

**Catheter-associated Urinary Tract Infections
(CAUTI) in ICUs and select wards**

NQF #: 0138

Developer: Centers for Disease Control and Prevention (CDC)

Data Source: Leapfrog Hospital Survey; CMS

Description: Standardized Infection Ratio (SIR) of healthcare-associated, catheter-associated urinary tract infections (CAUTI) among patients in intensive care units (ICUs) and medical, surgical, and medical/surgical wards.

Rationale: CAUTI is the most common type of healthcare-associated infection, accounting for more than 30% of acute care hospital infections. 13,000 deaths are associated with UTIs each year. There are estimated to be 449,334 CAUTI events per year. Each CAUTI is associated with the medical cost of \$758. And, a total of over \$340 million spent in health care is attributable to the incident of CAUTI in the U.S. each year.

CAUTI rates vary considerably when stratified by location. According to the cited NHSN Report, CAUTI rates range from a low of 0.0 per 1,000 catheter days to a high of 4.4 per 1,000 catheter days between location types.

CAUTI SIRs are relevant to patient populations because prevention recommendations have been published to reduce the incidence of CAUTI. A high SIR indicates an opportunity for improvement.

It is envisioned that the use of this measure will promote CAUTI prevention activities, which will lead to improved patient outcomes. Such activities include reducing the number of unnecessary indwelling catheters inserted; removing indwelling catheters at their earliest, clinically-appropriate time; avoiding patient exposures to antibiotics; reducing avoidable medical costs; and, patient morbidity and mortality.

Evidence for Rationale:

- Klevens RM, Edwards JR, et al. Estimating healthcare-associated infection and deaths in U.S. hospitals, 2002. Public Health Reports 2007; 122:160- 166.
- Scott, RD. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf accessed April 12, 2010.
- Dudeck M, et al., National Healthcare Safety Network (NHSN) report, data summary for 2009, device-associated module. American Journal of Infection Control, 2011;39:349-367.

Numerator: Total number of observed healthcare-associated CAUTI among patients in select ICUs and medical, surgical, and medical/surgical wards.

Denominator: Total number of expected CAUTIs, which is calculated using a negative binomial regression model generated from nationally aggregated 2015 data and the facility's use of indwelling catheters, location within the hospital, medical school affiliation, bed size, and facility type.

Denominator Exclusions:

Non-indwelling catheters by NHSN definitions:

- Suprapubic catheters
- Condom catheters
- "In and out" catheterization
- Nephrostomy tubes
- Ileoconduits

Impact:

- CAUTI is the most common type of healthcare-associated infection, accounting for more than 30% of acute care hospital infections
- 13,000 deaths associated with UTIs each year
- 449,334 estimated CAUTIs/yr
- \$758 medical cost/CAUTI
- Total >\$340 million attributable to CAUTI in U.S. each year

Evidence of High Impact:

- Klevens RM, Edwards JR, et al. Estimating healthcare-associated infection and deaths in U.S. hospitals, 2002. Public Health Reports 2007; 122:160- 166.
- Scott, RD. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf accessed April 12, 2010

Opportunity: It is envisioned that the use of this measure will promote CAUTI prevention activities which will lead to improved patient outcomes. Such activities include reducing the number of unnecessary indwelling catheters inserted, removing indwelling catheters at their earliest, clinically-appropriate time; avoiding patient exposures to antibiotics; reducing avoidable medical costs, and patient morbidity and mortality.

Evidence:

The evidence supporting CAUTI as a measure includes: evidence-based guidelines; randomized controlled trials; expert opinion; systematic synthesis of research; and, meta-analysis.

The Guideline for Prevention of Catheter-associated Urinary Tract Infections, 2009, published by the Healthcare Infection Control Practices and Advisory Committee (HICPAC), retrieved over 1,050 published studies from the scientific literature for consideration into the development of the recommendations.

Citations for Evidence:

- National Quality Forum. National Healthcare Safety Network (NHSN) catheter-associated urinary tract infection (CAUTI) outcome measure. 2017. <http://www.qualityforum.org/QPS/QPSTool.aspx?m=1121&e=1#qpsPageState=%7B%22TabType%22%3A1,%22TabContentType%22%3A2,%22ItemsToCompare%22%3A%5B%5D,%22StandardID%22%3A1121,%22EntityTypeID%22%3A1%7D>
- Centers for Disease Control and Prevention. Catheter-associated urinary tract infections (CAUTI). 2017. https://www.cdc.gov/HAI/ca_uti/uti.html