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TROUBLE IN THE TUNNEL:

A New Perspective on Catheter-Associated Urinary Tract Infections

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Outline:

- ◆ Review the background of catheter-associated urinary tract infections (CAUTI)
- ◆ Share project and results from Trillium
- ◆ Review catheter best practice at any site.



Background:

- ◆ 25% of acute care & 4-5% of LTC patients are catheterized
- ◆ 30-50% urinary catheters not medically indicated
- ◆ Urinary tract infections (UTIs) - most common hospital acquired infection
 - 80% hospital acquired UTIs are catheter-associated urinary tract infections (CAUTI)
- ◆ Each day catheterized ↑ CAUTI risk by 3-10%
- ◆ 30-40% of MDs unaware patient has a catheter
- ◆ CAUTI is now considered a “never event” & Medicare “do-not-pay”

Background.....

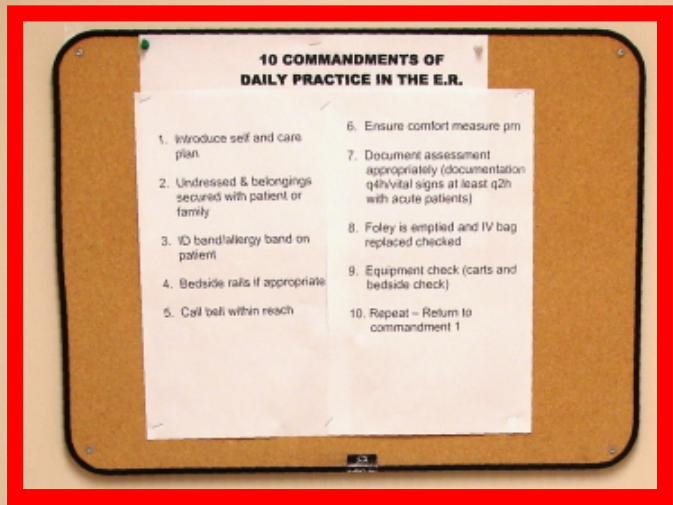
- ◆ Elderly patients that do not have dementia have a mortality odds ratio of ~5 when CAUTI occurs (5X)
- ◆ CAUTI increases LOS and costs
 - Avg \$500-\$1000 USD per CAUTI event
 - Avg \$2800 USD per CAUTI event with bacteremia



Platform for Change at Trillium

- ◆ Front line staff identified harm to patients
 - IUCs inserted frequently
 - Stayed in too long
 - Restricted patient mobility
 - Delayed discharge
 - Caused catheter associated urinary tract infections (CAUTI)

CULTURE CHANGE



Best tested strategy is to first **promote early catheter removal...** and then change the culture of inappropriate urinary catheter insertions

COMMANDMENTS OF NURSING PRACTICE IN THE E.R.

- family
3. ID band/allergy band on patient
 4. Bedside rails if appropriate
 5. Call bell within reach

6. Ensure comfort measure prn
7. Document assessment appropriately (documentation q4h/vital signs at least q2h with acute patients)
8. Foley's emptied and IV bag replaced checked
9. Equipment check (carts and bedside check)
10. Repeat – Return to commandment 1

Research From Others

- ◆ **Daily reminders** from nurses to physicians ↓ dwell time by 2 days in ICU
- ◆ Computer-based **order entry** to insert catheter **combined with computer reminder** to remove catheter ↓ dwell time by 3 days
- ◆ **Stop order** requiring removal of catheters not meeting justified indications to continue ↓ dwell time

Huang (2004); Cornia (2003); Loeb et al. (2008)

IUC Clinical Protocol



ADDRESSOGRAPH

Indwelling Urinary Catheter Clinical Protocol

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Patient Population

- Adult patients admitted to medical wards 4B, 4D, and 5C who have an indwelling urinary catheter

Exclusion criteria:

- Urinary retention not amenable to management using intermittent catheterization
- Known challenges to insertion of a urinary catheter and/or previously requiring catheterization by a Urologist
- Long term use of an indwelling catheter (more than 30 days)

Implementation Considerations

- Indwelling urinary catheters cause hospital acquired urinary tract infections associated with morbidity and even mortality
- Patient or substitute decision maker has received education about the use of an indwelling urinary catheter

