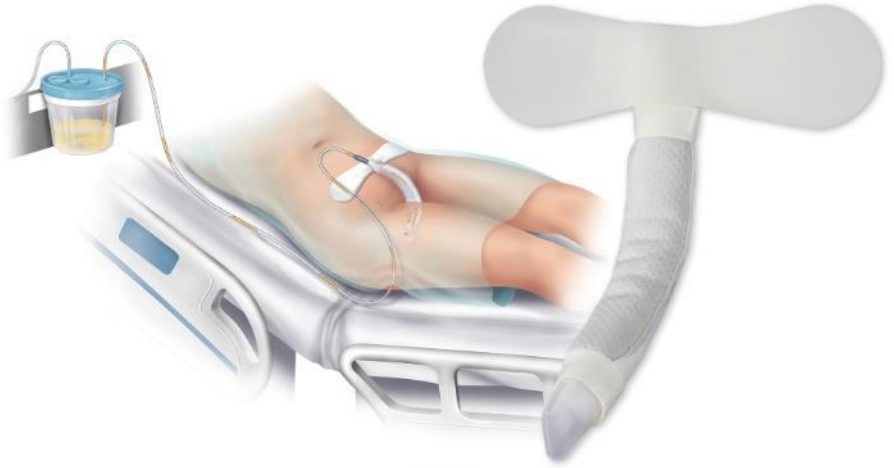
Gray M. AACN Adv Crit Care. 2010;21(3):247-257.

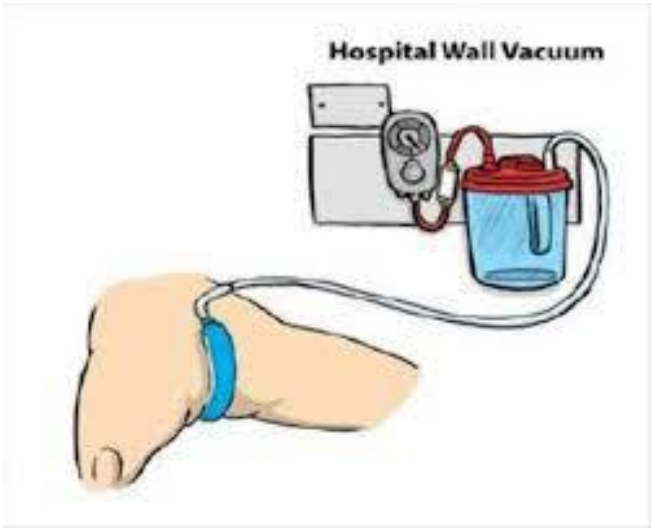
New Male Devices: Overcoming the Challenges

- Adjusts to different sized penises
  - No sizing chart required
- Prevents backflow with continuous suction
- Diverts urine away from the skin - addressing the risk factors of IAD

Alternative External Collection Devices for the Female Anatomy

- **How do they work?**
  - They are placed between the labia and the urethral opening
  - The devices are attached to wall suction





Quality Improvement Project

- 18 bed adult SICU
- 10 month pre/post QI study
- Utilization of an external collection device for the female anatomy
- Daily rounds discussion
  - Inter-professional discussion regarding indications
    - Avoid placement
    - Early removal
- Measurement: CAUTI & SIR rates

Outcomes

Pre/Post Comparison Using Female External Device		
	Before	After
CAUTI Rate	2.55	0.7
Standardized Infection Ratio (SIR)	1.395	0.381

Indwelling Catheter Days ↓ 9%

Beeson T, Davis C & Vollman K. Presented at the NACNS Meeting in Austin Tx, March 2, 2018

CDC, SHEA, IDSA and NHS:
Indications for Placement of Indwelling Catheter

- Perioperative use for selected surgical procedures
- **Urine output in critically ill patients**
- Management of acute urinary retention and urinary obstruction
- Assistance in pressure ulcer healing for incontinent patients
- At a patient request to improve comfort(SHEA) or for comfort during end of life care (CDC)

How-to Guide: *Prevent Catheter-Associated Urinary Tract Infections*. Cambridge, MA: Institute for Healthcare Improvement; 2011. (Available at www.ihi.org).

Examples of Indications for Urinary Catheters

	2009 HICPAC Guidelines[1]	American Nurses Association's Streamlined Evidence-Based RN Tool: CAUTI Prevention[2]	Ann Arbor Criteria for Appropriate Urinary Catheter Use in Hospitalized Medical Patients[3]
Example Indications	• Acute urinary retention/obstruction • Perioperative use for selected surgeries • To assist with healing of open wounds in incontinent patients • End-of-life care • Accurate measurement of urinary output in critically ill patients	• Acute urinary retention/obstruction • Perioperative use for selected surgeries • To assist with healing of open wounds in incontinent patients • End-of-life care • Critically ill and need for accurate measurements of I&O (e.g., hourly monitoring)	• Indwelling catheters are appropriate for measuring and collecting urine only when fluid status or urine CANNOT be assessed by other means. • Location in an ICU alone is NOT an appropriate indication. • Criteria for 3 catheter types: indwelling, external and intermittent use catheters
Comments	• Appropriate use in critically ill patients has varied interpretations	• Helpful algorithm to make decisions • Based on 2009 Guidelines • Use in critically ill patients still ambiguous	• Provides clarification to the 2009 guidelines on use for specific clinical scenarios • Includes ICU Daily Checklist for indwelling catheter use

1. Gould CV,et al. *Infect Control Hosp Epidemiol*. 2010;31(4):319-326.
2. ANA: https://www.nursingworld.org/practice-policy/work-environment/health-safety/infection-prevention/ana-cauti-prevention-tool/
3. Meddings J, et al. Ann Intern Med. 2015 May 5;162(9 Suppl):S1-34.

Types Of Treatments Requiring Close UO Monitoring

- Bolus fluid resuscitation
- Vasopressors
- Inotropes
- High dose diuretics
- Hourly urine studies to measure life threatening laboratory abnormalities

Are you responding hourly to the patient's urine output??

