# A Focus on: *Clostridioides difficile* Infection (CDI)

## Targeted Assessment for Prevention (TAP) Strategy

The TAP Strategy was developed by the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN) as a framework for quality improvement to usedata for action to prevent healthcare-associated infections (HAIs). See https://www.cdc.gov/hai/prevent/tap.html for detailed resources and information.

**TARGET**

### Target infections and units with excess HAIs using NHSN data
- Run a CDI TAP report in NHSN
- Evaluate the number of infections needed to prevent to reach a standardized infection ratio (SIR) goal using the cumulative attributable difference (CAD)
- CAD = Observed HAIs - (Predicted HAIs × SIR goal)
- Prioritize and identify units/areas within a facility to participate in a CDI TAP Facility Assessment
- TAP report presentation

**ASSESS**

### Assess gaps in infection prevention
- Administer the no-cost TAP Facility Assessment (survey) tool
- Survey aims to capture awareness and perceptions among healthcare personnel related to prevention policies and practices
- Administer to a variety of healthcare personnel (frontline staff and providers, mid-level staff, and senior leadership)
- Focused sections for laboratory and antimicrobial stewardship staff
- View TAP assessment presentation
- TAP Assessment Implementation Toolkit:
  - Implementation Checklist (see page 6)
  - Distribution Guide (see page 7)

**PREVENT**

### Prevent infections by implementing interventions to address the gaps
- Health Services Advisory Group (HSAG) Hospital Quality Improvement Contractor (HQIC) compile results from the TAP Facility Assessment
- Identify key 'leading' and 'lagging' areas
- Deep dives into top opportunities for improvement
- CDC's TAP Implementation Guide includes a list of resources to address gaps

![HSAG HQIC]

# TAP Assessment—FAQ Sheet

## Why use the TAP Assessment?

The TAP Assessment can be a useful tool for an HAI prevention program at any stage.

### TAP Assessment Benefits

| Established HAI Prevention Program | New/Developing HAI Prevention Program |
|---|---|
| • Staff awareness/compliance with policies<br>• Educational needs<br>• Policy gaps | • Data to drive and support efforts<br>• Identify priority areas to target<br>• Identify areas of strength |

## What is in the TAP Assessment?
- Multiple choice survey organized into domains
- Takes about 10 minutes to complete



## Who should complete the TAP Assessment?
- Staff targeted to complete the assessment should include frontline staff and providers, mid- level staff (nurse/unit managers), environmental services, and senior leadership.
- A minimum of 30-50 completed assessments is recommended to ensure results are representative of your facility.

## What do the results look like?

The Facility Assessment Feedback Report summarizes your NHSN data, survey results identify key leading and lagging areas in a scorecard format, as well as top opportunities for improvement organized by domain. Results are also aggregated by respondent role, unit type, and specific question.



Prevention resources for each domain are available on the CDC TAP website.

## Are there resources available to help implement the TAP assessment?

HSAG HQIC provides hospitals with no-cost support including:
- Hospital-specific NHSN data reports
- Planning and logistics for survey distribution
- Infection prevention consultation and resources

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# NHSN Facility TAP Reports–CDI

## Description

The TAP strategy allows for the ranking of facilities and/or locations to identify and target those areas with the greatest need for improvement using a metric known as the CAD. This is the number of infections that must be prevented to achieve a HAI reduction goal. TAP reports can be generated within NHSN for central line-associated bloodstream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), and CDI laboratory-identified (LabID) data. The ranking is established using the overall hospital CAD (highest to lowest). TAP reports can help to prioritize the facilities where the greatest prevention impact could be achieved.

This quick reference guide will describe how a facility can generate a TAP report for CDI LabID data within NHSN. It will also explain how to interpret the TAP report output for facility users. For more information about the TAP strategy, please visit: http://www.cdc.gov/hai/prevent/tap.html.

