Targeted Assessment for Prevention (TAP) Strategy

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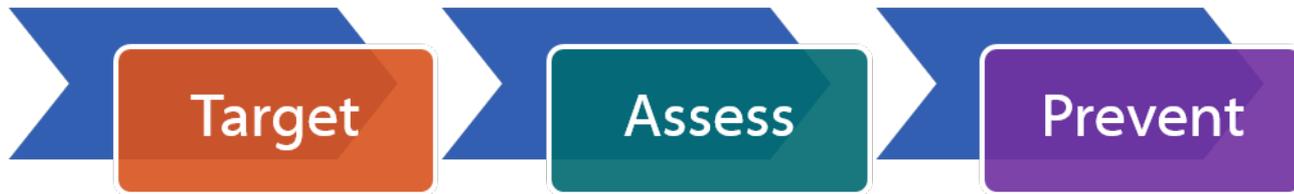
NHSN Training

Monday, March 25, 2019

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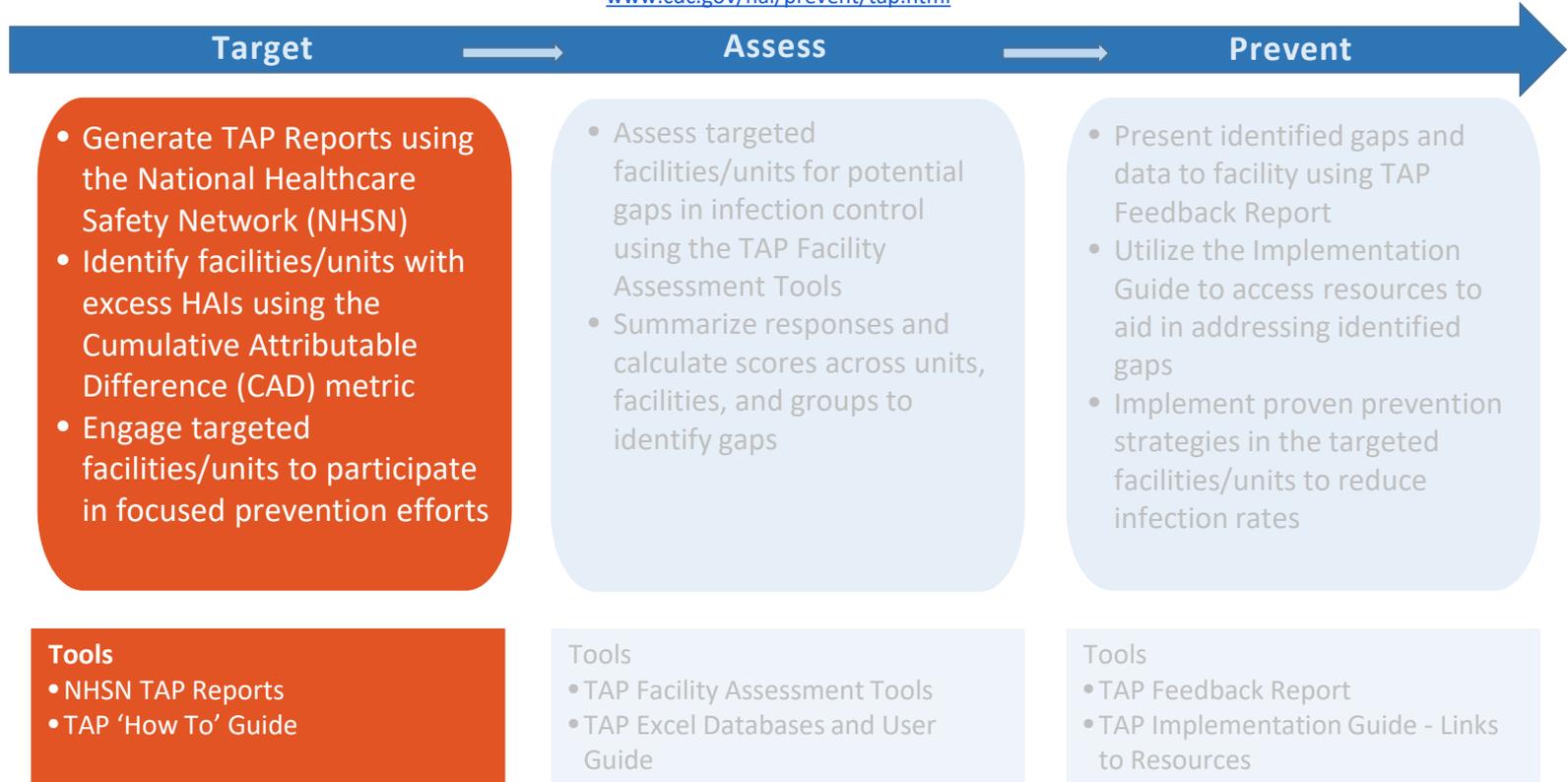
What is the TAP Strategy