Strategies for Early Removal

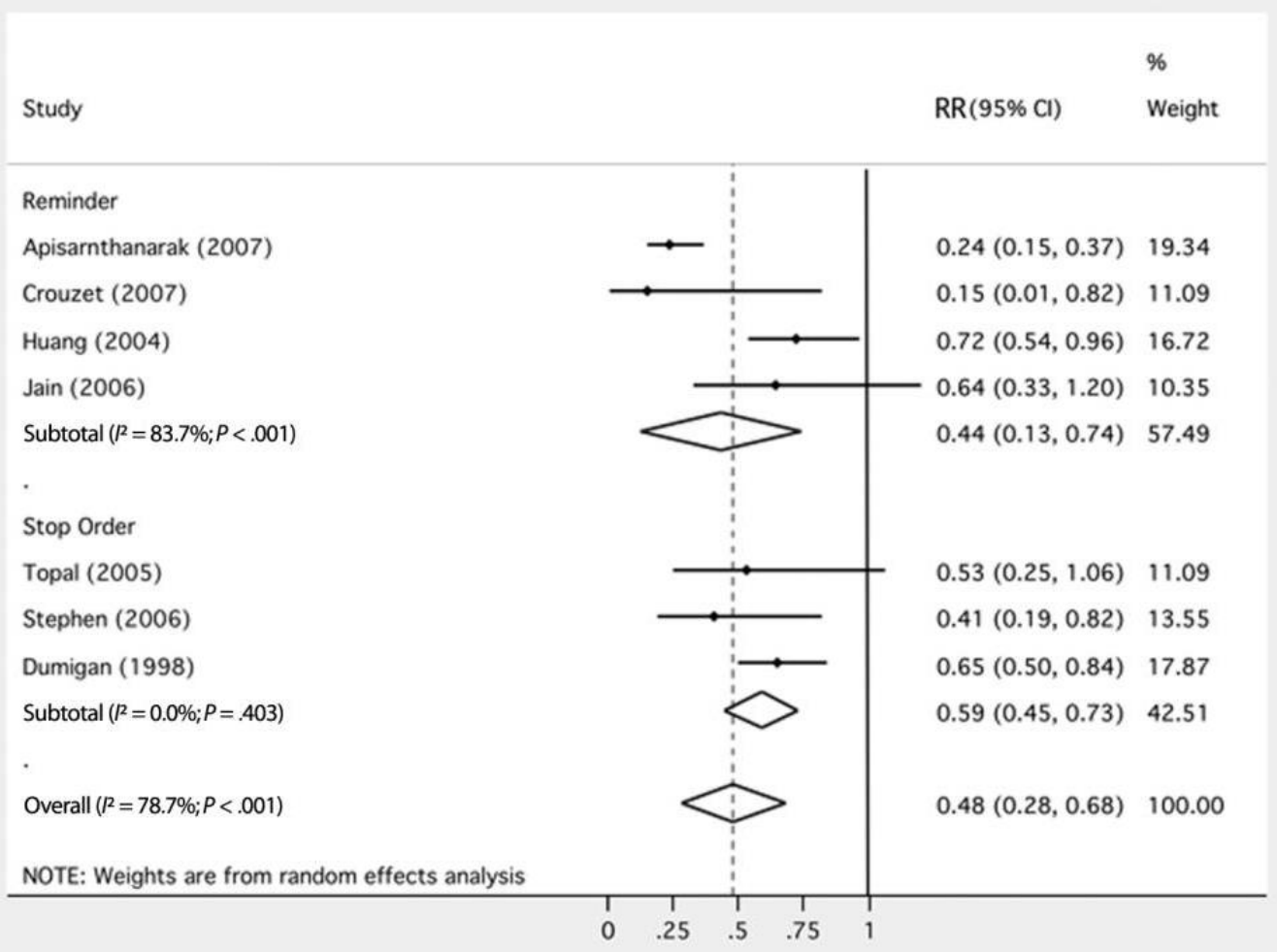
	Example Strategy
Physicians[1, 2]	• Daily physician assessment of catheter need • Computerized order entry system to prompt physicians to remove/reorder catheter if placed in ED or in place >24 hours • Orders in place for removal in the OR and/or length of time for catheter to remain in place.
Nurses[1,2]	• Nurse Driven protocol to remove all urinary catheters that do not meet criteria • Daily review by nurses for catheter indication to make recommendations for removal • Nurse-generated daily bedside reminders to encourage physicians to remove unnecessary urinary catheters • Nurse-to-nurse communication during transitions (ED, ICU): “Does this patient have a urinary catheter? Why?” If not indicated, ask for catheter to be removed before transfer.

1. Mitchell B, et al. *Infection Control & Hospital Epidemiology, 2019 40*(4), 427-431.
2. Tyson AF, et al J Intensive Care Med. 2018 Jan 1

Reminder Systems Reduce Inpatient Catheter Use and Associated CAUTIs

Reminder
56% reduction

Stop Order
41% reduction



Meddings J et al. Clin Infect Dis, 2010;51:550-560

Factors That Affect Success of Reminders, Stop Orders and Nurse Driven Protocols

- Communication patterns and unit culture relative to urinary catheter use[1]
- Nurse comfort with urinary catheter removal protocols [1,2]
- Right urine collection alternatives [1,2]
- Staff knowledge and skills [1,2]
- Respect among nurses and physicians [1,2]
- Ownership by frontline staff, local leadership and quality to review, remind, and reinforce using RCA's or learn from a defect [1,2]
- Information technology support for data collection[1]
- Feedback using data on catheter use[1]
- ICU team's recognition of the hazard of urinary catheters[1,2]

1. Meddings J, et al. BMJ Qual Saf. 2014 Apr;23:277-89.
2. Quinn M, et al Jt Comm J Qual Patient Saf. 2019 Dec 23.


“Even if you are on the right track, you will get run over if you just sit there.”
Will Rogers

The Culture of Culturing

Asymptomatic bacteriuria" (ASB) is the condition of having a specified count of bacteria in an appropriately collected urine sample obtained from a person without clinical signs and symptoms of urinary tract infection.

1. Overuse of antibiotics that can potentially cause complications in the individual patient, including *C. difficile*
2. ↑increase in resistant pathogens impact the individual, organization & community patterns of resistance. [1]
3. Falsely inflates an organization's CAUTI rate as bacteremia is unnecessarily treated[2]
4. 23% to 50% antibiotic days for UTI are from ASB [2]

1. Health Research & Educational Trust (2017). : 2017. Chicago, IL: Health Research & Educational Trust. Accessed at www.hret-hiin.org
2. Garcia, R & Spitzer ED. American J of Infect. Control. 2017;45(10):1143-1153.

Survey of Doctors and Nurses for Indications to Urine Culture

Order Indication	Physicians	Nurses
Appearance	23%	61%
Odor	42%	74%
Dysuria	54%	35%
Pan culture	38%	45%
UA > 100 WBCs/hpf	58%	43%

Advani SD, et al. Open Forum Infect Dis. 2019 Aug 1;6(8).

Recommendations on Urine Culture Management

- Establish a preculture strategy that directs efforts at how cultures are ordered rather than solely addressing issues after a UA or UC test is finalized:
  - Modify the electronic medical record to include appropriate and inappropriate indications for UAs/UCs that address patient symptomology
  - Eliminate automatic orders in care plans where appropriate
  - Provide education for all clinicians who order UCs with emphasis on appropriate indications for UCs and UTI symptoms in catheterized and non-catheterized patients
  - Carefully evaluate patients with fever and order UCs as appropriate
  - Reflex urine testing should be considered only if used in conjunction with careful clinical evaluation for signs and symptoms of UT

Garcia, R & Spitzer ED. American J of Infect. Control. 2017;45(10):1143-1153.

Modify Your EMR Ordering Process

- Incorporated mandatory selection of standardized indications in EMR for ordering a UC in catheterized patients:
  - Suprapubic pain/tenderness
  - Acute gross hematuria
  - Costovertebral angle tenderness
  - New fever/rigors with clinical assessment negative for more likely etiology
  - Acute alteration of mental status with clinical assessment negative for more likely etiology
  - Alteration in medical condition with clinical assessment negative for more likely etiology in patient whom fever may not be a reliable sign
  - Increased spasticity or autonomic dysreflexia in patients with altered neurologic sensation

Lowers urine cultures and CAUTI rates

Garcia, R & Spitzer ED. American J of Infect. Control. 2017;45(10):1143-1153.

Example:
St. Joseph Mercy Hospital Urine Culturing Tool

***SHOULD THIS PATIENT BE EVALUATED FOR A URINARY TRACT INFECTION?**

Does the patient have any of the following **without alternate explanation**?