## Generate a CDI TAP Report

1.  Select "Analysis" on the NHSN home screen. Then select "Reports" (formerly known as Output Options) from the dropdown menu that opens. Expand the "TAP Reports" folder. The TAP reports are organized by facility type. Expand the folder for the facility type relevant to your analysis to see the available TAP report options.
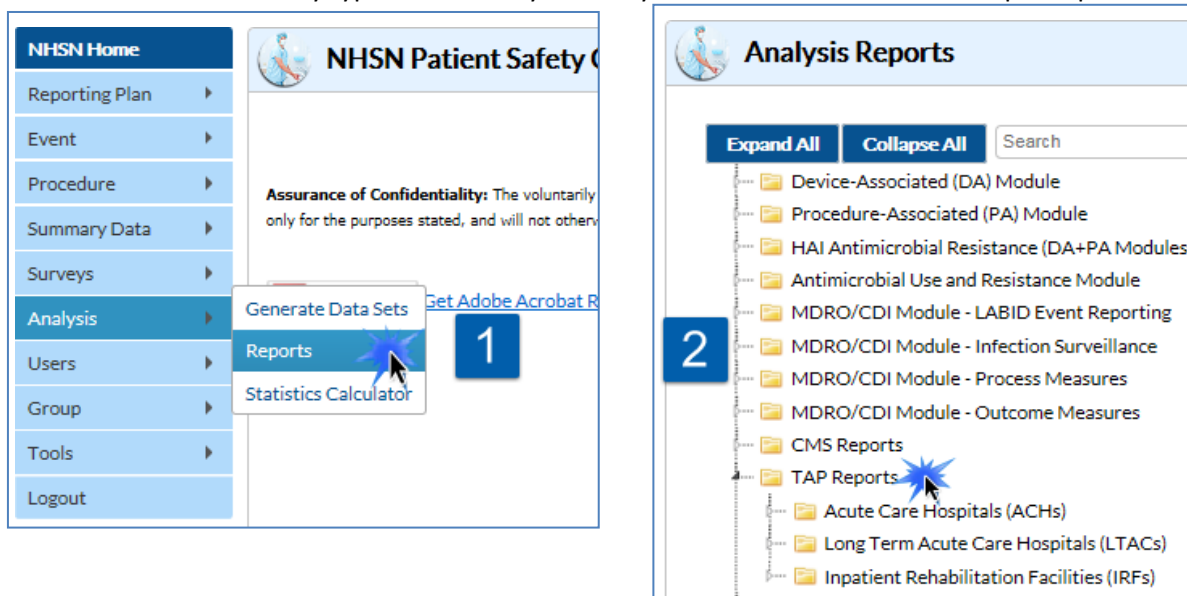


2.  Choose to either "Run" or "Modify" an Acute Care Hospitals (ACH), Long-Term Acute Care Hospitals (LTACs), or Inpatient Rehabilitation Facilities (IRFs) FACWIDEIN CDI LabID TAP Report. Please note: ACH TAP Reports contain both acute care and critical access hospital (CAH) data, and exclude IRF unit data.

    a.  Click "Run" to create a TAP report that is inclusive of all data reported to NHSN and available in the analysis data sets (e.g., all CDI LabID data from 2015 to present).

    b.  Click "Modify" to customize the TAP report.

        i.  It is recommended that users check the box above Title/Format titled "Show descriptive variable names." Not only will this show more descriptive variable names while modifying a TAP report, it will also create more descriptive column headers in the tables created.
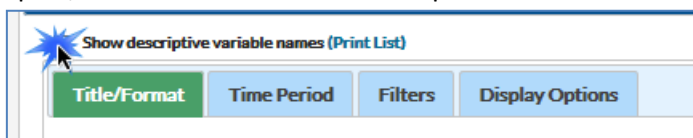
ii. Use the "Title/Format" tab to change the name of the report generated or to change the format (HTML, PDF, CSV, and RTF).
*TIP: If the format is changed to PDF or RTF, change the orientation of the report to landscape to allow all columns to fit on a single page.*

iii. Use the "Time Period" tab to modify the date variable by months, quarters, half-years, or year (e.g., summaryYr 2015 to 2016).

iv. Display Options. Choose the source value of the SIR goal. The SIR goal can be a custom/value or the user can use the HHS Goal or CDI National SIR. These are available in the source drop down menu. If a custom value is used, remember that the multiplier must be <1.

