

Preventing CAUTI: Taking Your Organization to the Next Level

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IHA Safety Session*

Nothing to disclose



Patient Safety Movement

- Has highlighted the importance of *systems solutions* to preventing adverse events
- Rather than rely solely on education, utilize components of the system to enhance safety

Outline

- CAUTI: Background
- Technical Issues for Prevention
- The 3 Ingredients of Success
- Conclusions



Healthcare-Associated Infections: Common, Costly, & Harmful

~1 million

Americans develop a healthcare-associated infection each year

- ~50% of infections could be prevented
- Preventive practices used inconsistently

Catheter-Associated Urinary Tract Infection (CAUTI)

- One of the most common infections
- 1/4 of inpatients receive catheters
- 1/3 of catheter days unnecessary
- 1/3 of physicians unaware their patient has a catheter
- 1/3 of the time no order for a catheter



***And what do patients think about
having a tube in their bladder?***

Satisfaction survey of 100 catheterized VA patients:

- 42% found the indwelling catheter to be uncomfortable
- 48% stated that it was painful
- 61% noted that it restricted their ADLs
- 2 patients provided unsolicited comments that their catheter “hurt like hell”

(Saint et al. JAGS 1999)

Indwelling Urinary Catheters: A One-Point Restraint?

Sanjay Saint, MD, MPH

Benjamin A. Lipsky, MD

Susan Dorr Goold, MD, MHSA, MA

16 July 2002

Annals of Internal Medicine

ESTABLISHED IN 1927 BY THE AMERICAN COLLEGE OF PHYSICIANS

SEPTEMBER 17, 2013

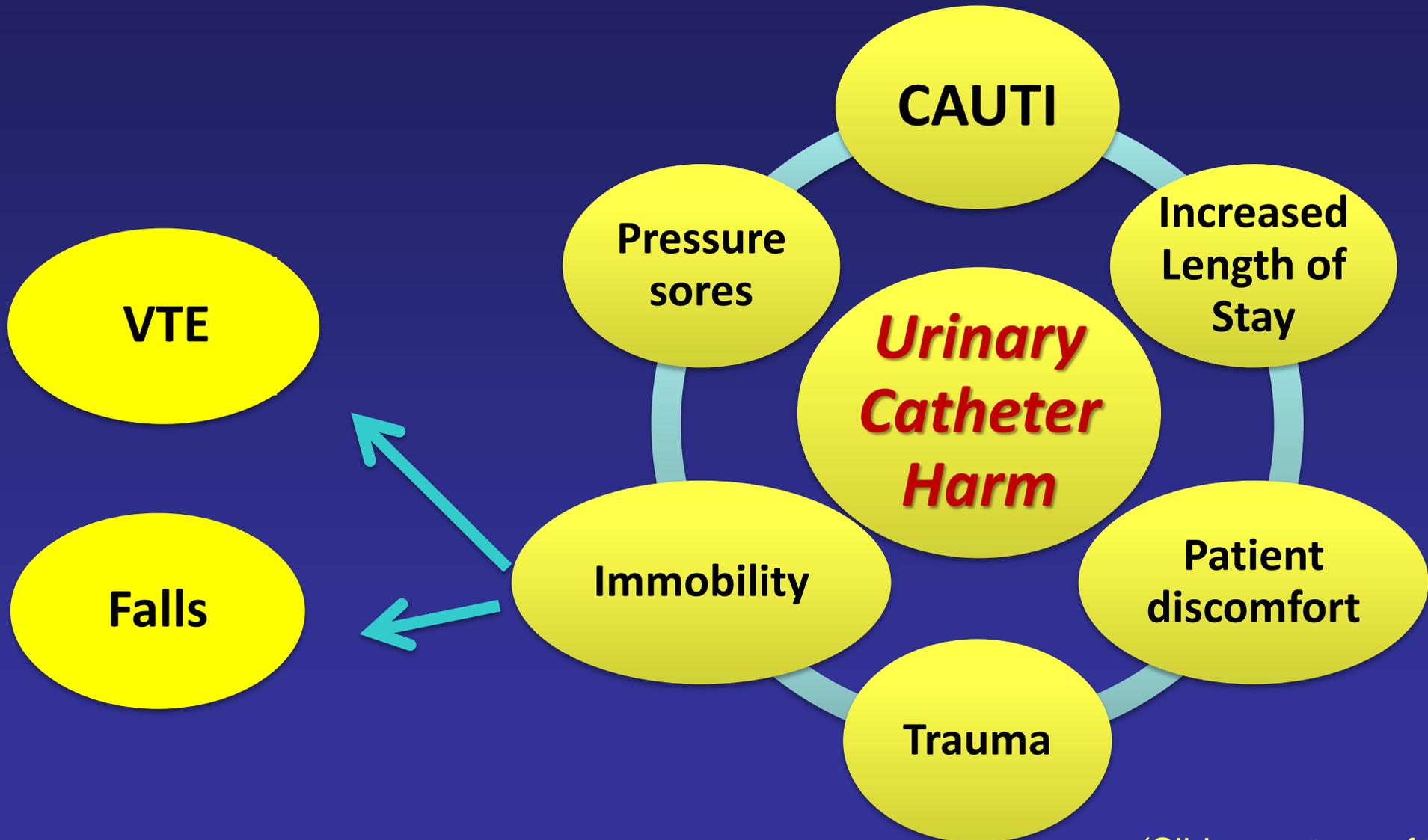
Determining the Noninfectious Complications of Indwelling Urethral Catheters