1. Urgency, frequency, dysuria
2. Suprapubic pain/tenderness
3. Flank pain or tenderness
4. New onset delirium
5. Fever >38 C/Rigors
6. Acute hematuria
7. Increased spasticity or autonomic dysreflexia in a spinal cord injury patient
8. ≥2 SIRS criteria (T > 38 C or < 35 C, HR > 90, RR >20 or PaCO2< 32 mmHg, WBC >12 K/mm^3 or <4 K/mm^3 or > 10% bands) OR shock with concerns for sepsis

YES

Send U/A & urine culture

Document indication for sending urine culture

Start empiric therapy (see reverse side)

NO

Do NOT send urine culture

*Symptom based screening is not reliable in the following cases: pregnancy, prior to urologic procedures, patients with complex urinary anatomy (i.e., nephrostomy tubes, urinary tract stents, h/o urinary diversion surgery in the past, or renal transplant), patients admitted to the ICU, or neutropenia. Use your clinical judgment for this population.

Version date: 9/19/2012

EMPIRIC THERAPY BASED ON CLASSIFICATION OF URINARY TRACT INFECTION (UTI)

Empiric choices should take into account recent previous cultures

If urine culture is negative & patient was on antibiotics at the time of the culture & patient has symptoms (1-8 on the reverse side) it may be appropriate to treat

PATIENT CATEGORY	PREFERRED	2ND LINE	DURATION
ASYMPTOMATIC BACTERIURIA Defined as having NONE of symptoms 1-8 on the reverse side	Do not treat except in pregnancy, prior to urologic procedures, or neutropenia Candiduria: Change catheter. Do not treat except prior to urologic procedures or in neutropenia		
UNCOMPLICATED LOWER TRACT UTI	TMP/SMX or Nitrofurantoin	Ciprofloxacin or Cephalexin	TMP/SMX x 3 days Nitrofurantoin x 5 days (contraindicated if CrCl <60 mL/min) Ciprofloxacin x 3 days Cephalexin x 7 days
COMPLICATED LOWER TRACT UTI Male, urinary catheter present or removal within the last 48 hrs., GU instrumentation, anatomic abnormality or obstruction, significant co-morbidities	Ceftriaxone or TMP/SMX or Cefepime (if risk for resistant gram negatives) or Piperacillin-tazobactam (if risk for resistant gram negatives and enterococcus)	Ciprofloxacin	7 days if prompt resolution 5 days if quinolone used 14 days if delayed response to therapy or bacteremia
SEPSIS WITH UTI, PYELONEPHRITIS, PERINEPHRIC ABSCESS	Ceftriaxone or Cefepime ((if critically ill, septic or recently hospitalized) or Piperacillin-tazobactam (if critically ill, septic or recently hospitalized and concern for enterococcus)	Severe PCN allergy Vancomycin PLUS Aztreonam	Sepsis: 10-14 days Sepsis with gram negative bacteremia: IV antibiotics or step down to oral quinolone if susceptible Sepsis without bacteremia: Change to oral therapy when stable Uncomplicated pyelonephritis (i.e., healthy young female): Ciprofloxacin x 7 days TMP/SMX x 14 days Beta-lactams x 10-14 days Perinephric abscess: prolonged duration - consult ID and urology

Follow culture results and de-escalate therapy based on final results and sensitivities.

FOR EACH ANTIBIOTIC: DOCUMENT INDICATION AND PLANNED DURATION FOR ALL PATIENTS

Collection & Transport to Reduce Contamination

- If a catheter placed > 2 weeks, change the catheter before collecting a specimen[1]
- Clamp tubing 12 inch below sample port allowing urine to fill the tube. Scrub the hub with antiseptic aspiration from the sampling port. Follow by unclamping of the tube.[2]
- If specimen can't be transported and plated on culture medium within 2 hrs. of collection, then specimen should be refrigerated. [3]
- To overcome logistic barriers: most use urine collection tubes with preservatives.[3]

1. www.apic.org/implementationguides April 2014,
2. Lo E, et al. Infect Contr & Hosp Epidemiol. 2014;35(5):464-479,
3. Garcia, R & Spitzer ED. American J of Infect. Control. 2017;45(10):1143-1153

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Contaminated urine cultures lead to additional diagnostic evaluation and inappropriate antibiotic administration > 40%

Klausing BT, et al. American Journal of Infection Control.2016;44:1166-1167

1. www.apic.org/implementationguides April 2014,
2. Lo E, et al. Infect Contr & Hosp Epidemiol. 2014;35(5):464-479,
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On Transfer

- What devices can be removed before the patient is transferred to a different level of care?

Core Recommendations

- Insert catheters only for appropriate indications (1B)
- Leave catheters in only as long as needed (1B)
- Ensure that only properly trained persons insert and maintain catheters (1B)
- Insert catheters using aseptic technique and sterile equipment (1C)
- Consider use of alternatives (II)
- Maintain a close drainage system (1B)
- Secure the system (1B)
- Maintain unobstructed urine flow (1B)
- Key the collecting bag below the level of the bladder at all times (1B)
- Unresolved:
  - Antiseptic or sterile saline for meatal cleaning before insertion

Lo E, et al. Infect Contr & Hosp Epidemiol. 2014;35(5):464-479

Simplified Insertion Checklist for Urinary Catheter

Components of Checklist	Compliant	
	Yes	Yes, after correction
Hand hygiene before and after procedure		
Sterile gloves, drapes, sponges, aseptic sterile solution for cleaning, and single use packet lubricant used		
Aseptic insertion technique (no contamination during placement)		
Proper securement of urinary catheter post-procedure		
Closed drainage system and bag below patient post-procedure		

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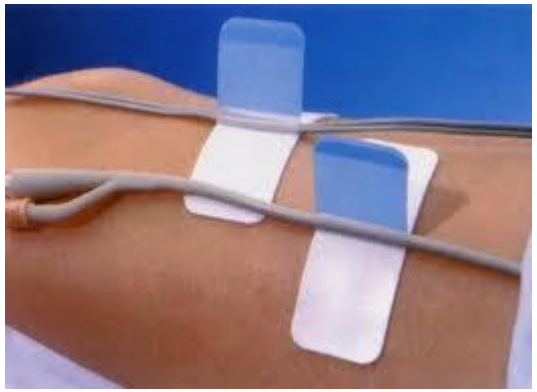
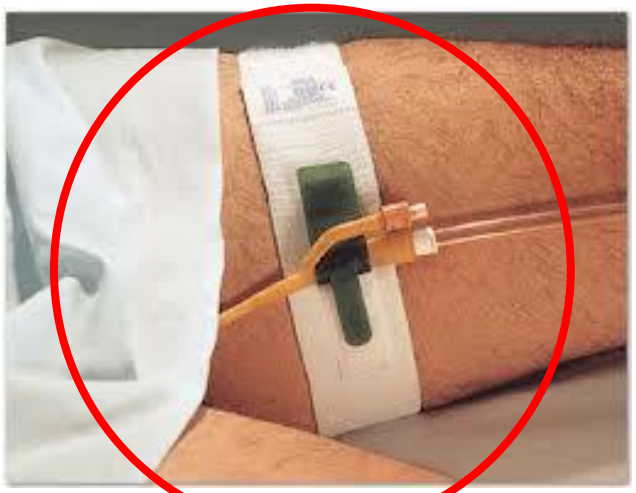
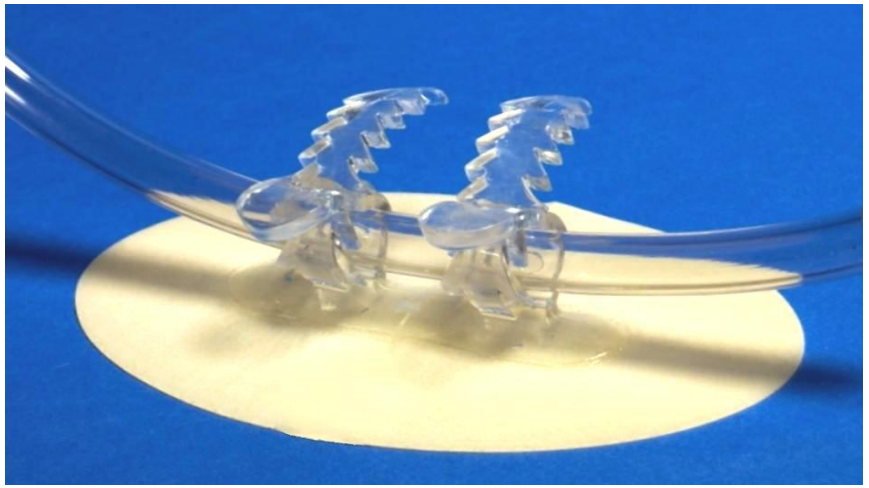
Securement Devices