Approved indications for use of indwelling urinary catheters

Close hourly monitoring of urinary output (e.g., critically ill patients)
Managing obstruction of the urinary tract distal to the bladder (e.g. prostate enlargement, significant uterine prolapse)
Protecting an open wound in the sacral/perineal area from urinary incontinence
Providing comfort care in the terminally ill
Providing continuous bladder irrigation (CBI)
Preparing for planned urologic/prostatic surgery
Pre-operative patients who are going directly to the operating room

The following are not approved indications: incontinence, immobility, patient/health care worker convenience

Clinical Protocol Orders

- Med/Tech order entry CATEGORY prompt enter (CATH-FOLEY)
- Upon arrival to medical ward and every morning thereafter assess the continued use of indwelling urinary catheter against the above approved indications
- If no approved indications are met then
 - Discontinue indwelling urinary catheter and inform Physician
 - If patient is unable to void 6 hours after indwelling urinary catheter is discontinued then initiate "Intermittent Bladder Catheterization Clinical Protocol"
- If one or more indications are met then document in the nursing progress notes which of the approved indications are met
- If patient develops signs or symptoms of a new urinary tract infection while catheter is in place (e.g., T greater than/equal to 38°C, suprapubic pain, flank pain, delirium) then send urine R+M and urine C+S and inform Physician

Termination of Clinical Protocol

- Discontinue clinical protocol once indwelling urinary catheter is removed and patient is voiding well
- Discontinue clinical protocol if the above approved indications continue to be met 7 days after initiation of this protocol
- Discontinue clinical protocol if Physician orders long term catheterization (longer than 30 days)

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- ◆ Ordered by MD on admission order set or as single order
- ◆ e.g. “indwelling urinary catheter by clinical protocol”

Exclusion criteria

- Retention not amenable to management using intermittent catheterization
- Known challenges to insertion of a urinary catheter and/or previously requiring catheterization by a Urologist
- Long term use of an indwelling catheter (more than 30 days)

Implementation Considerations

- ◆ Indwelling urinary catheters cause hospital acquired UTIs associated with morbidity and even mortality
- ◆ Patient or substitute decision maker has received education about need for indwelling urinary catheter

Approved indications for IUCs

Close/hourly monitoring of urinary output (e.g., critically ill patients)

Managing obstruction of the urinary tract distal to the bladder (e.g. prostate enlargement, significant uterine prolapse)

Protect open wound at sacral/perineal area from urinary incontinence

Providing comfort care in the terminally ill

Providing continuous bladder irrigation (CBI)

Preparing for planned urologic/prostatic surgery

Pre-operative patients going directly to the operating room

Protocol Orders

- ◆ Nursing to assess need for continued use of catheter **daily** against approved indications
- ◆ If no approved indications are met, catheter discontinued & nurse to inform Physician
- ◆ If \geq indications met, catheter remains and nurses document on ER. A 'drop-down' menu must be completed which provides rationale.