## Example TAP Report Output—CDI

The following table is an example of a CLABSI TAP report generated by an acute care hospital for the calendar year 2016. The footnotes provided with each table define the data that appear in the derived columns. See below for an example interpretation of this table.

**National Healthcare Safety Network**
**TAP Report for FACWIDEIN CDI LabID data for Acute Care and Critical Access Hospitals (2015 Baseline)**
**Facilities Ranked by CAD 'Cumulative Attributable Difference'**
**SIR Goal: HHS Goal = 0.7**
As of February 16, 2017 at 2:00 PM
Date Range: BS2_CDI_TAP summaryYr2016 to 2016

| Facility Org ID | Facility Name | State | Type of Facility | Type of Affiliation | Number of Beds | Patient Days | COHCFA Prevalence | CDIF Facility Incident HO LabID Event Count | CDIF Facility Incident HO LabID Number Expected | Facility CAD | SIR | SIR Test |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10000 | DHQP Memorial Hospital | GA | HOSP-GEN | M | 354 | 60059 | 0.14 | 61 | 55.034 | 22.48 | 1.108 | |

SIR is set to '.' when expected number of events is <1.0.
Facility Rank = Priority ranking for Targeted Assessment of Prevention by CAD in descending order
COHCFA PREVALENCE RATE = Community-onset healthcare facility-associated CDI prevalence rate per 100 admissions
CAD = Observed - Expected*SELECTED CAD MULTIPLIER
SIR TEST = 'SIG' means SIR > SIR Goal significantly
Data contained in this report were last generated on February 16, 2017 at 12:22 PM.

## Interpretation

- The header above each table describes what information has been included in the table. The second line of the header is a descriptive title for the table. The title names which hospital types are included in the report and what baselines data sets are used for the analysis. The third line of the header describes how the data have been arranged (i.e., Facilities Ranked by CAD). The fourth line displays the value for the SIR goal. For the TAP report in this example, HHS Goal = 0.7 was used as the SIR goal. Lastly, the final line of the header helps users find out more about the CDC TAP strategy. For more information about the TAP strategy, please visit: https://www.cdc.gov/hai/prevent/tap.html.

- The footnote for each table includes the rules for interpreting the data, meanings for abbreviation used in the table, pathogen names, and the date that the table was created. For example, footnote #5 states, "The SIR is set to '.' when predicted number of events is <1.0." This would be helpful to know if an SIR value is not given in the table. Additionally, the formula for calculating the CAD can also be found in the footnotes.

- Since CDI data are collected and analyzed at the inpatient, facility-wide level, location-specific information is not displayed in the table. Looking at the third-to-last column in the TAP report, you can see that this facility's CAD is 22.48—this means that the facility had approximately 23 excess infections when compared to the number of infections that were predicted, when using an SIR Goal of 0.7.

## Addition Resources

- The Five-Ws of the Targeted Assessment for Prevention (TAP) Strategy: http://www.cdc.gov/hai/prevent/tap.html
- Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf
- How to filter Your Data by Time Period: http://www.cdc.gov/nhsn/PS-Analysis-resources/PDF/FilterTimePeriod.pdf
- How to Filter Your Data on Additional Criteria: http://www.cdc.gov/nhsn/PS-Analysis-resources/PDF/SelectionCriteria.pdf
- Analysis Quick Reference Guides: http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html
- HHS Action Plan to Prevent Healthcare-Associated Infections: http://health.gov/hcq/prevent-hai.asp
- HAI Progress Report: http://www.cdc.gov/hai/surveillance/nhsn_nationalreports.html

# Facility NHSN Data

| HAI | Number of Observed Events | Number of Predicted Events | SIR | National SIR Goal | CAD* |
|---|---|---|---|---|---|
| CDI (healthcare onset) | | | | | |
| CAUTI (all locations) | | | | | |
| CLABSI (all locations) | | | | | |

## About the data

### How the standardized infection ratio (SIR) is calculated:[1]



### How to interpret the SIR:

- An SIR greater than 1.0 indicates that a hospital had more infections than predicted.
- An SIR less than 1.0 indicates that a hospital had fewer infections than predicted.
- Hospitals with an SIR greater than 1.0 should closely examine their efforts to reduce HAIs.