- Targeted Assessment for Prevention (TAP) strategy
  - Uses data for action to prevent healthcare-associated infections (HAIs).
  - Targets healthcare facilities and facility units with a disproportionate burden of HAIs.
  - Assess the Gaps in Infection Prevention Using TAP Reports
  - Implementing Infection Prevention Strategies

Target → Assess → Prevent

TAP Strategy

Targeted Assessment for Prevention: *Using Data for Action*

www.cdc.gov/hai/prevent/tap.html

Target	Assess	Prevent
• Generate TAP Reports using the National Healthcare Safety Network (NHSN) • Identify facilities/units with excess HAIs using the Cumulative Attributable Difference (CAD) metric • Engage targeted facilities/units to participate in focused prevention efforts	• Assess targeted facilities/units for potential gaps in infection control using the TAP Facility Assessment Tools • Summarize responses and calculate scores across units, facilities, and groups to identify gaps	• Present identified gaps and data to facility using TAP Feedback Report • Utilize the Implementation Guide to access resources to aid in addressing identified gaps • Implement proven prevention strategies in the targeted facilities/units to reduce infection rates
Tools • NHSN TAP Reports • TAP 'How To' Guide	Tools • TAP Facility Assessment Tools • TAP Excel Databases and User Guide	Tools • TAP Feedback Report • TAP Implementation Guide - Links to Resources

Target → Assess → Prevent

- TAP Reports
  - Uses data within NHSN to identify facilities and locations with excess infections
  - Translates a target SIR into a numeric HAI prevention goal, providing a concrete goal to drive action

National Healthcare Safety Network
TAP Report for CAUTI Data for Acute Care and Critical Access Hospi
Locations Ranked by CAD Within a Facility
SIR Goal : HHS Goal = 0.75

A TAP Report is the first step in the CDC TAP Strategy. For more information on the TAP str
As of: February 16, 2019 at 2:00 PM
Date Range: All BS2_CLAB_TAP summaryYr 2018 to 2018

FACILITY					
Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location
	Arcement Medical Center	23.79	1	1 EAST	IN:ACUTE:WARD:M
			2	NEURO	IN:ACUTE:WARD:N

TAP Reports bring together data elements from various data sources within NHSN:

- Annual Surveys
- SIRs
- Event-level Information

(CLABSI, CAUTI, and CDI only)

Facility Type	CLABSI	CAUTI	CDI LabID
Acute Care Hospital	✓	✓	✓
Long Term Acute Care Hospital	✓	✓	✓
Inpatient Rehab Facility		✓	✓

Different Hospitals, Different Stories

Hospital A - Arcement Medical Center

- 400-bed, major teaching acute care hospital
  - 100 ICU beds
  - 300 non-ICU inpatient beds
  - Includes a CMS-certified Inpatient Rehabilitation Facility (IRF) unit that was added in 2015

- Focused its attention on HAI prevention in 2016 after realizing that their CAUTI SIR is higher than other Hospitals

- Began a facility wide initiative to decrease CAUTIs by 2020

Fictitious data used for illustrative purposes only.