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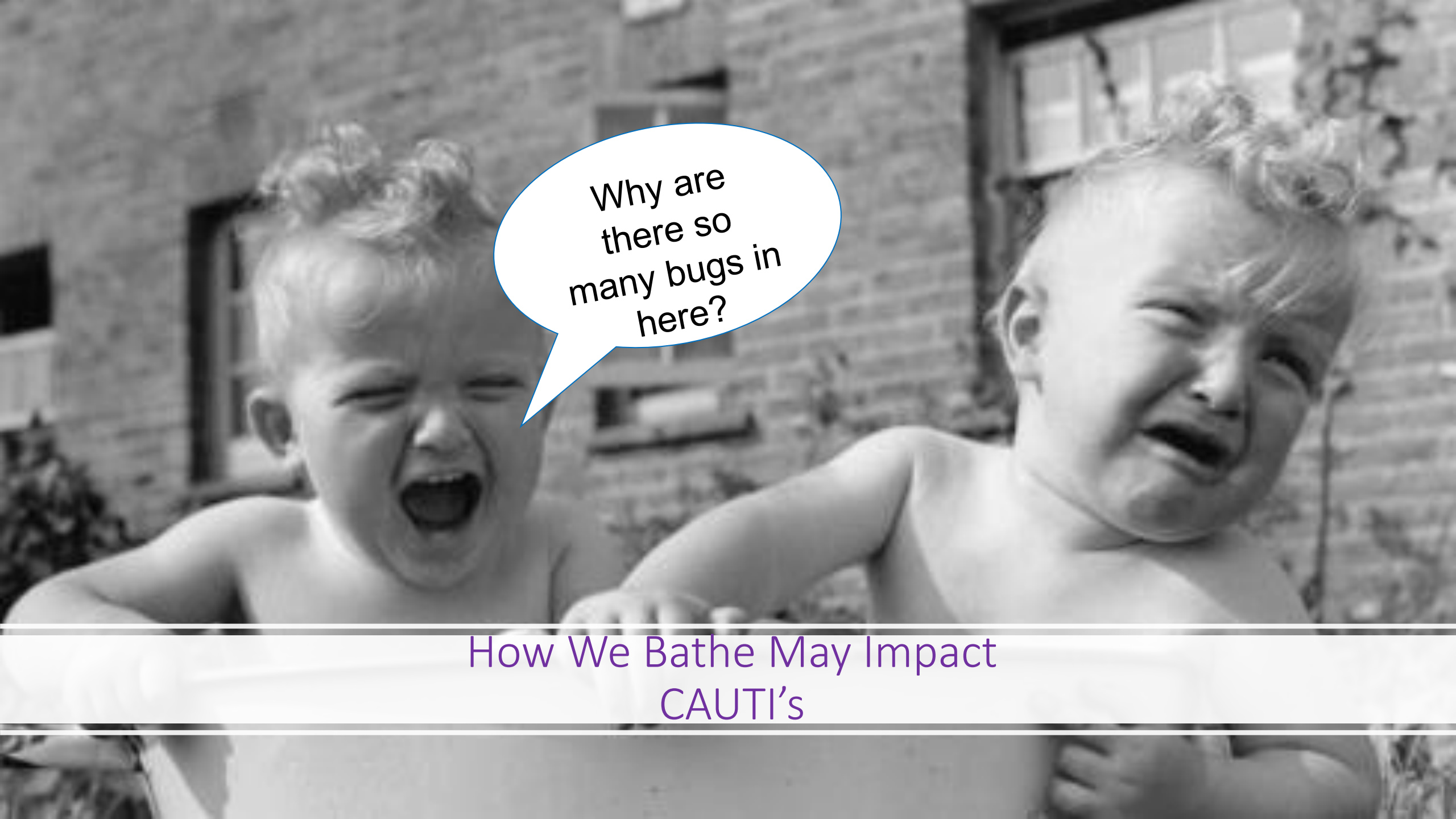


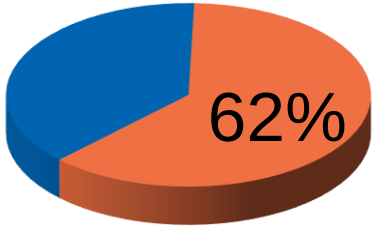
How We Bathe May Impact CAUTI's

Bath Basins
Potential Source of Infection

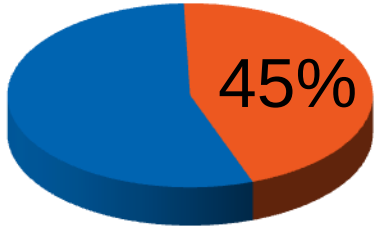
Large multi-center study evaluates presence of multi-drug resistant organisms

Total hospitals: 88

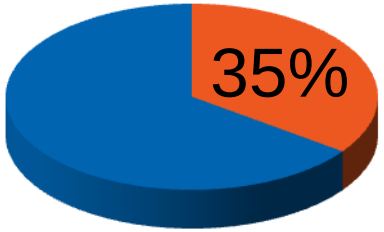
Total basins: 1,103



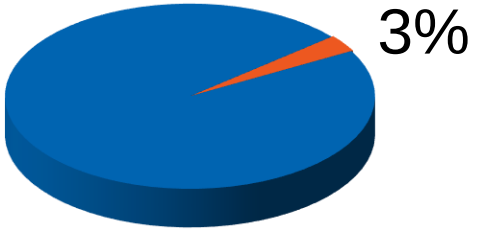
Contaminated
686 basins/88 Hospital



Gram negative bacilli
495 basins/86 hospitals



Colonized w/ VRE
385 basins/80 hospitals



MRSA
36 basins/28 hospitals

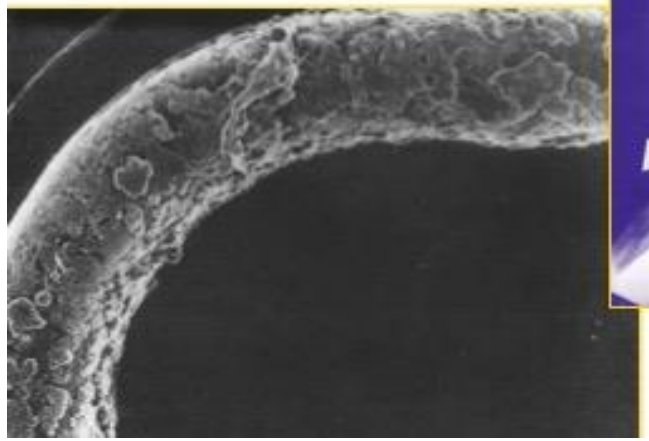
Marchaim D, et al. *Am J of Infect Control*. 2012;40(6):562-564