Protocol Orders

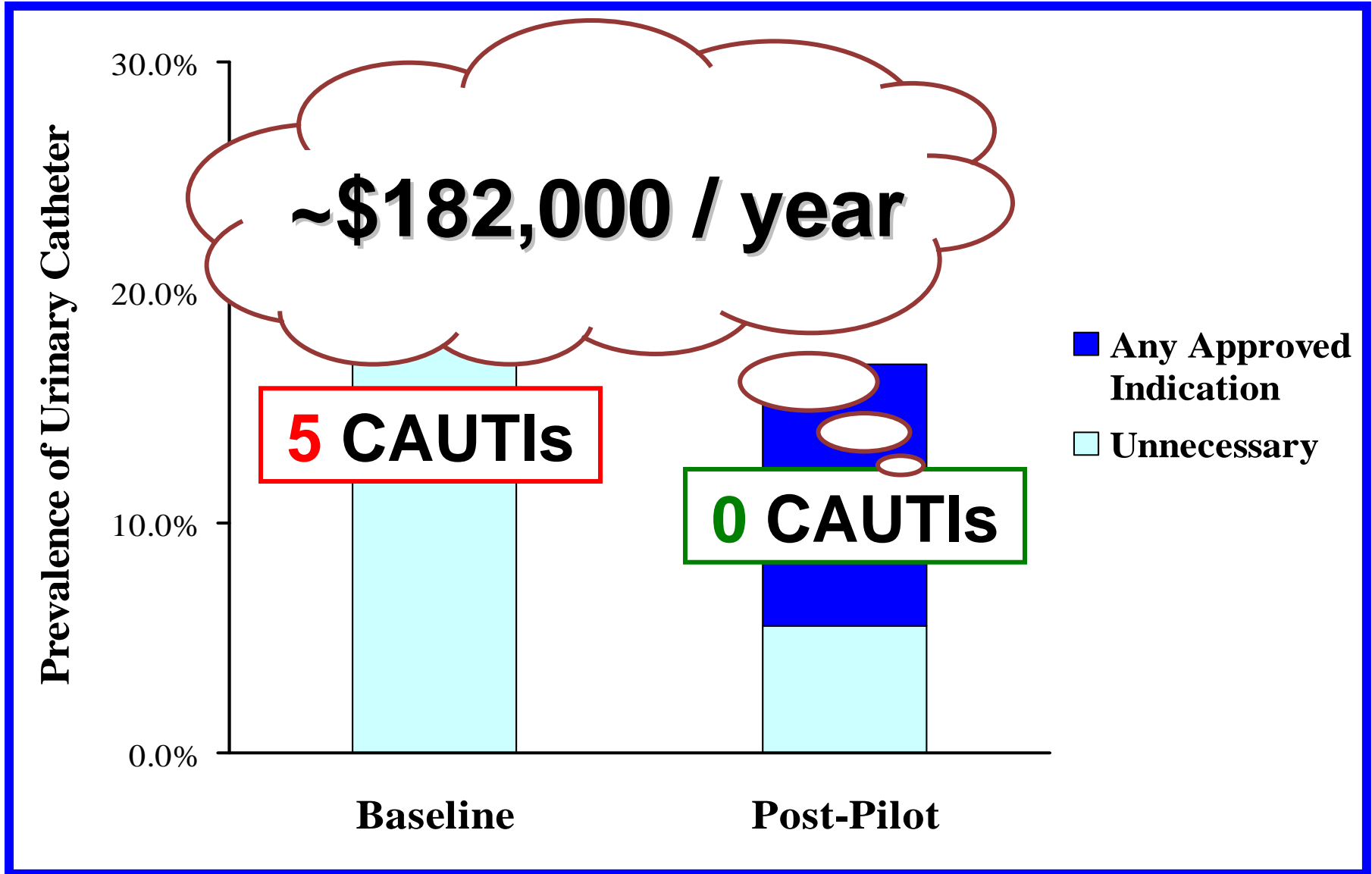
- ◆ If patient unable to void 6 hours after catheter is discontinued then “Intermittent Bladder Catheterization Clinical Protocol” initiated
- ◆ If symptoms of new UTI while catheter is in place (e.g., T greater than/equal to 38°C, suprapubic pain, flank pain, delirium) urine R+M and urine C+S sent and MD informed

