How did we get here?

- A multicenter, 10-year study was undertaken from 1991-2001 that ultimately led to the development of the National Surgical Quality Improvement Program (NSQIP).
- NSQIP has become the largest national program in surgery.
- NSQIP has very specific criteria to define a post-operative UTI, although it does not specify from where urine is collected.


Table 1. National Surgical Quality Improvement Program (NSQIP) Definitions

<table>
<thead>
<tr>
<th>Postoperative urinary tract infections must meet one of the following two criteria:</th>
<th>AND</th>
<th>Urine culture of ( \geq 10^5 ) colony-forming units with no more than two species of organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated fever, chills, dysuria, frequency, and suprapubic tenderness</td>
<td>( \geq 38.5 ) C, leukocyturia, ( \geq 10^5 ) WBC, ( \geq 10^5 ) WBC, and urine culture with ( \geq 10^5 ) colony-forming units of urinary tract pathogens</td>
<td></td>
</tr>
</tbody>
</table>
CAUTI Data

CAUTION: patients treated for urinary symptoms but who are subsequently proven to have negative cultures are often not excluded from reporting, despite the lack of evidence for UTI.


European Association of Urology (EAU)

- postoperative UTI is considered a “complicated UTI” and note, “It also has to be recognized that symptoms, especially lower urinary tract symptoms, are not only caused by UTIs but also by other urological disorders, such as benign prostatic hyperplasia, etc.”

- The EAU guidelines provide specific laboratory testing recommendations (microscopy) and colony count criteria based on the method of urine collection.

- The EAU requires two consecutive positive urine cultures at least 24 hours apart in asymptomatic patients.

- the EAU clearly states that they do not recommend treatment for ASB in any patient due to the widespread problem of resistant bacterial strains.


Epidemiology

- In 2000, Tambyah and Maki examined 1,498 newly catheterized patients in an acute care hospital setting and found that 235 (14.9 percent) patients developed positive urine cultures, with 85 percent having more than 105 CFU/mL in one or more cultures.

- more than 90 percent of these patients were asymptomatic


- pyuria was a poor marker for CAUTI in catheterized patient

Jayakumar et al. prospectively studied 100 newly catheterized patients and found that 32% had bacterial growth on serial cultures by the fifth day.

- However 68% remained culture-negative up to the seventh day.

National data over a 10-year period from 2001 to 2010 found that 3.8 million of 70.4 million catheterized adults developed a CAUTI.¹

Incidence rates have decreased with time from 9.4 cases per 100 catheterizations in 2001 to 6.3 cases per 100 catheterizations in 2010. ²

Mortality from CAUTIs also declined from 5.4 percent in 2001 to 3.7 percent in 2010


High use of antibiotics and IUCs put CAUTI on the radar

October 2008 the Centers for Medicare and Medicaid Services (CMS) announced that it would no longer provide reimbursement over and above the typical rate for care required to treat several types of HAIs.

CAUTI not only fell into this category, one of the most prominent targets for prevention and intervention.

CAUTI designated as a ‘never events’ for patients in a hospital setting.

CAUTIs are preventable and should not occur following hospital admission.

Umscheid noted that 65-70 % of CAUTIs should have been preventable using current evidence-based strategies

100 % eradication rate was most likely not attainable under the current healthcare system.

Prevention of CAUTI

- Timely Removal Of IUCs Postoperatively
- Proper Technique With IUC Insertion
CDC/NHSN current guidelines: rapid removal of any IUCs when clinically indicated


Updated 2015 SUNA member benefit

www.thegaun.org
IUCs must be performed in a sterile fashion with aseptic technique

- conflicting evidence on using topical anesthetic jelly prior to placement of a catheter
- main benefit may be from the lubrication it provides
- No data demonstrating a reduction of CAUTI by placing antibiotic ointment at the male urethral meatus after catheter placement

Kyle, G.: Should lidocaine gel or lubricating gel be used during catheter insertion? Nurs Times, 105: 17, 2009

Complications of Indwelling Catheters

- Chronic UTI
- Scarring & strictures
- Urethral discomfort
- Inflammation of bladder and urethra
- Bleeding
- Blocking due to encrustation and debris
- Other

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Why are foley catheters so vulnerable to encrustation?

Why are Foley catheters so vulnerable to encrustation and blockage by crystalline bacterial biofilm?

Scanning Electron Microscopy
cells can be seen trapped in crevices.

microcolonies have formed in surface depressions.

microcrystalline material accumulated in the developing biofilm as the pH of the urine rose.

extensive crystalline biofilm formed at the eyehole.

Alternatives to Indwelling Catheters
History Lesson

3,000 B.C.

introduction of the concept of sterile intermittent catheterization

Sir Ludwig Guttman
Dr. Jack Lapides introduced the clean intermittent catheterization technique in 1971.

- Germs were not the only cause of urinary tract infections.
- Stagnant urinary residuals were also culprits.
- Intermittent catheterization was still safer than an indwelling catheter.

No evidence supports recommendations for the frequency of IC:
- Gould and colleagues recommend IC be performed at regular intervals to prevent bladder overdistension.\(^1\)
- Nursing staff to use a portable ultrasound device to assess urine volume in patients prior to performing IC to verify the need to drain the bladder.\(^2,3\)
- Bladder volume should not exceed 500cc.\(^4\)


Other Options
- Condom Catheters
- External pouches such as ostomy pouches
- Absorbent products
- Penile clamps
- Suprapubic Tubes

Condom Catheters
External pouches such as ostomy pouches

Absorbent products

Penile clamps

Suprapubic Tubes

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<tr>
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<tr>
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<tr>
<td>Wickback Amount</td>
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</table>

Conn\n Technology

For technology consult with urology, catheter suppliers, and children’s underwear consists of four layers which provide the most comfortable and effective products for continence management.