

Examples of Data Collection and Evaluation

We have created examples of tools you can use to enter the data you collect during all the phases of the program: at baseline, during implementation, immediately after implementation, and several weeks after implementation. Documentation includes the presence or absence of urinary catheters, reasons for utilization, and whether the urinary catheter is indicated. Indications are based on the 2009 Healthcare Infection Control Practices Advisory Committee (HICPAC) guidelines published by the Centers for Disease Control and Prevention (CDC).

Before implementing the CAUTI initiative in your hospital, you may want to identify units with high and unnecessary urinary catheter utilization rates. At baseline and during the early implementation phase of your CAUTI initiative, you may want to look at both overall urinary catheter utilization and the unnecessary use of urinary catheters. After your program is implemented, you may choose to obtain data on urinary catheter utilization alone as a marker of both the proportion of patients with urinary catheters and the proportion of patients with unnecessary catheters.

The following data collection process was used at St. John Hospital, Detroit and Michigan Health and Hospital Association:

Data are collected in four phases:

- 1) Baseline: Data collected 5 consecutive workdays for two weeks (10 days total). Record both urinary catheter prevalence and evaluation for indications.
- 2) During implementation: Data collected 5 consecutive workdays for two weeks (10 days total). Record both urinary catheter prevalence and evaluation for indications.
- 3) After implementation: 1 day a week for 8 weeks. Record urinary catheter prevalence only.
- 4) Sustainability: 5 consecutive days every quarter. Record urinary catheter prevalence only.

A sample of the data collection sheet is shown below. Use a new collection sheet for every day of data reporting. Fill in the date and phase as shown, in the upper left-hand corner of each sheet. For phases 1 and 2, fill in, for each patient, whether a catheter is present, if the catheter is indicated, and the indication or non-indication for each catheter; for phases 3 and 4, fill in, for each patient, only whether a catheter is present (see example below).

Example of a program timeline*

PROGRAM TIMELINE: Removing Unnecessary Urinary Catheters					
Date	Week 0	Weeks 1 & 2	Weeks 3 & 4	Weeks 5-10	Quarterly
Baseline	→	Collect urinary catheter prevalence, including indications, on a unit for 5 consecutive days each week			
Implementation	→		Collect urinary Catheter prevalence, including indications, on a unit for 5 consecutive days each week		
After Implementation	→			Collect urinary catheter prevalence, on a unit 1 day each week	
Sustainability	→				Collect urinary catheter prevalence, on a unit for 5 consecutive days each quarter

*This is an example of a program timeline that was developed at St. John Hospital and Medical Center in Detroit, Michigan. This can be modified based on your hospital or unit needs.

Examples of Calculations Made From the Data to Evaluate Your Program:

Process measure:

1. Catheter Utilization Rate (All Phases):

$$\text{Total \# catheter-days} / \text{Total \# patient-days} \times 100$$

Calculate the total catheter-days (the number of days all urinary catheters were used) and patient-days (the number of days patients were on the unit involved). Dividing the total catheter-days (numerator) by total patient-days (denominator) multiplied by 100 will provide us with baseline catheter utilization rate. You will track this rate across all phases. A trend that shows a reduction in utilization may reflect a successful program.

Outcome measures:

2. NHSN measure:

of symptomatic CAUTI / 1,000 urinary catheter days as measured in NHSN.

<http://www.cdc.gov/nhsn/library.html>

Calculate the number of patients with symptomatic CAUTIs (using the NHSN definition of symptomatic CAUTI) and catheter-days (the number of days all urinary catheters were used) over a period of time. The number of symptomatic

CAUTIs is divided by the number of catheter-days and multiplied by a 1000 to obtain the rate.

3. Population-based measure:

Total # of symptomatic CAUTIs / 10,000 patient days

Calculate the number of patients with symptomatic CAUTIs (using the NHSN definition of symptomatic CAUTI) and patient-days (the number of days patients were on the unit involved) over a period of time. The number of symptomatic CAUTIs is divided by the number of patient-days and multiplied by a 10,000 to obtain the rate.

Additional measures to consider:

1. Unnecessary Urinary Catheter % (Phases 1 and 2):

of unnecessary catheter-days/Total # catheter-days X 100

Calculate unnecessary catheter-days (the number of days all urinary catheters were used unnecessarily) and total catheter-days (the number of days all urinary catheters were used).

Dividing the unnecessary catheter-days (numerator) by total catheter-days (denominator) multiplied by 100 will provide us with unnecessary catheter utilization rate. You will track this rate across phases 1 and 2. The goal is to have a drop in the unnecessary catheter % rate.

2. # of bloodstream infections secondary to the urinary tract / 1000 catheter days.

Calculate the number of episodes of bloodstream infections attributed to CAUTIs and the number of catheter-days (the number of days all urinary catheters were used) over a period of time. The number of bloodstream infection episodes (attributed to CAUTI) is divided by the number of catheter-days and multiplied by a 1000 to obtain the rate.

The following pages are additional sample data collection tools, which you may choose to use. These are only examples, and in some cases the indications are different. However, that is often the case because local customs may dictate some variation in the determination of appropriate indications. Ideally, however, we would still recommend that you use the HICPAC December 2009 guidelines as your reference for appropriate indications.¹

1. Gould CV, Umscheid CA, Agarwal RK, Kuntz G, Pegues DA. Guideline for prevention of catheter-associated urinary tract infections 2009. *Infect Control Hosp Epidemiol*;31:319-26.