Data Collection

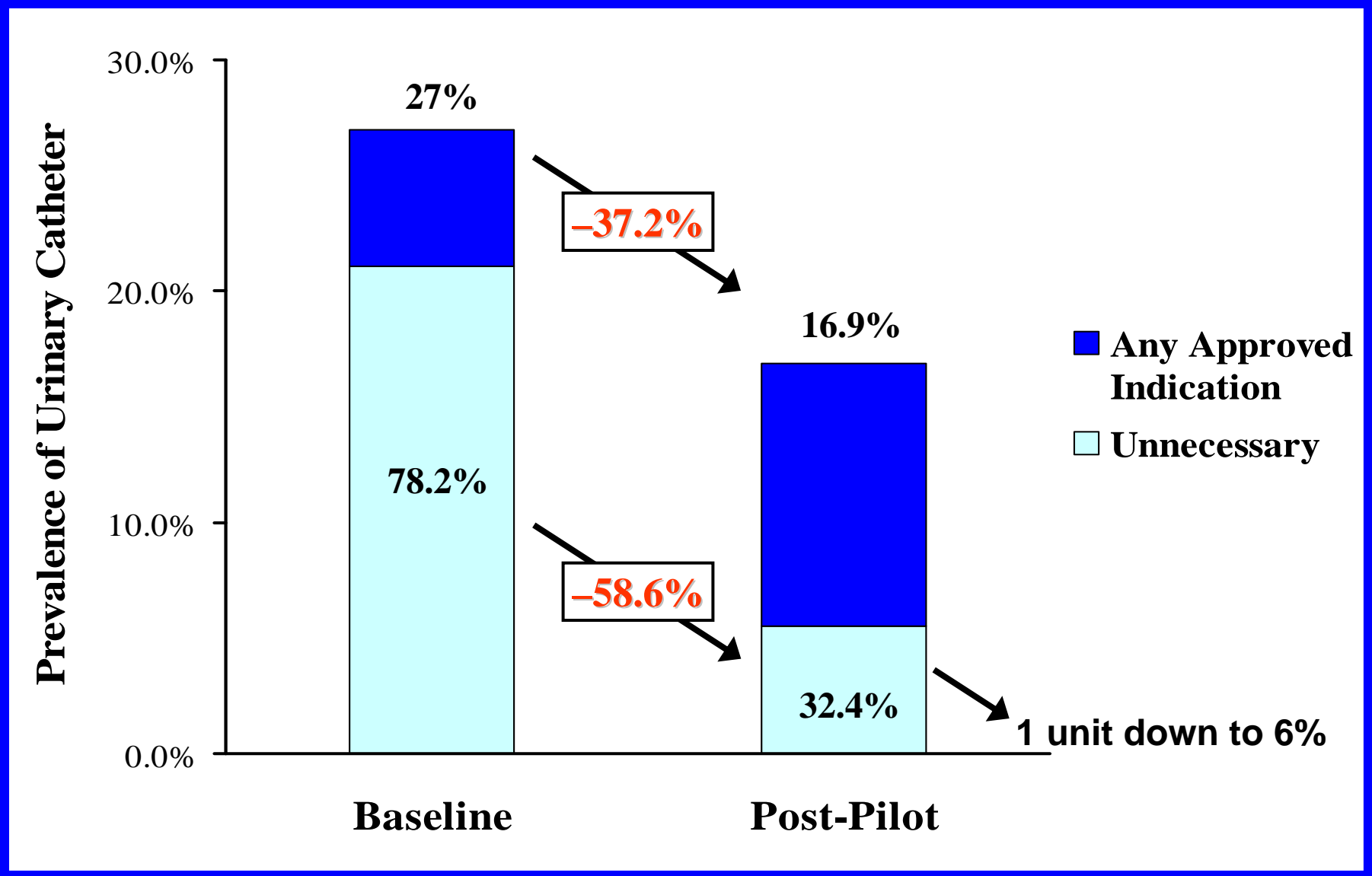
- ◆ **Baseline:** 2-week period, prospective, 3 medical wards with high expected CAUTI prevalence
- ◆ **Data elements**
 - Gleaned from daily interviews with bedside nurse:
 - MRN, catheter presence, indication for catheter
- ◆ **4 weeks, 6 weeks, 1 year post-implementation:** 2-week period, prospective, same data elements
- ◆ Daily data collection from nursing = opportunity for education