Mechanisms of Contamination

- Skin flora[1]
- Multiple-use basins[2,3,4]
  - Incontinence cleansing
  - Emesis
  - Product storage
- Bacterial biofilm from tap water[1-4]

1. Larson EL, et al. *J Clin Microbiol*. 1986;23(3):604-608
2. Johnson D, et al. *Am J Crit Care*, 2009;18(1):31-38, 41
3. Marchaim D, et al. *Am J Infect Control*. 2012;40(6):562-564.
4. Shannon RJ, et al. J Health Care Safety Compliance Infect Control. 1999;3:180-1

Biofilms are Ubiquitous



Water Source

Hospital Tap Water

- Bacterial biofilm
- Most overlooked source for pathogens[2]
- 29 studies demonstrate an association with HAIs and outbreaks[2]
- Transmission:[1-3]
  - Drinking
  - Bathing
  - Rinsing items
  - Contaminated environmental surfaces
- Immunocompromised patients at greatest risk[1]

1. Anaissie EJ, et al. *Arch Intern Med*. 2002;162(13):1483-1492.,
2. Cervia JS, et al. Arch Intern Med, 2007;167:92-93,
3. Trautmann M, et al. Am J of Infect Control, 2005;33(5):S41-S49,

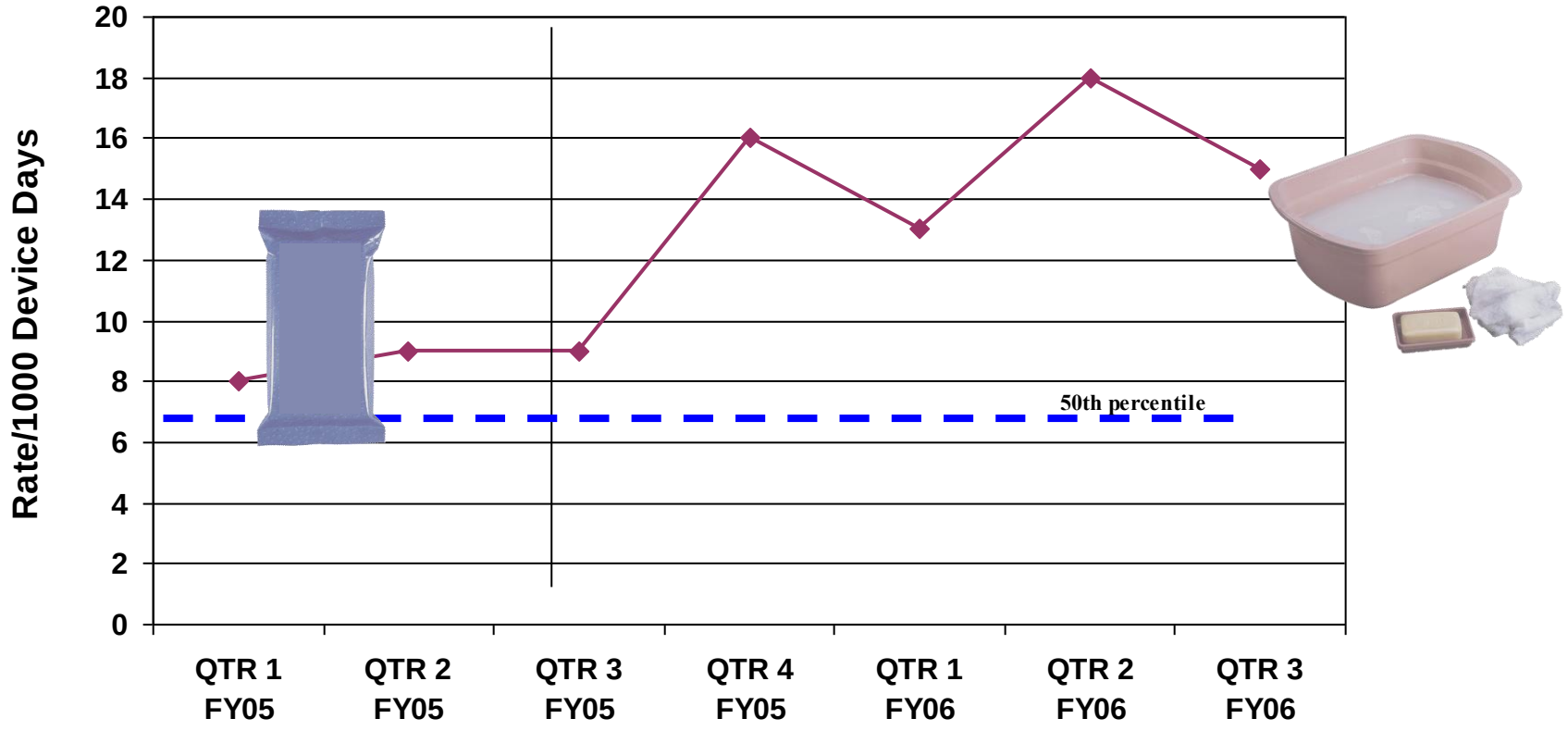
Understanding Water

- All water except for sterile water and filtered water is contaminated with microbes (e.g., potable water, tap water, showers, and ice)[1]
- In healthy persons, contact or ingestion of such water rarely leads to infection[1]
- However, contact or ingestion of such water may cause infection in immunocompromised persons or when applied to non-intact skin[1]
- Transmission of these pathogens from a water reservoir may occur by direct and indirect contact, ingestion and aspiration of contaminated water, or inhalation of aerosols[2]

1. Presented at MSIPC October 6th, 2016, Lansing MI by Dorine Berriel-Cass
2. *Decker BK, et al. Opin Infect Dis 2013; 26:345–51.

Impact on UTI with Basin Bathing

UTI Rate- Removal of Prepackaged Bath Product QTR 3 FY05



McGuckin M, et al. AJIC, 2008;36:59-62

The Effect of Bathing with Basin and Water and UTI Rate, LOS and Costs

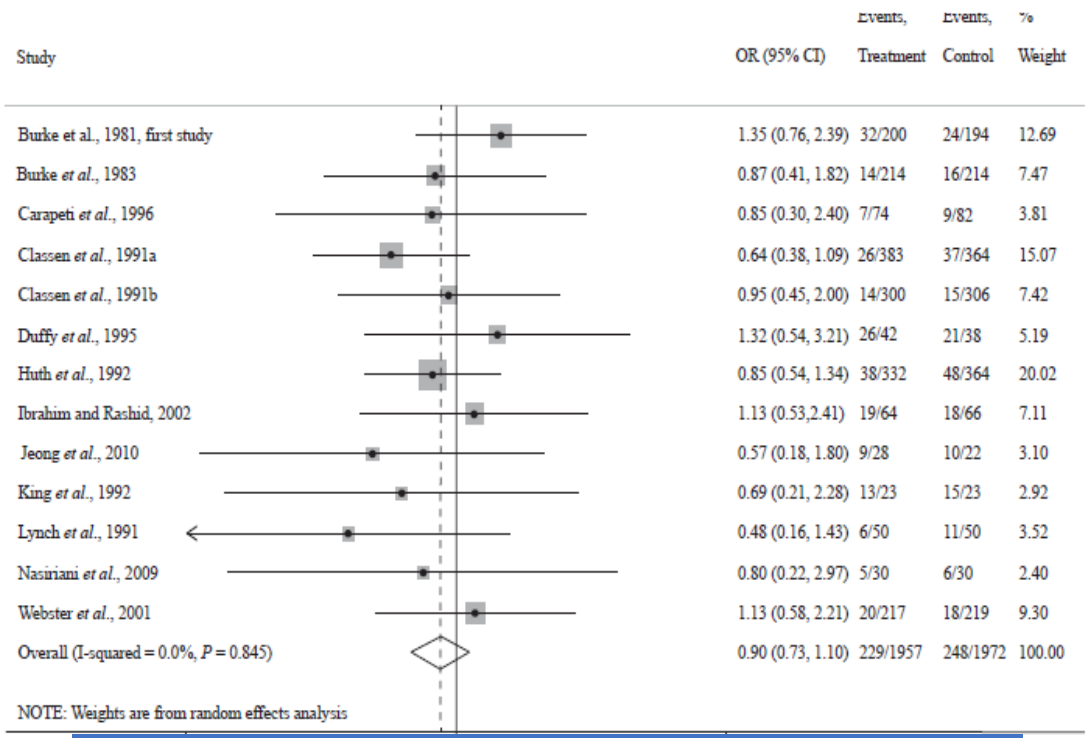
Unit Census: 14				
Phases	**Product Cost**	**No. of UTI**	**Median[4] LOS 17 Days**	**Median[4] Cost (4857.00)**
I- Pre-Packaged Bathing Washcloths (9 months)	$10,530[1] ($3.00)	25	175	$117,175
II- Basin/Water (9 months)	$3,510[2] ($1.00)	48	336	$224,916
III- Additional Product Cost, UTI, LOS, COSTS	$7,020	23[3]	151	$107,741