### How the Cumulative Attributable Difference (CAD) is calculated:

- **For CAUTI and CLABSI:**[2]

    *Hospital-Level CAD*

    *= Observed Infections ICU – (Expected Infections ICU * SIR Threshold)*

    *+ Observed Infections Ward – (Expected Infections Ward * SIR Threshold)*

- **For Clostridium difficile Infection (CDI):**[3]

    *CAD = Observed Infections – (Expected Infections * SIR Threshold)*

### How to interpret and use the CAD:

- The CAD is the number of infections that need to be prevented in order to reach a targeted SIR threshold.
  - A **positive** CAD indicates the number of infections above the targeted SIR threshold. This indicates areas for improvement.
  - A **negative** CAD indicates the number of infections below the targeted SIR threshold.

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[1] The expected, or predicted, number of infections is calculated using the CDC's NHSN pooled national data. Risk factors included in the CDC's model to predict the number of infections include location type, location bed size, utilization, and medical school affiliation.

[2] The SIR threshold used for catheter-associated urinary tract infection (CAUTI) was 0.75. The SIR threshold used for central line-associated blood stream infection (CLABSI) was 0.50.

[3] The SIR threshold used for CDI was 0.70.

# CDI TAP Assessment—Implementation Checklist

## Survey Distribution Plan

- Consider data from your TAP report to target specific locations within your facility, if relevant
- Distribution methods: Email fillable PDF, fillable PDF at computer station, email survey link, paper surveys

**Create a plan below that includes staff from the following categories:**

- ☐ Frontline staff (e.g., nurses, certified nurse assistants, physicians, environmental services, etc.)
- ☐ Mid-level staff (e.g., director of infection prevention, unit/nurse managers)
- ☐ Facility leadership (e.g., CEO, CMO, COO, quality director, etc.)

Overall survey start/end dates: _____ - _____

| Unit | Role | Shift | Target # | Distribution Method | Distribution Time/Location | Point of Contact |
|------|------|-------|----------|---------------------|----------------------------|------------------|
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |
|      |      |       |          |                     |                            |                  |

☐ Laboratory Practices Section (completed by clinical lab staff)

☐ Antibiotic Stewardship Practices Section (completed by antibiotic stewardship lead)

# Guidance for Administering the CDI TAP Facility Assessment Tool

The CDC CDI TAP Facility Assessment is a survey tool that aims to capture awareness and perceptions among healthcare personnel related to CDI prevention policies and practices. It is encouraged to distribute the survey to a variety of healthcare personnel (frontline staff and providers, mid-level staff, and senior leadership). Additionally, there are focused surveys for laboratory and antimicrobial stewardship staff (one person responds for each of these surveys).

## CDI TAP Assessment Distribution Process

1. Send a notification email to staff (*see "template messages" page 8*).
   A few days before sending/administering the survey, email staff a notification letter telling them about the upcoming survey and alerting them that they will soon receive an invitation to complete the survey. For staff that do not routinely use email, notify staff ahead of time in staff meetings or using other communication methods appropriate for those staff members.
   a. Decide who will send the initial email to staff about the upcoming survey—consider a leadership role to highlight the importance of the survey.
   b. For emailed surveys: obtain an up-to-date list of staff email addresses.

2. Administer the survey. Note: An example of an introduction to include with the survey is below.
   a. Emailed surveys:
      i. Send the survey invitation email a few days after sending the notification email.
      ii. Include the link to the survey (or instructions for accessing the survey).
   b. Paper copy surveys:
      i. Compile a list of information to help coordinate distributing the surveys. It is helpful to have a list of the following information for each unit/area of the hospital that will be participating in the survey (use the TAP Assessment Checklist Tool):
         1) Name of the unit/area of the hospital
         2) Point of contact (e.g., manager, supervisor) and contact information
         3) Target number of staff to survey
         4) Day(s) and time(s) of staff meetings/events (or other method) when the survey will be distributed
      ii. Make copies of the survey and distribute to each unit/area of the hospital that will be participating in the survey.
      iii. Determine how surveys will be returned (e.g., drop box or envelope at a specific location, inter-office mail, etc.).
         1) In messages to staff, assure staff that surveys will be securely stored.
      iv. Track the number of completed surveys returned for each unit/area to help with reminder messages.