A Systematic Review and Meta-analysis

John M. Hollingsworth, MD, MS; Mary A.M. Rogers, PhD; Sarah L. Krein, PhD, RN; Andrew Hickner, MSI; Latoya Kuhn, MPH; Alex Cheng, MD; Robert Chang, MD; and Sanjay Saint, MD, MPH

“Many noninfectious catheter-associated complications are at least as common as clinically significant urinary tract infections.”

CAUTI Prevention & Patient Safety



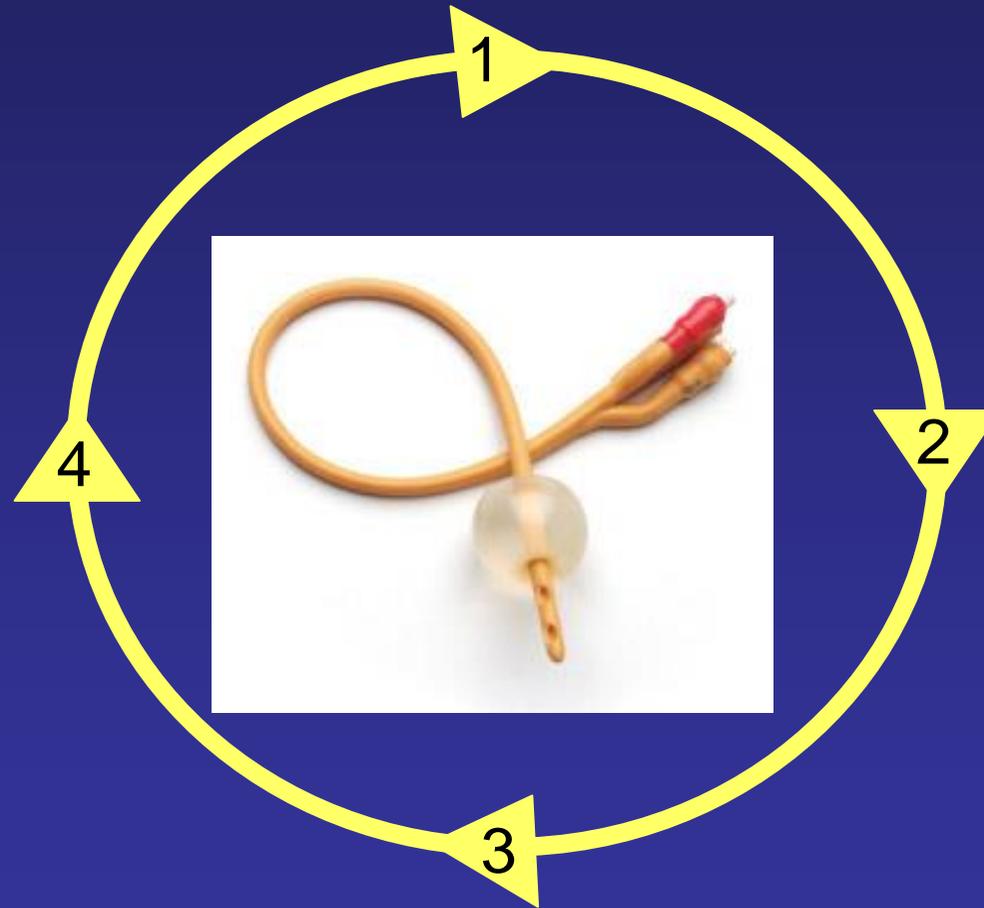
(Slide courtesy of M. Fakh)