Total 5,100 observations made

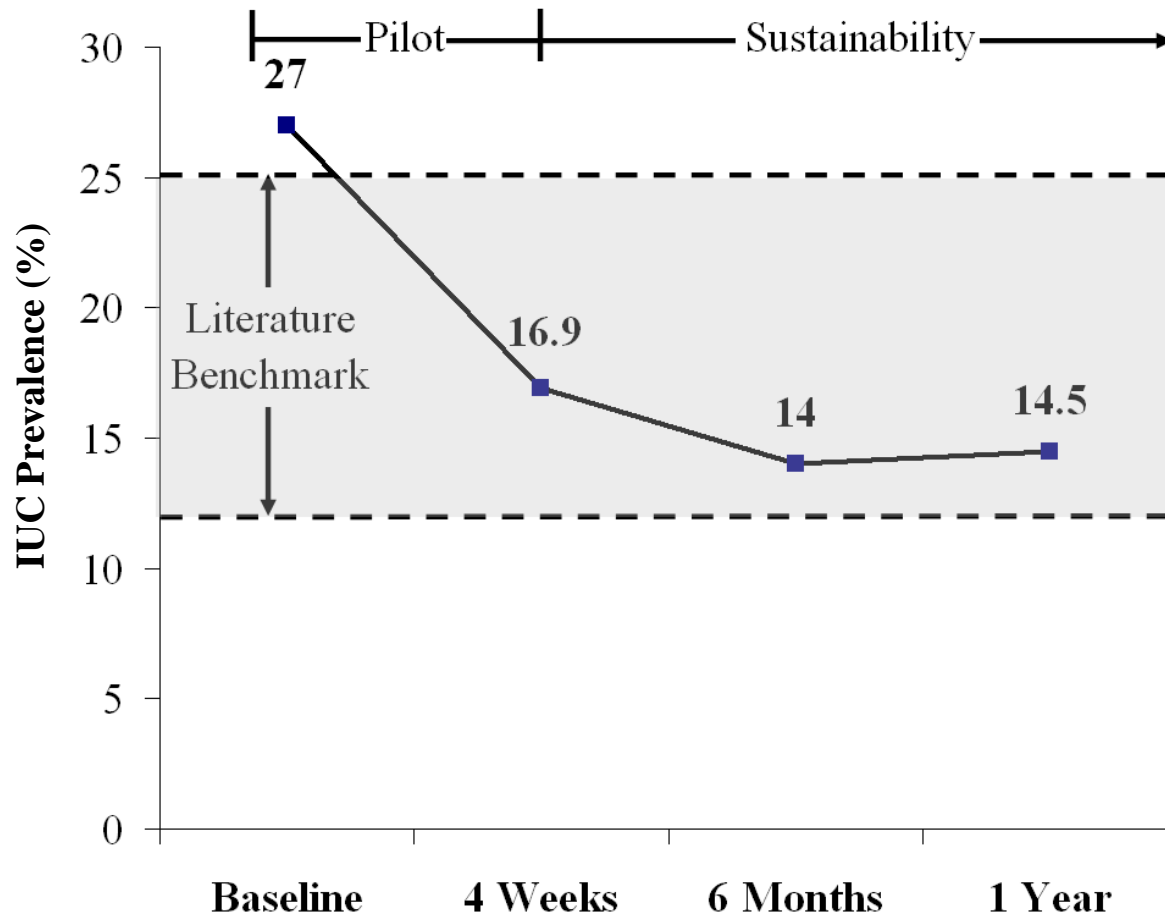
Encouraging Pilot Data



Encouraging Pilot Data:

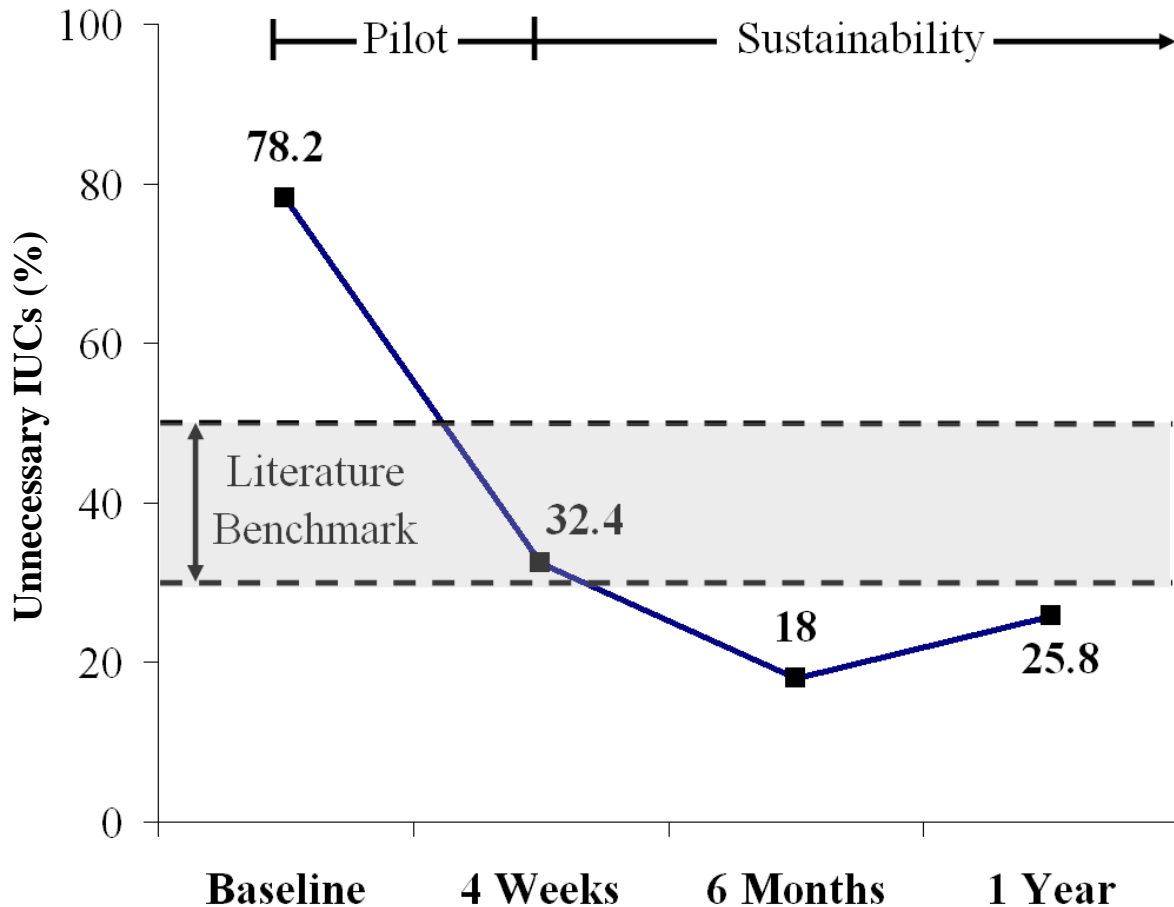


CATHETER PREVALENCE: Sustainability



Overall urinary catheter use **reduced by 46.5%**, sustained at 1 year!

UNECESSARY CATHETERS: Sustainability



Unnecessary catheter prevalence **reduced by 67%** at 1 year!

Awards won.....

- ◆ 2009-Trillium's "Quality Awards of Excellence: New Improvement
- ◆ 2010-Trillium's "President's Award of Excellence: Sustainability"
- ◆ 2011 OHA- Health Achieve
 - 1st prize for Leading Practices in category of Patient Safety
 - 1st prize for Overall Winner of Leading Practices
- ◆ 2012 – Canadian College of Health Leaders: Canadian Health Care Safety Award

Reducing IUC Insertion in the ED

- ◆ Recent IUC audit by nursing students
 - 30% without order for insertion
 - Older women more likely to be catheterized
 - Common rationales: monitor output, sepsis / decreased LOC, IV Lasix, obtaining urine sample
- ◆ Themes consistent with emerging literature
- ◆ **In Progress:** medical directive with clear reasons for catheter insertion

Lessons Learned

- ◆ **Clinical protocols** are very useful and promote:
 - Sustained gains and ongoing improvement
 - Hardwiring change at the bedside
 - Organizational memory
- ◆ Project '**alignment**' is key to sustainability:
 - Nursing empowerment, physician work flow, early patient mobilization, less infections
 - The 'right' thing to do
- ◆ Minimal sustainability efforts is evidence of **hardwired culture change**

Lessons Learned

- ◆ Reduction in **unnecessary catheters = surrogate marker** for reduction in catheter-associated UTIs
- ◆ Reduction in overall catheter utilization translates into **real cost savings**
 - Less supplies, earlier mobilization = decreased length of stay and complications (e.g., pressure ulcers)
- ◆ **Quality improvement is fun**
 - Provides opportunities for enhanced job satisfaction

Urinary Catheter Best Practice: appropriate catheter use

- Catheterize only when necessary and for only as long as necessary
 - Minimize use in those at risk for CAUTI-women, elderly, impaired immunity, nursing home residents
- Insert catheters using aseptic techniques & sterile equipment
- Maintain closed, sterile drainage system

Appropriate catheter use:

- ◆ Consider using alternative to indwelling urethral catheterization in selected patients when appropriate
 - Consider using external (condom) catheters as alternative to indwelling catheters in cooperative men without urinary retention or bladder outlet obstruction
 - Intermittent catheterization is preferable to indwelling catheters or suprapubic catheters in patients with emptying dysfunction

Urinary catheter best practice: other strong recommendations

- ◆ Educate staff on proper catheter insertion/care
- ◆ Secure catheter properly to thigh/abdomen
 - Prevent movement & urethral traction
- ◆ Maintain free flow to urine (no obstruction)
- ◆ Obtain urine samples aseptically

Urinary catheter best practice: other MODERATE recommendations

- ◆ Use smallest size (bore) catheter
- ◆ Avoid irrigation unless needed to prevent/relieve obstruction
- ◆ Do not change catheters at arbitrary fixed intervals e.g. Q 6 weeks
 - Change based on clinical indications e.g. infection, obstruction
- ◆ Routine hygiene (cleansing of meatal surface during daily bathing or showering) not antiseptics

Questions?

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– Continence

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