[1]Based on 3 packages of 8 towels each [2]Based on product cost of towels, soap, and basin[3] Difference between phase I pre-package/phase II basin water[4]

McGuckin M, et al. AJIC, 2008;36:59-62

Cleansing of Patients with Indwelling Catheter

- Antiseptic cleaning of the meatal area before and during catheter use may reduce the risk of CAUTIs.
- Indwelling catheter care should occur with the daily bath (basinless bathing), as a separate procedure using clean technique
- There is no evidence to support 2x a day indwelling catheter care
- If a large liquid stool occurs, bathe the patient with basinless bathing
- Apply barrier cloth to area of skin requiring protection



Comparison of antibacterial agent for routine care vs soap and water trended towards significance

Fasugba O, et al. J of Hosp Infection, 2017;95:233-242

For Successful Banning of Basins for Patient Care

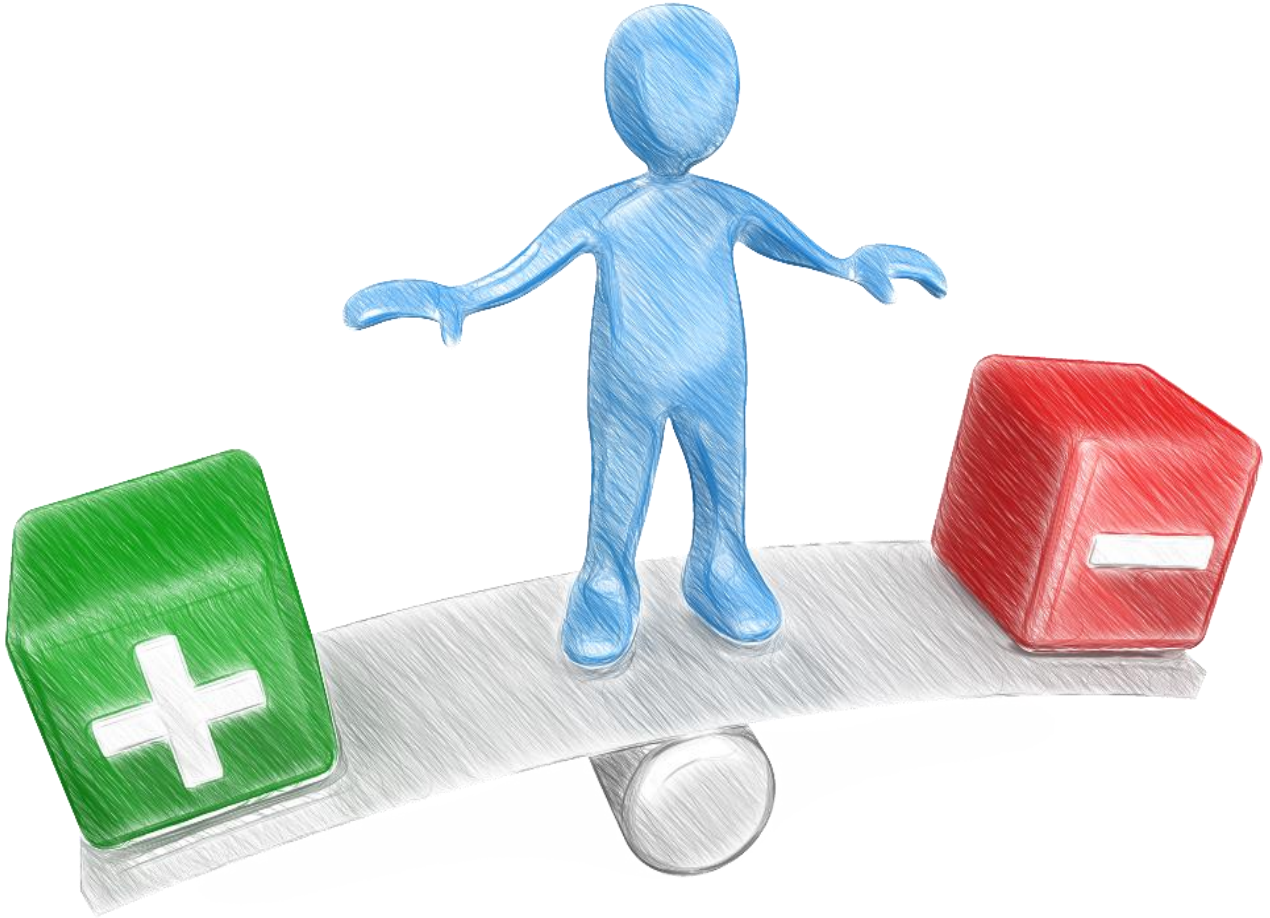
- We need to provide alternatives for the other functions:

Current	New
Emesis	Emebags being installed in every adult and ped pt. room, ACU, PACU
Storage of patient items	Clear plastic “baggies” Trial of “Concierge List” to decrease waste of unused/unneeded products
Foot soaks	Shampoo caps, prepackaged
Shampoo patient’s hair	Shampoo caps par’d on all units
24 hour urine, ice	Store some basins in lab to be dispensed with each 24 hour jug.
Bath cloths with no insulation, cold halfway through bath.	Bath cloths with insulation to stay warm longer

Quinn B, et al. Presented at NACNS National Conference, March5-7th, 2015, San Diego Ca

Things to Consider

Cost-Benefit Ratio



CAUTI vs. IAD & Pressure Ulcer

Moisture Injury:
Incontinence Associated Dermatitis

- Inflammatory response to the injury of the water-protein-lipid matrix of the skin[1,2]
  - Caused from prolonged exposure to urinary and fecal incontinence
- Top down injury[2]
- Physical signs on the perineum & buttocks
  - Erythema, swelling, oozing, vesiculation, crusting and scaling[1,2]