Only facilities that have an SIR >1

Facilities that can not calculate an SIR

ACHs, LTACHs, and IRFs that have an SIR <1

Standardized Infection Ratio (SIR)

- The SIR is a measure that compares the number of HAIs reported to NHSN to the number of infections that would be predicted based on national baseline data:

$$SIR = \frac{Observed \text{ # HAIs}}{Predicted \text{ # HAIs}}$$

- SIR interpretation:
  - 1.0 = same number of infections reported as would be predicted given the US baseline data
  - Greater than 1.0 = more infections reported than what would be predicted given the US baseline data
  - Less than 1.0 = fewer infections reported than what would be predicted given the US baseline data

Standardized Infection Ratio (SIR)

Hospital A

- Reviewing calendar year 2018
- SIR is 18% higher than would be predicted given the U.S Baseline Data

National Healthcare Safety Network

SIR for Catheter-Associated UTI Data for Acute Care Hospitals (2015 baseline) - By OrgID

As of February 16, 2018 at 2:00 PM

Date Range: All BS2_CAU_RATESALL

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
10000		2018	65	54.944	39497	1.183	0.1811	0.921, 1.498

Cumulative Attributable Difference (CAD)

- CAD is a measure that shows difference between the number of observed infections and 'predicted infections multiplied by a SIR goal' in a defined period

$$CAD = Observed\ \#\ HAIs - (Predicted\ \#\ HAIs \times SIRgoal)$$

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
10000		2018	65	54.944	39497	1.183	0.1811	0.921, 1.498

Cumulative Attributable Difference (CAD)

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
10000		2018	65	54.944	39497	1.183	0.1811	0.921, 1.498

CAD = Observed # HAIs − (Predicted # HAIs x SIRgoal)

CAD = 65 − (54.944 x SIRgoal)

- **SIR goal** represents an "HAI Reduction Goal"
- Custom SIR goal = value less than 1
- HHS Action Plan Goals for 2020: https://health.gov/hcq/prevent-hai-measures.asp
  - HHS 25% reduction goal for CAUTI → SIR goal = **0.75**

Cumulative Attributable Difference (CAD)

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
10000		2018	65	54.944	39497	1.183	0.1811	0.921, 1.498

CAD = Observed # HAIs − (Predicted # HAIs x SIRgoal)

CAD = 65 − (54.944 x 0.75*)

CAD = 65 − (41.208)

CAD = 23.79

*HHS CAUTI Action Plan Goals for 2020 = 0.75

Hospital A – CAUTI TAP Report

Number of total excess infections in the facility

National Healthcare Safety Network
TAP Report for CAUTI Data for Acute Care and Critical Access Hospitals (2015 Baseline)
Locations Ranked by CAD Within a Facility
SIR Goal: HHS Goal = 0.75

A TAP Report is the first step in the CDC TAP Strategy. For more information on the TAP strategy, please visit: http://www.cdc.gov/hai/prevent/tap.html
As of: February 1?, 2019 at 2:00 PM
Date Range: All BS2_CLAB_TAP summaryYr 2018 to 2018

FACILITY			LOCATION										
Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Central Line Days	DUR %	CAD	SIR	SIR Test	No. Pathogens (EC, ESP, PA, KS, PS, ES
	Arcement Medical Center	23.79	1	1 EAST	IN:ACUTE:WARD:M	11	2741	21	8.52	2.98	SIG	12 (5, 0, 1, 1,0 , 1)
			2	NEURO	IN:ACUTE:WARD:N	5	1899	20	4.15	4.40	SIG	7 (0, 0, 1, 0, 0, 3)
			3	2 EAST	IN:ACUTE:WARD:MS	4	2057	13	3.07	3.23	SIG	4 (0, 0, 1, 0, 0, 3)
			4	ICU 1	IN:ACUTE:CC:M	4	5144	50	2.69	2.30		3 (0, 2, 0, 1, 0, 0)
			5	1 WEST	IN:ACUTE:WARD:M	6	1442	13	2.59	1.32		2 (0, 0, 1, 0, 0, 0)
			6	2 WEST	IN:ACUTE:WARD:MS	2	1371	9	1.40	.		2 (0, 0, 0, 0, 0, 0)
			7	BMT	IN:ACUTE:WARD:ONC_HSCT	2	174	9	1.26			1 (0, 0, 0, 0, 0, 1)
			8	ONC	IN:ACUTE:WARD:ONC_HONC	2	945	10	1.11	1.69		1 (1, 0, 0, 0, 0, 0)
			9	SICU	IN:ACUTE:CC:S	1	645	67	0.65	0.76		3 (1, 0, 0, 0, 0, 0)
			10	TELE	IN:ACUTE:WARD:TEL	1	1318	9	0.62	0.75		1 (0, 0, 1, 0, 0, 0)