***How can we reduce catheter
use and decrease CAUTI?***

Disrupting the Lifecycle of the Urinary Catheter

1. Preventing Unnecessary and Improper Placement

4. Preventing Catheter Replacement



2. Maintaining Awareness & Proper Care of Catheters

3. Prompting Catheter Removal

Implementing Change Across the State of Michigan in 71 Hospitals



CAUTI ↓ by 25% in Michigan hospitals (95% CI: 13 to 37% ↓)

CAUTI ↓ by 6% in non-Michigan hospitals (95% CI: 4 to 8% ↓)

(Saint et al. JAMA Intern Med 2013)

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A Program to Prevent Catheter-Associated Urinary Tract
Infection in Acute Care

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David Ratz, M.S., Karen E. Fowler, M.P.H., Barbara S. Edson, R.N., M.B.A., M.H.A.,
Sam R. Watson, M.S.A., C.P.P.S., Barbara Meyer-Lucas, M.D., M.H.S.A., Marie Masuga, R.N., M.S.N.,
Kelly Faulkner, M.S.P.A., Carolyn V. Gould, M.D., M.S.C.R., James Battles, Ph.D.,
and Mohamad G. Fakhri, M.D., M.P.H.

Preventing CAUTI in Acute Care

(Saint et al. N Engl J Med 2016)

- Federally-funded national program
- Total of 603 hospitals (926 units) in 32 states, DC, & Puerto Rico
- ~60% non-ICU; ~40% ICU
- Non-ICUs: CAUTI reduced by 32% (& decrease in catheter use)
- ICUs: no change in CAUTI or catheter use

The key intervention was having the bedside nurse assess daily for catheter necessity.

What about the ICU?