1. Brown DS & Sears M, OWM 1993;39:2-26
2. Gray M et al OWN 2007;34(1):45-53.

IAD: Multisite Epidemiological Study

- 5,342 patients in 189 acute care facilities in 36 states
- Prevalence study
  - To measure the prevalence of IAD, describe clinical characteristics of IAD, and analyze the relationship between IAD and prevalence of sacral/coccygeal pressure ulcers
- Results: 2492 patients incontinent (46.6%)
  - 57% both FI and UI, 27% FI, 15% UI
  - 21.3% IAD rate overall/14% also had fungal rash
  - 45.7% in incontinent patients
    - 52.3% mild
    - 27.9% moderate
    - 9.2% severe
  - 73% was facility-acquired
  - ICU a 36% rate
  - IAD alone and in combination with immobility statistically associated with FAPI

Gray M. Giuliana K. JWOCN. 2018;45(1):63-67

WOC

- Incontinence associated dermatitis (IAD)
- Bathing strategies to maximize the barrier function of the skin[3]
- Do no harm: process variation reduction

Infection Preventionist

- Nurse catheter removal program[4]
- Basin less bathing to address the risk factors with basins and tap water[1,2]
- Do no harm: process variation reduction

1. Marchaim D, et al. *Am J Infect Control*. 2012;40(6):562-564,
2. Trautmann M, et al. Am J of Infect Control, 2005;33(5):S41-S49,
3. McGuckin M, et al. AJIC, 2008;36:59-62,
4. Parry MF, et al. AM J Of Infect Control. 2013;41:1178-81

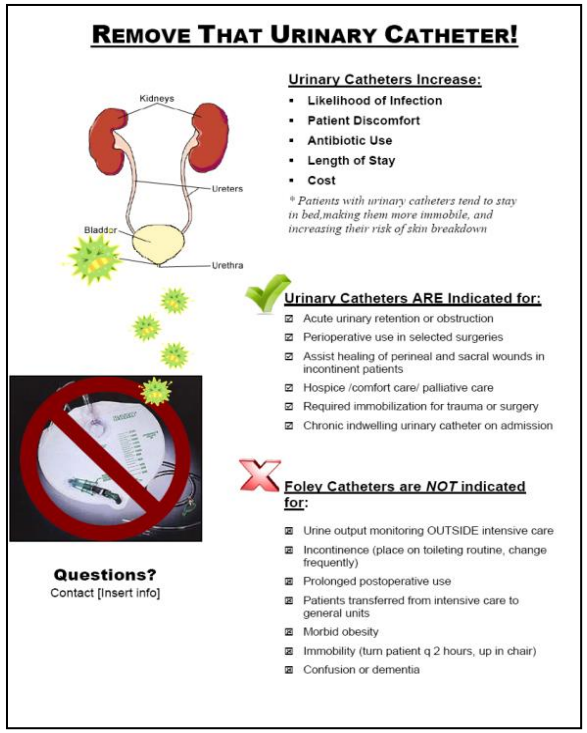
Engage the Patient & Family

- Educate patients and families about the steps that are being taken to minimize the risk of CAUTI.
- Education: purpose, current indications for use, expected duration of the catheter, why it is important to remove as soon as possible & catheter alternatives
- Catheter removal goal on whiteboard & include in rounds

Health Research & Educational Trust (2017). : 2017. Chicago, IL: Health Research & Educational Trust. Accessed at www.hret-hiin.org

Tools Used with Intervention

- Lecture for nurses
- Pocket cards, posters



REMOVE THAT URINARY CATHETER!

Urinary Catheters Increase:

- **Likelihood of Infection**
- **Patient Discomfort**
- **Antibiotic Use**
- **Length of Stay**
- **Cost**

* *Patients with urinary catheters tend to stay in bed,making them more immobile, and increasing their risk of skin breakdown*

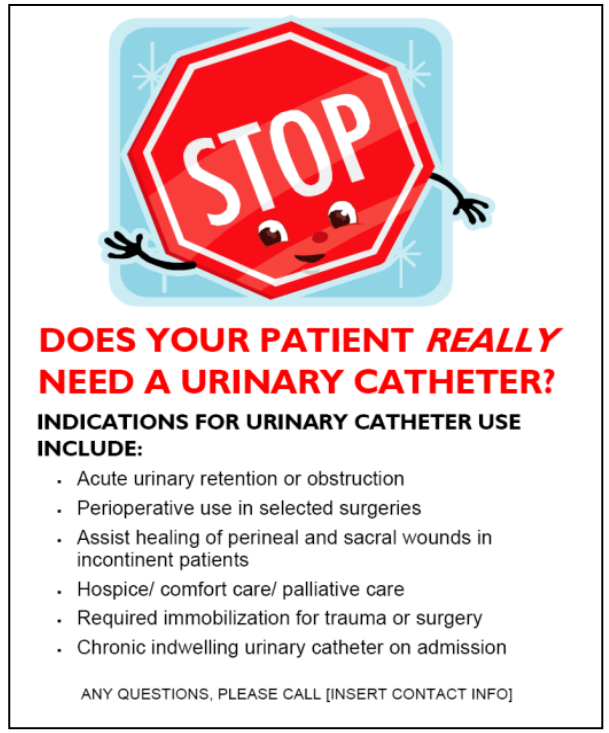
Urinary Catheters ARE Indicated for:

- ☑ Acute urinary retention or obstruction
- ☑ Perioperative use in selected surgeries
- ☑ Assist healing of perineal and sacral wounds in incontinent patients
- ☑ Hospice /comfort care/ palliative care
- ☑ Required immobilization for trauma or surgery
- ☑ Chronic indwelling urinary catheter on admission

Foley Catheters are *NOT* indicated for:

- ☒ Urine output monitoring OUTSIDE intensive care
- ☒ Incontinence (place on toileting routine, change frequently)
- ☒ Prolonged postoperative use
- ☒ Patients transferred from intensive care to general units
- ☒ Morbid obesity
- ☒ Immobility (turn patient q 2 hours, up in chair)
- ☒ Confusion or dementia

Questions?
Contact [Insert info]

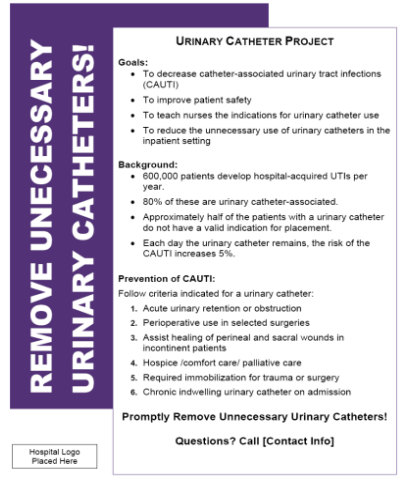


DOES YOUR PATIENT *REALLY* NEED A URINARY CATHETER?

INDICATIONS FOR URINARY CATHETER USE INCLUDE:

- Acute urinary retention or obstruction
- Perioperative use in selected surgeries
- Assist healing of perineal and sacral wounds in incontinent patients
- Hospice/ comfort care/ palliative care
- Required immobilization for trauma or surgery
- Chronic indwelling urinary catheter on admission

ANY QUESTIONS, PLEASE CALL [INSERT CONTACT INFO]



REMOVE UNECESSARY URINARY CATHETERS!

URINARY CATHETER PROJECT

Goals:

- To decrease catheter-associated urinary tract infections (CAUTI)
- To improve patient safety
- To teach nurses the indications for urinary catheter use
- To reduce the unnecessary use of urinary catheters in the inpatient setting

Background:

- 600,000 patients develop hospital-acquired UTIs per year.
- 80% of these are urinary catheter-associated.
- Approximately half of the patients with a urinary catheter do not have a valid indication for placement.
- Each day the urinary catheter remains, the risk of the CAUTI increases 5%.