Number of excess infections in each location

Which of the following SIR goals results in a higher prevention goal?

0.50

0.75

1.0

1.25

Cumulative Attributable Difference (CAD)

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
10000		2018	65	54.944	39497	1.183	0.1811	0.921, 1.498

CAD = Observed # HAIs − (Predicted # HAIs x SIRgoal)

CAD = 65 − (54.944 x 0.50*)

CAD = 65 − (27.472)

CAD = 37. 53

*Custom SIR Goal

CAD and the HAI Reduction Goal

- SIR goal represents an "HAI Reduction Goal"

Hospital A : Observed=65 , Predicted=54.944 , SIR=1.183 in 2018

HHSReduction Goal (Reduction in Reported)	SIR Goal	CAD Formula Observed − (Predicted X SIR goal)	CAD
25% HHSReduction Goal	0.75	65 − (54.944 X 0.75)	23.79
50%	0.50	65 − (54.944 X 0.50)	37.53

- Since CAD is an indicator of infections that would need to be prevented, it should be rounded up to the nearest whole number

- The time period of analysis should be included in the CAD interpretation, i.e., 24 infections over the 12 month period to reach an SIR of 0.75

Different Hospitals, Different Stories

Hospital B - Patel Community Health

- Facility services small rural area made up of 2 neighboring towns

- 115-bed, acute care hospital
  - 15 ICU beds
  - 100 non-ICU inpatient beds

- Under New Management since May 2018

- Usually can not calculate an SIR for CLABSI data because their number predicted is less than 1

Fictitious data used for illustrative purposes only.

Standardized Infection Ratio (SIR)

Hospital B

- Wants to review data from the last 2 quarters of 2018
- The SIR is only calculated if the number predicted (numPred) is >= 1
- Unlike SIR, CAD is calculated even if the predicted number of events is less than 1

Facility Org ID	CCN	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
88888		2	0.518	1570	.	.	

Different Hospitals, Different Stories

Hospital C – Scott Decker Health Institute

- 300-bed, acute care hospital
  - 75 ICU beds
  - 125 non-ICU inpatient beds

- Always has an SIR less than 1
- Now what?

Fictitious data used for illustrative purposes only.

Cumulative Attributable Difference (CAD)

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
99999		2018	50	70.805	28003	0.706	0.0097	0.530, 0.923

CAD = Observed # HAIs − (Predicted # HAIs x SIRgoal)

CAD = 50 − (70.805 x 0.75*)

CAD = 50 − (53.10375)

CAD = -3.10

*HHS Action Plan Goals for 2020 = 0.75

*Fictitious data for illustrative purposes only

Cumulative Attributable Difference (CAD)

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
99999		2018	50	70.805	28003	0.706	0.0097	0.530, 0.923

CAD = Observed # HAIs − (Predicted # HAIs x SIRgoal)

CAD = 50 − (70.805 x 0. 50*)

CAD = 50 − (35.4025)

CAD = 14.60

*Custom SIR goal = 0.50

*Fictitious data for illustrative purposes only

CAD and the HAI Reduction Goal

- SIR goal represents an "HAI Reduction Goal"

Hospital C : Observed=50 , Predicted=70.805 , SIR=0.706 in 2018

Reduction Goal (Reduction in Reported)	SIR Goal	CAD Formula Observed − (Predicted X SIR goal)	CAD
25% HHSReduction Goal	0.75	50 − (70.8 X 0.75)	-3.10
50%	0.50	30 − (70.8 X 0.50)	14.60