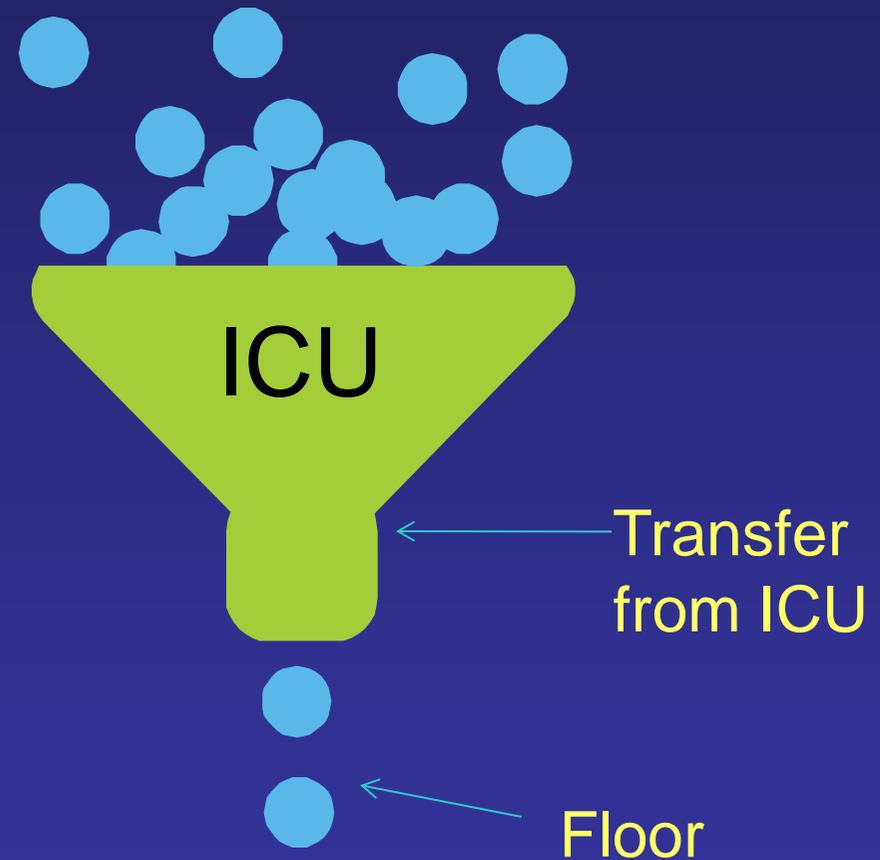
Just because a patient is in the ICU
does NOT mean that the patient
needs a Foley...

The Key Question is this:

Are hourly assessments of
urine output required?

Trigger Point: ICU To Floor

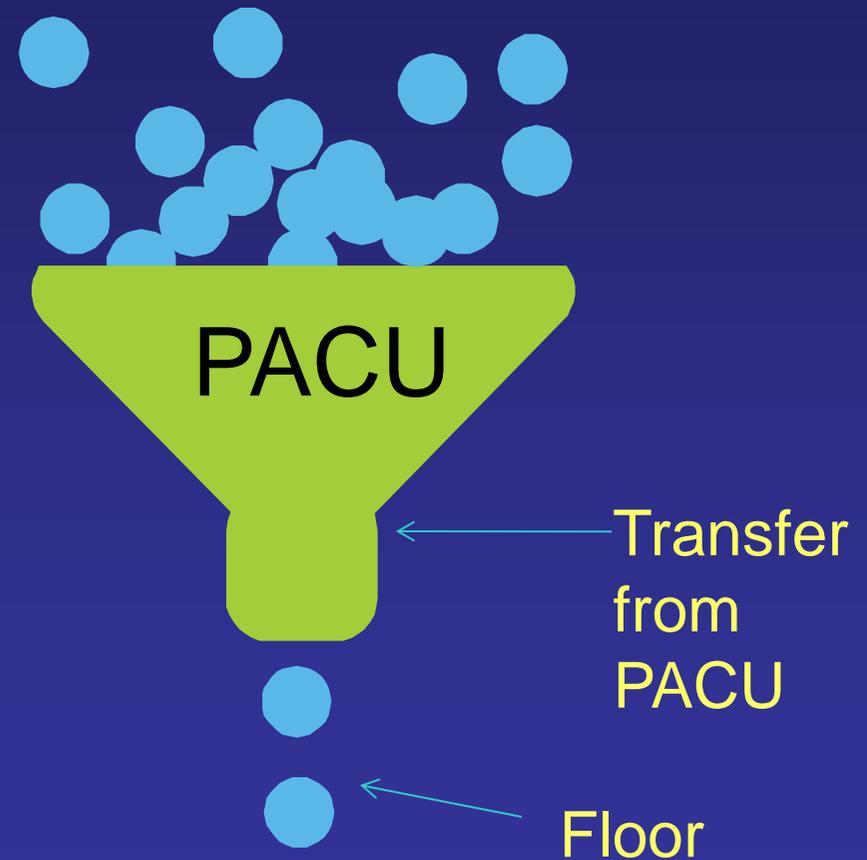
- ICUs have very high urinary catheter use
- Utilization may be reduced hospital-wide if patients transferred out of the ICU are evaluated for catheter necessity at time of transfer



(Slide courtesy of M. Fakhri)

What about the OR?

