

Questionable Validity of the Catheter-Associated Urinary Tract Infection (CAUTI) Metric for Value-based Purchasing

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What is a CAUTI?

- ◆ Catheter-Associated Urinary Tract Infection
- ◆ Projected to occur in 290,000 US Hospital patients annually, costing \$290 million ¹
- ◆ Prevention of CAUTI centers around sterile catheter insertion, proper catheter maintenance, and decreasing catheter usage.



Indications for an Indwelling Catheter

Appropriate use of the Indwelling Catheter

Need for accurate measurement of urinary output in critically ill patients

Acute urinary retention or bladder outlet obstruction

Perioperative use for selected surgical procedures or anticipated to receive large-volume infusions or diuretics during surgery

Intraoperative monitoring of urinary output

To assist in healing of open sacral or perineal wounds in incontinent patients

Patients requiring prolonged immobilization, such as an unstable thoracic or lumbar spine or multiple traumatic injuries such as a pelvic fracture

To improve comfort for end of life care if needed

Risk Factors for Catheter-Associated Urinary Tract Infections

Factor	Relative Risk
Prolonged catheterization (>6 days)	5.1-6.8
Female gender	2.5-3.7
Catheter insertion outside of operating room	2.0-5.3
Urology service	2.0-4.0
Other active sites of infection	2.3-2.4
Diabetes	2.2-2.3
Malnutrition	2.4
Azotemia (creatinine >2.0 mg/dL)	2.1-2.6
Ureteral stent	2.5
Monitoring of urine output	2.0
Drainage tube below level of bladder and above collection bag	1.9
Antimicrobial-drug therapy	0.1-0.4

Alternatives to Foley Catheters

- ◆ External catheter for men
- ◆ Intermittent catheterization
- ◆ Scheduled toileting
- ◆ Suprapubic catheter

Importance of CAUTI Rates in Value-Based Purchasing

- ◆ Hospitals performing in lowest quartile for HAC reduction penalized 1% of entire Medicare fee reimbursement in an all-or-none fashion (totaling \$373 million across 721 institutions)⁸
- ◆ 1/3 of Centers for Medicare and Medicaid Services HAC reduction penalty based on CDC CAUTI metric analysis²

Interventions to Reduce CAUTIs

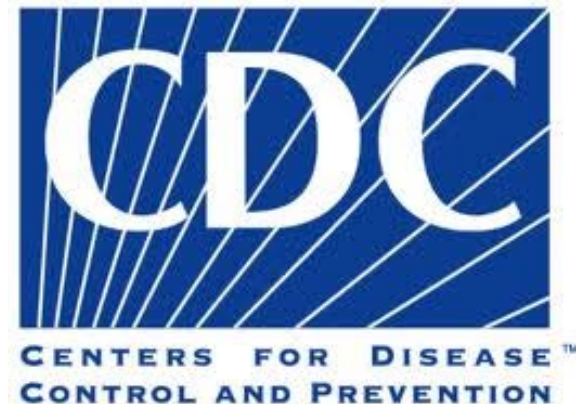
- ◆ Improved catheter maintenance- Castile soap/Theraworx spray utilized to clean the catheter and decrease the biofilm.
- ◆ Foley Care Bundle: Ensuring the foley bag never touches the floor, the tubing remains kink-free, foley securement devices, maintaining a closed system, and documenting the reason for foley necessity every shift.
- ◆ Nurse-Driven Catheter Removal Protocols- algorithm allowing nurses to be proactive at removing a catheter without an MD order
- ◆ CAUTI Huddles to identify trends and gaps
- ◆ Daily Rounds on Catheter Necessity
- ◆ Ability to properly care for incontinent patients centers on adequate staffing ratios of nurses and nursing care assistants.

How is this possible?

	Data and Dates of Acquisition				
Metric	2009	2010	2011	2012	2013
Centers for Disease Control and Prevention NHSN (Data.Medicare.Gov)					
Standardized Infection Ration	1.00			0.99	1.03
Number of Facilities	~1,749			2,293	2,277
Centers for Disease Control and Prevention NHSN (HAI Progress Reports)					
Standardized Infection Ratio	1.00			1.03	1.06
Number of facilities	~1,749			3,597	2,781

Center for Disease Control National Healthcare Safety Network CAUTI Metric

- ◆ Self-reported data
- ◆ Current metric
- ◆ # of urinary infections ÷ # of catheter days ÷ (1,000 converted to a Standardized Infection Ratio)



Agency for Healthcare Research & Quality CAUTI Metric

- ◆ Data obtained from medical records
- ◆ # Infections ÷ **Hospital Discharges** (÷1,000)



AHRQ CAUTI Metric Comparison

	Data and Dates of Acquisition				
Metric	2009	2010	2011	2012	2013
Agency for Healthcare Quality and Research (AHRQ)					
Infections/1,000 Discharges		12.25	11.30	10.58	8.8
Baseline Ratio		1.00	0.92	0.86	0.72
Number of Charts	~18,000-33,000 medical records from 800 hospitals				

A statistically significant **28.2% decrease** in the CAUTI rate between 2010-2013 ($p < .011$)



Concerns about the CDC Metric

- ◆ Does not account for catheter removal
- ◆ Does not promote adequate staffing ratios
- ◆ Data is self-reported from hospitals and not independently verified
 - ◆ CDC reports that only 20 of the 50 states check the CDC NHSN CAUTI data for quality and completeness



Limitations of this Analysis

- ◆ AHRQ metric not risk-adjusted
- ◆ The data sets were comparing two different patient populations



Recommendations

- ◆ CAUTI Metric should incorporate BOTH catheter usage and catheter care.
- ◆ APIC indicates **Catheter Usage > Catheter Care**
- ◆ The current metric fails to accurately differentiate between good and poor performers.

The CDC Guidelines state that it is inappropriate to use urinary catheters “as a substitute for nursing care of the patient or resident with incontinence.”⁷



“I was going to ask how working with a severely limited staff was, but I think I can already guess.”

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