Fictitious data for illustrative purposes only

- CAD can be Positive or Negative

  - Positive CAD = additional burden of infections than what would be predicted with regard to a SIR goal ("excess" infections)

  - Negative CAD = fewer infections than what would be predicted

Soe MM, et al. *Infect. Control Hosp. Epidemiol.* 2015;36(12) :1379–1384

CAD at the Location Level

Hospital C	Observed	Predicted	SIR	SIR goal	CAD
Ward	20	10	2.0	0.50	15
ICU	30	60	0.5	0.50	0
Facility	50	70	0.71	0.50	15

Observed # HAIs – (Predicted # HAIs x SIRgoal) = CAD

Soe MM, et al. *Infect. Control Hosp. Epidemiol.* 2015;36(12) :1379–1384

Can CAD be used to compare facilities the same way the SIR is used?

Yes

No

CAD versus SIR

- CAD is not a comparison metric for performance measurement like SIR
  - CAD detects burden of infection

	Facility 1	Facility 2	Facility 3
Observed no.	30	3	10
Predicted no.	10	1	1
SIR	3	3	10
CAD [Observed – (Predicted x1.0)]	20	2	9

Soe MM, et al. *Infect. Control Hosp. Epidemiol*. 2015;36(12) :1379–1384

Summary

- Beginning with the TAP Report and CAD metric, the TAP Strategy efficiently prioritizes healthcare facilities (and locations within a facility) that need enhanced prevention intervention to maximize the impact of given resources

- CAD is a flexible measure that can be applied by individual hospitals as part of their internal quality improvement efforts and by groups such as state health departments, quality improvement organizations, and hospital systems

- CAD is a not a comparative metric!

Generating TAP Reports

Helpful Hints for Running TAP Reports

- TAP reports are built on the rules that influence SIRs.

- Ensure that locations are mapped correctly: https://www.cdc.gov/nhsn/pdfs/pscmanual/15locationsdescriptions_current.pdf.

- Verify that an up-to-date data set was generated

- Use Time Periods of at least 1 quarter

- Remember to look at the footnotes!

TAP Reports

- The TAP Reports for All HAI Types utilize 2015 baseline data

- Analyze all data dated from January 2015 forward

- Data from earlier time periods (before Jan 2015) must be analyzed using the originals baseline models

TAP Reports

- Baseline Set 1 data sets are still available within NHSN

- Analyze all data dated through December 31, 2016

- Data representing a later time period (i.e., after December 2016) must be analyzed using the new 2015 rebaseline models.
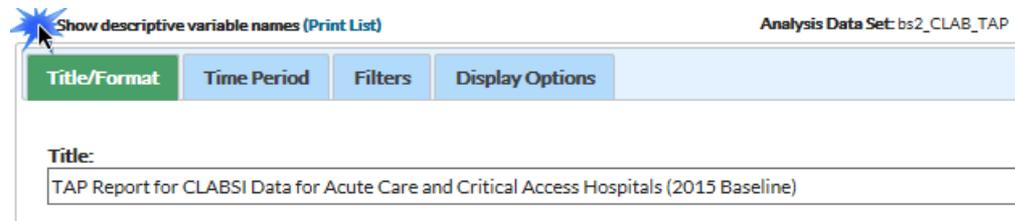
Running TAP Reports

- For each facility type, choose to either Run or Modify a TAP Report for the available HAI type:
  - Selecting Run – Creates the default TAP Report
  - Select Modify to customize TAP Report:
    - **Title/Format**
    - **Filters** *(but not really)*
    - **Time period of interest**
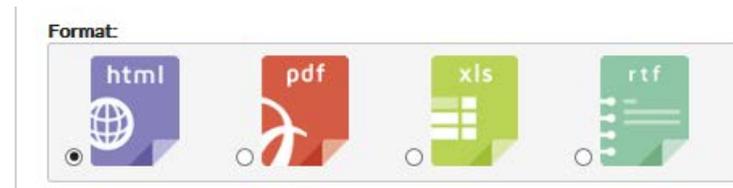   - **Display Options: SIR Goal**
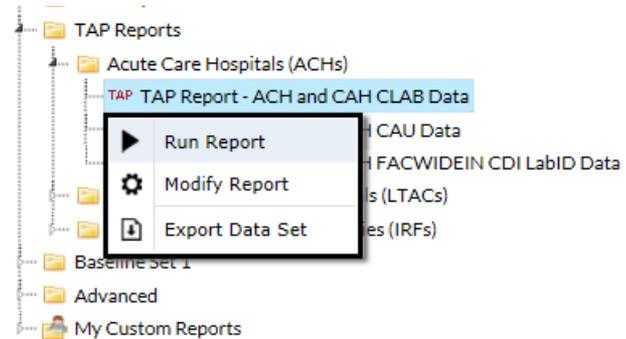
Running TAP Reports