- ORs have high catheter use
- Aseptic insertion important
- Use may be reduced if those leaving PACU are evaluated for catheter necessity
- Some hospitals even avoiding catheters altogether!



Preventing Infection



Technical



*Socio-
adaptive*

Outline

- CAUTI: Background
- Technical Issues for Prevention
- **The 3 Ingredients of Success**
- Conclusions



*The first ingredient is to
apply principles from
cognitive psychology to
prevent infection.*

Taking Advantage of Anchoring Bias

- Make sure your first initiative is a success
- Pick the low-hanging fruit first
- Once successful, tackle harder problems
- Remember...



Framing Effects

- A different conclusion drawn from same information, depending on how the information is presented
- Some believe humans are “cognitive misers” and prefer to do as little thinking as possible
- “Frames” provide a quick way to process information

The 2nd ingredient for success is understanding the powerful role both leaders and followers have in implementing & sustaining change.

Leadership: Definitions

- Leadership is “a process whereby an individual influences a group of individuals to achieve a common goal”

(Northouse in “Leadership: Theory and Practice” 2010)

- “Assigned” leadership = leadership that is based on occupying a position in an organization
- “Emergent” leadership = leadership that emerges from an influential member of a group regardless of the person’s title or position

Transactional Leadership

- A transaction (or exchange) of something the leader has that the follower wants
- Specifies roles and tasks
- Reward & punishment used as motivation
- “One-size-fits-all”

Operationalizing Transactional Leadership: “Tight-Loose-Tight”

3 Dimensions:

- 1) Identify goals and expectations
- 2) Figure out how to achieve those goals
- 3) Hold people accountable for the results

Transactional vs Transformational

Transactional:

- Transaction between leader and follower
- Specifies roles and tasks
- Reward & punishment used
- “One-size-fits-all”

Transformational:

- Inspires followers to see beyond their self-interest
- Adapts to the needs and motives of followers
- Behaves in a way that engenders great trust
- The leader often relies on charisma

Question: What is the Secret to
Good Leadership?

Good Followership

Followership

- Follower: “a person who accepts the leadership of another”
- An understudied area: Book search on Amazon revealed...
 - >95,000 titles on leadership
 - ~800 titles on followership (mostly spiritual or political)
 - 120:1 in favor of leadership
- Unfortunate asymmetry since leadership and followership are intertwined
- Most leaders are also followers!

(Kelley, Harvard Business Review, 1988)

Followership: 5 Key Types

(Kelley: The Power of Followership, 1992)

- Alienated: mavericks with a healthy skepticism of the organization; capable but highly cynical
- Conformists: the “yes people” of the organization; limited independent thinking; often seen in rigid bureaucracies
- Passive: require disproportionate supervision relative to their contribution; lack initiative and sense of responsibility
- Pragmatists: hug the middle of the road; will do a good job but won't stick their necks out
- Exemplary followers: independent, innovative, and willing to question leadership; critical to organizational success

*The final ingredient is to
engage the senses.*

Cues of being watched...

(Bateson et al. *Biology letters* 2.3 (2006): 412-414.)

- 48 participants had the option to pay for tea, coffee and milk via an honesty box
- A notice displayed above the box with an image that alternated weekly between a pair of eyes & flowers
- 10-week study
- Compared the total amount of money collected in the honesty box per week

Impact of environmental olfactory cues on hand hygiene behavior...