Prevention of CAUTI:

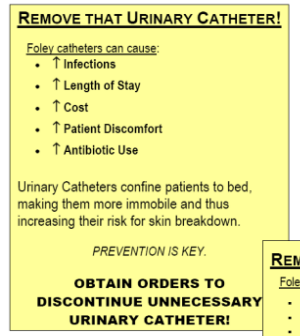
Follow criteria indicated for a urinary catheter:

1. Acute urinary retention or obstruction
2. Perioperative use in selected surgeries
3. Assist healing of perineal and sacral wounds in incontinent patients
4. Hospice /comfort care/ palliative care
5. Required immobilization for trauma or surgery
6. Chronic indwelling urinary catheter on admission

Promptly Remove Unnecessary Urinary Catheters!

Questions? Call [Contact Info]

Hospital Logo Placed Here



REMOVE THAT URINARY CATHETER!

Foley catheters can cause:

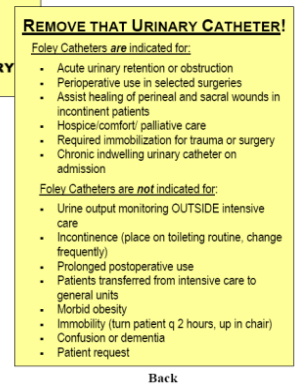
- ↑ **Infections**
- ↑ **Length of Stay**
- ↑ **Cost**
- ↑ **Patient Discomfort**
- ↑ **Antibiotic Use**

Urinary Catheters confine patients to bed, making them more immobile and thus increasing their risk for skin breakdown.

PREVENTION IS KEY.

OBTAIN ORDERS TO DISCONTINUE UNNECESSARY URINARY CATHETER!

Front



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- Immobility (turn patient q 2 hours, up in chair)
- Confusion or dementia
- Patient request

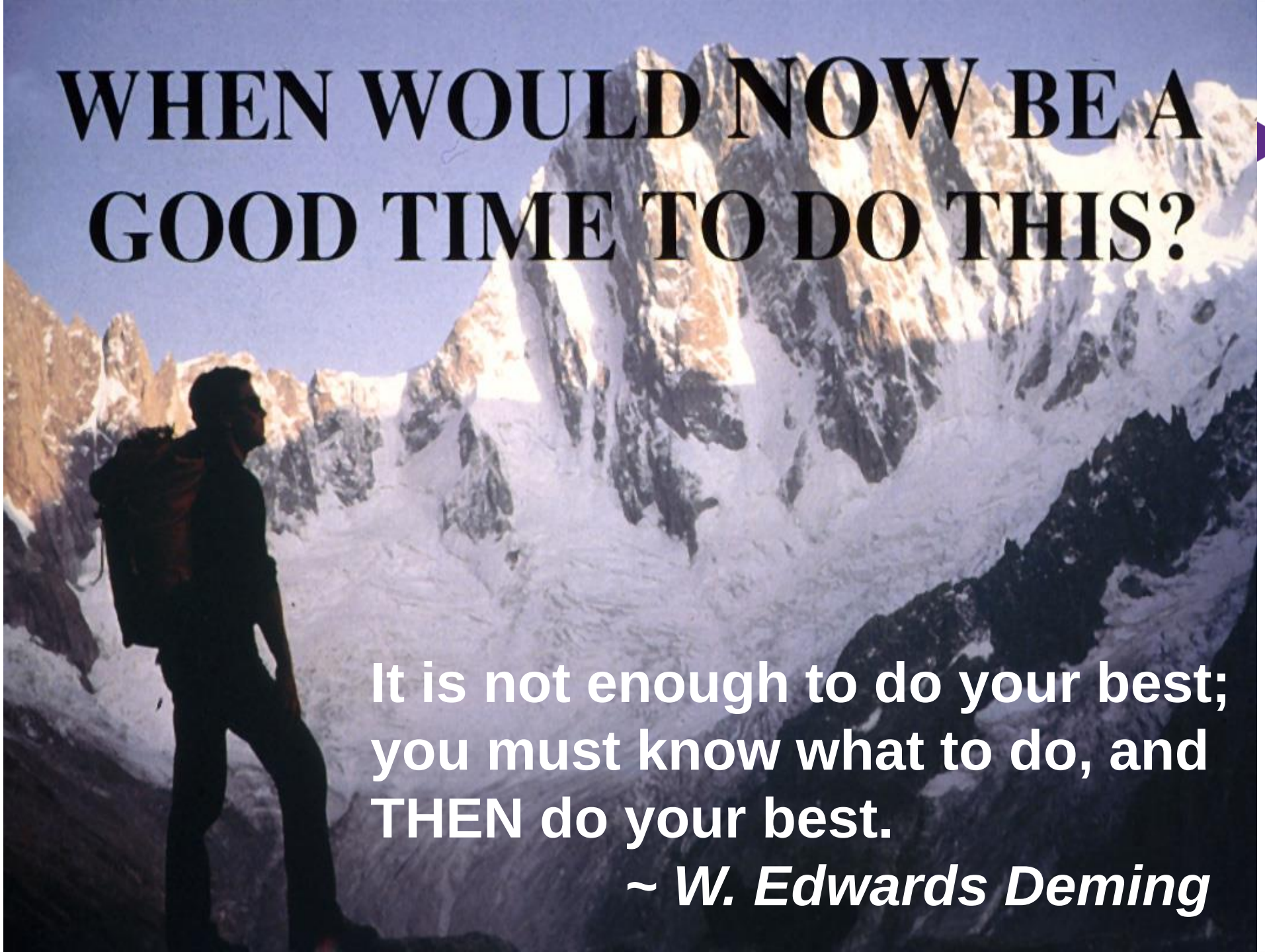
Back

Catheter-Associated Urinary Tract Infections (CAUTI)

Top Ten Checklist

- Insert indwelling urinary catheters only for clinically appropriate reasons. Involve clinicians in all units where catheters are commonly inserted, including ED, ICU and surgical procedure units.
- Promote use of alternatives to indwelling catheters such as external catheters, bladder scanners, intermittent catheterization, optimal incontinence products, prompted toileting and use of urinals, bedside commodes and daily weights as alternative methods to collect and measure.
- Ensure proper aseptic insertion and maintenance technique involving hand hygiene, soap and water perineal care, strict adherence to aseptic catheter insertion steps, catheter securing, no kinks, bag lower than bladder and avoid breaks in closed system. Do not routinely change catheters. Educate all staff and family that care for or transport catheterized patients.
- Optimize prompt removal of urinary catheters that are not clinically indicated. Conduct daily review of catheter necessity, with consideration of nurse empowerment to remove by default if no longer clinically indicated.
- Culture only when symptomatic. Do not culture because of odor, color, cloudiness or simply prolonged catheter use.
- Perform root cause analysis on all CAUTIs to identify root causes and contributing factors. Evaluate and discuss with interprofessional team to identify systems issues and practice gaps related to unnecessary or improper catheter use.
- Provide transparent feedback to providers and staff regarding hospital-wide and unit-specific infection and catheter utilization data.
- Observe, document competency and provide real-time feedback of catheter insertion and maintenance on a routine basis.
- Conduct regular catheter rounds with targeted education to reduce inappropriate use and clarify interpretations of appropriateness criteria.
- Encourage and expect staff, patients and families to speak up and consider hand hygiene as an "always event," as well as to inquire about the daily necessity of indwelling urinary catheters.

http://www.hret-hiin.org/topics/catheter-associated-urinary-tract-infection.shtml


WHEN WOULD NOW BE A GOOD TIME TO DO THIS?
It is not enough to do your best; you must know what to do, and THEN do your best.
~ W. Edwards Deming

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