3. Follow-up communication reminders should include the original message and instructions for accessing the survey.
   a. One week after sending the survey invitation, send an email reminder. In the message, thank those who have already completed the survey and encourage others to do so.
   b. Two weeks after sending the survey invitation, send a second reminder.
   c. Consider sending email reminders to boost response, as needed.

## Template Message Samples

### Notification Email

Email staff a notification letter telling them about the upcoming survey and alerting them that they will soon receive an invitation to complete the survey (you can include more information, as desired, such as at a unit meeting, via email, etc.).

**Paper Copy Version**

As part of our hospital's efforts to better address patient safety, hospital staff are being asked to complete a survey about *Clostridioides difficile* (or *C. diff*) prevention practices. Your participation is voluntary, but we encourage you to complete the survey to help us improve the way we do things at this hospital. It will take about 10 minutes to complete and can be completed during work time. Your individual responses will be kept anonymous. Only group responses, not individual responses, will be summarized.

You should receive the survey at your next unit meeting [*insert appropriate details*]. There is a drop box for surveys at [*insert location or include information about how to return surveys*]. You will have [*insert amount of time*] to complete the survey. If you have questions about the survey, please contact [*insert name, position/title, phone number, email address*].

Thank you in advance for considering responding to this survey. We appreciate your feedback as we strive to provide high-quality patient care and prevent infections in our hospital!

**Email Version**

As part of our hospital's efforts to better address patient safety, hospital staff are being asked to complete a survey about *Clostridioides difficile* (or *C. diff*) prevention practices. Your participation is voluntary, but we encourage you to complete the survey to help us improve the way we do things at this hospital. It will take about 10 minutes to complete and can be completed during work time. Your individual responses will be kept anonymous. Only group responses, not individual responses, will be summarized.

In a few days, you should receive an email from [*insert person's name and position/title*] with the survey link. You will have [*insert amount of time*] to complete the survey. If you have questions about the survey, please contact [*insert name, position/title, phone number, email address*].

Thank you in advance for considering responding to this survey. We appreciate your feedback as we strive to provide high-quality patient care and prevent infections in our hospital!

## Introductory Paragraph to Include With the TAP Survey

**Paper Copy Version**

You are invited to participate in an important survey that is part of our hospital's patient safety program. This survey aims to capture your awareness and perceptions of policies and practices related to *C. diff* prevention at our hospital [*or unit(s)*]. Please answer honestly/openly and use the comment boxes to add more information as needed. It is possible that you won't know the answer to every question and that is okay. Please check "unknown" if you do not know the answer, rather than guess at "yes" or "no."

Your participation is voluntary, but we encourage you to complete the survey to help us improve the way we do things at this hospital. It will take about 10 minutes to complete and you may take it during work time. Your individual responses will be kept anonymous. Only group responses, not individual responses, will be summarized.

There is a drop box for surveys at [*insert location or include information about how to return surveys*]. You will have [*insert amount of time – such as two weeks*] to complete the survey. If you have questions about the survey, please contact [*insert name, position/title, phone number, email address*].

Thank you in advance for participating in this important patient safety effort.

**Email Version**

You are invited to participate in an important survey that is part of our hospital's patient safety program. This survey aims to capture your awareness and perceptions of policies and practices related to *C. diff* prevention at our hospital [*or unit(s)*]. Please answer honestly/openly and use the comment boxes to add more information as needed. We value your feedback!

To access the secure survey website, click on the following link [*insert link*]. You will have [*insert amount of time – such as two weeks*] to complete the survey. If you have questions about the survey, please contact [*insert name, position/title, phone number, email address*].

Thank you in advance for participating in this important patient safety effort.

Adapted from:

Sorra J, Gray L, Streagle S, et al. AHRQ Hospital Survey on Patient Safety Culture: User's Guide. (Prepared byWestat, under Contract No. HHSA290201300003C). AHRQ Publication No. 15-0049-EF (Replaces 04-0041). Rockville, MD: Agency for Healthcare Research and Quality. January 2016. http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/hospital/index.html