(Birnbach, et al. Journal of Hospital Infection. 2013)

- 165 students/interns examined a standardized patient
- Randomly assigned to two groups:
 - 79 exposed to a fresh-smelling environment (citrus)
 - 86 exposed to a standardized smell
- Focus was on hand hygiene prior to touching the patient

Impact of environmental olfactory cues on hand hygiene behavior...

(Birnbach, et al. Journal of Hospital Infection. 2013)



Results:

– Fresh scent (citrus) hand hygiene compliance: 80%

– Standard scent hand hygiene compliance: 51%

– P-value: <0.001



BRIEF REPORT

“Priming” Hand Hygiene Compliance in Clinical Environments

Dominic King
Imperial College London

Ivo Vlaev
University of Warwick

Ruth Everett-Thomas and Maureen Fitzpatrick
University of Miami Miller School of Medicine

Ara Darzi
Imperial College London

David J. Birnbach
University of Miami Miller School of Medicine

“Priming” Hand Hygiene Compliance in...

(King et al. Health Psychology 2015)

- Randomized trial in a surgical ICU of hand hygiene before entering patient room; direct observation
- Evaluated whether priming via olfactory (citrus smell) or visual (eyes) cues affects compliance
- 120 controls, 160 in the olfactory intervention, 124 in the visual intervention

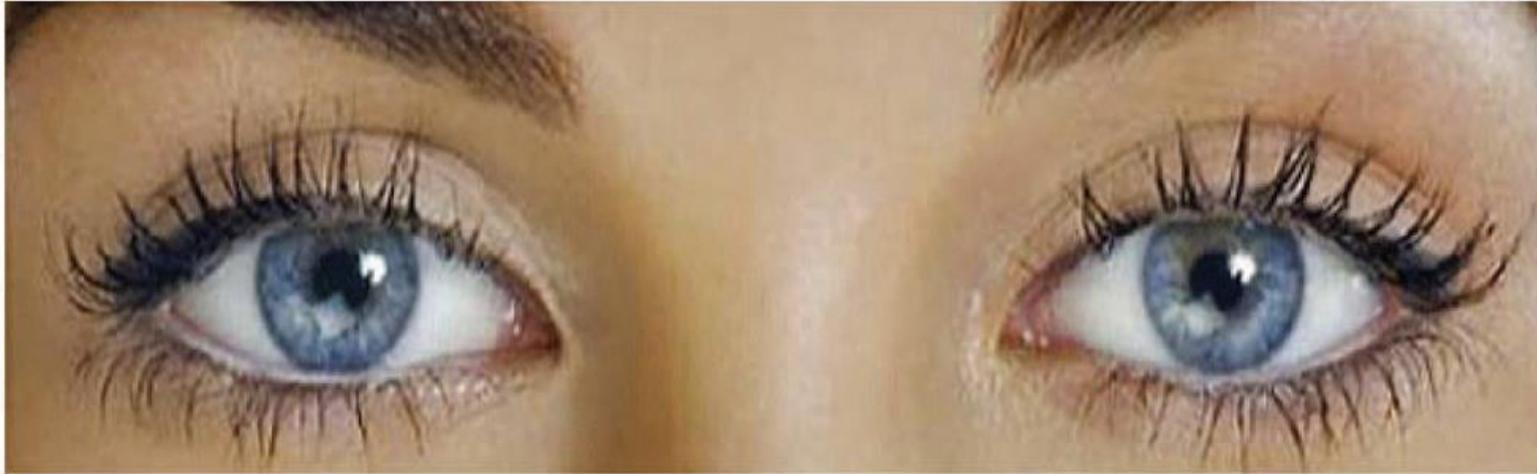
“Priming” Hand Hygiene Compliance in...

(King et al. Health Psychology 2015)

- A clean citrus smell: 15% to 47% ($p=0.001$)
- A picture of “male eyes” above hand gel dispensers: 15% to 33% ($p=0.038$)
- A picture of “female eyes”: 15% to 10% ($p=0.6$)

“Priming” Hand Hygiene Compliance in...

(King et al. Health Psychology 2016)



Applying these Principles
to CAUTI Prevention...

Step 1: Form a multidisciplinary
CAUTI prevention team

Key Roles and Responsibilities to Prevent CAUTI

Role or Responsibility	Example of Personnel to Consider
Project coordinator	IP, quality manager, nurse manager, nurse educator
Nurse champion (engage nursing personnel)	Bedside nurse, nurse educator, unit manager, charge nurse
Physician champion (engage medical personnel)	ID physician, hospitalist, hospital epidemiologist, urologist, ED doc
Data collection, monitoring, reporting	Infection preventionist, quality manager, utilization manager

(Modified from www.catheterout.org)

The 6 Steps to Success

- ✓ Form a multidisciplinary CAUTI prevention team
- 2) Develop/modify a CAUTI policy for your institution
- 3) Pick an appropriate unit to start or go hospital-wide
- 4) Track performance and then escalate as necessary
- 5) Once successful, spread to other places
- 6) Consider sustainability at the outset; hard-wiring is worth the effort

Tiered Approach for Preventing CAUTI

Tier 1: Standardize Supplies, Procedures & Processes

Place indwelling urinary catheter only for appropriate reasons

Encourage use of alternatives to indwelling urinary catheters

Ensure proper aseptic insertion and maintenance technique

Optimize prompt removal of unneeded catheters

Urine culture stewardship: culture only when symptomatic

If CAUTI rates remain elevated, move to Tier 2 (beware denominator)

Start with CAUTI Guide to Patient Safety (GPS) and then proceed sequentially with additional interventions

Tier 2: Enhanced Practices

CAUTI GPS to identify gaps

Conduct catheter rounds with targeted education to optimize appropriate use

Feedback infection and catheter use to staff in "real-time"

Observe & document competency of catheter insertion

Full/Mini root-cause analysis (RCA) of infections

Prior Use of Tiered Approach

American Journal of Infection Control 43 (2015) 254-9



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Major article

Introducing the No Preventable Harms campaign: Creating the safest health care system in the world, starting with catheter-associated urinary tract infection prevention



Sanjay Saint MD, MPH^{a,b,c,*}, Karen E. Fowler MPH^{a,b},
Kelley Sermak MSHSA, RN^d, Elissa Gaies MD, MPH^a, Molly Harrod PhD^{a,b},
Penny Holland MSN, RN^e, Suzanne F. Bradley MD^{a,c}, J. Brian Hancock MD^f,
Sarah L. Krein PhD, RN^{a,b,c}

In 7 VA hospitals CAUTI rate decreased by 66% in non-ICUs: 2.4 to 0.8 post-intervention

CAUTI Guide to Patient Safety (GPS) (www.catheterout.org)

- Brief, trouble-shooting validated guide available on-line
(Saint et al. AJIC 2014; Fletcher et al. AJIC 2016)
- 10 questions:
 - *Do you have a well-functioning team?*
 - *Do you have a project manager with dedicated time?*
 - *Do you have an effective nurse champion?*
- Help identify the key reasons why hospitals may not be successful in preventing an infection
- Once barriers identified, can help identify possible solutions

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- ✓ The 3 Ingredients for Success
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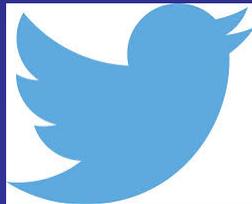
Conclusions

- Preventing hospital infection is important
- CAUTI is a prototypical patient safety problem: preventing infection is both simple and complex
- Cognitive psychology, engaging the senses, leadership, & using a tiered approach may help
- The final frontier is...

Engaging the Mind

Thank you!

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