- **Title/Format Tab**
  - Select "Show descriptive variable names" - variable labels will provide more descriptive column headers

  - Default output format is HTML
  - If another format, (e.g., pdf) is selected, change the orientation to "Landscape"

Running TAP Reports

- **Time Period**
  - Select Date Variable
    - Half year
    - Month
    - Quarter
    - Year
  - Best Practice: Time periods of at least 1 quarter
    - *CDI LabID must use at least 1 quarter of data*

Running TAP Reports

- **Filters (Group TAP Reports only)**
  - ACH and CAH TAP Reports are together, but can be separated using the "factype" filter

Is it beneficial to filter TAP Reports by location?

No; TAP Reports are designed to prioritize units with an excess burden of HAIs. This is accomplished by showing the SIR and CAD for each location.

Yes; Identifying the CAD for a specific location tells the user how many infections need to be prevented for the location.

Running TAP Reports

- **Filters**
  - With the exception of the "factype" filter, filters should not be used in TAP Reports
  - Single-facility TAP report provides data at the unit level for **all units in the facility** reporting data to NHSN so that all the units can be ranked by their CAD.

Running TAP Reports

- **Display Options**: Change SIR Goal
  - Default NHSN goals are based on HHS 5 – Year HAI Reduction targets:
    - CAUTI SIR goal : 0.75
    - CDI SIR goal : 0.70
    - CLABSI SIR goal: 0.50
    - MRSA SIR goal: 0.50
  - Custom SIR Goals
    - Must be <1
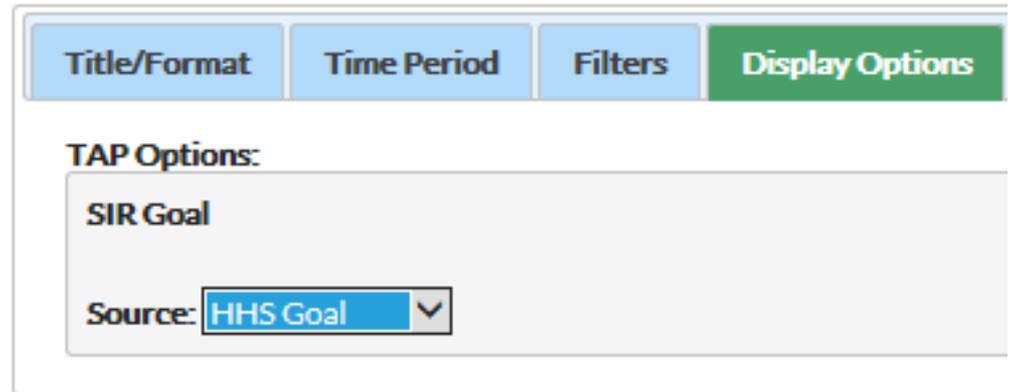
Title/Format	Time Period	Filters	Display Options

TAP Options:

SIR Goal

Source: HHS Goal ⌄

Interpreting TAP Reports

Facility TAP Report - CLABSI

FACILITY			LOCATION									
Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Central Line Days	DUR %	CAD	SIR	SIR Test	No. Pathogens (CNS,YS,SA,ES,KS,EC)
10000	DHQP Memorial Hospital	20.52	1	1 West	IN:ACUTE:WARD:M	14	2269	49	13.10	7.81		17 (2, 3, 0, 5, 5, 0)
			2	2 West	IN:ACUTE:WARD:M	4	1349	42	3.40	3.34		4 (0, 2, 0, 1, 1, 0)
			3	SICU	IN:ACUTE:CC:S	3	1062	9	2.58		.	2 (0, 0, 0, 0, 0, 0)
			4	5 West	IN:ACUTE:WARD:M	2	983	9	1.61		.	2 (0, 0, 0, 2, 0, 0)
			5	STEP2	IN:ACUTE:STEP	1	1007	32	0.55		.	1 (0, 1, 0, 0, 0, 0)
			6	CCU	IN:ACUTE:CC:C	0	0	0	0.00			
			7	2 East	IN:ACUTE:WARD:MS	0	0	0	0.00		.	
			8	MICU	IN:ACUTE:CC:M	0	609	9	-0.24		.	
			9	ICU	IN:ACUTE:CC:MS	0	1233	50	-0.49		.	

- *Acute Care Hospital units designated as IRFs can be found in the IRF TAP Report.*

Example TAP Report Outputs For Group Users

Table 1 – Totals for all Facilities in Group

National Healthcare Safety Network

TAP Report for CLABSI Data for Acute Care and Critical Access Hospitals (2015 Baseline)

Totals for all Facilities in Group

SIR Goal: HHS Goal = 0.5

A TAP Report is the first step in the CDC TAP Strategy. For more informatin on the TAP Strategy, please visit: http://www.cdc.gov/hai/prevent/tap.html

As of February 16, 2017 at 2:00 PM

Date Range: BS2_CLAB_TAP summaryYr2016 to 2016

Number of Facilities	Number of Beds	Location (LC)	Events (LC)	Device Days (LC)	DUR % (LC)	CAD (LC)	SIR (LC)	SIR Test	ICU No. Pathogens (CNS,YS,SA,ES,KS,EC)	NICU No. Pathogens (CNS,YS,SA,ES,KS,EC)	Ward+ No. Pathogens (CNS,YS,SA,ES,KS,EC)
10	2,420	87 (15, 6, 66)	44 (17, 0, 27)	60186 (20966, 569, 38651)	17 (45, 7, 13)	19 (7.5, -0.3, 11.8)	0.9 (0.9, ., 0.9)		19 (2, 8, 0, 2, 1, 0)	0 (0, 0, 0, 0, 0, 0)	28 (4, 8, 4, 1, 2, 1)

1. This report includes CLABSI data for 2015 and forward. Following the 2015 rebaseline, Mucosal Barrier Injury Laboratory-Confirmed Bloodstream Infections (MBI-LCBI) are excluded from CLABSI rates, SIRs and TAP reports.
2. If location-level CADs are the same in a given facility, their ranks are tied.
3. (CNS,YS,SA,ES,KS,EC) = No. of CNS, Yeast (both candida and non-candida species), Staph aureus, Enterococcus species, K. pneumoniae/K. oxytoca, E. coli
4. SIR is set to '.' when predicted number of events is <1.0.
5. LOCATION CAD = (OBSERVED_LOCATION - PREDICTED_LOCATION* SELECTED SIR Goal)
6. SIR TEST = 'SIG' means SIR > SIR Goal significantly

Source of aggregate data: 2015 NHSN CLABSI Data

Data contained in this report were last generated on February 14, 2017 at 10:57 AM.

Example TAP Report Outputs For Group Users

- Location Category, abbreviated as (LC), gives a breakdown of the different types of locations contributing to the total in the following order: ICU, NICU, Ward+

Number of Facilities	Number of Beds	Location (LC)	Events (LC)	Device Days (LC)	DUR % (LC)
10	2,420	87 (15, 6, 66)	44 (17, 0, 27)	60186 (20966, 569, 38651)	17 (45, 7, 13)

CAD (LC)	SIR (LC)	SIR Test	ICU No. Pathogens (CNS,YS,SA,ES,KS,EC)	NICU No. Pathogens (CNS,YS,SA,ES,KS,EC)	Ward+ No. Pathogens (CNS,YS,SA,ES,KS,EC)
19 (7.5, -0.3, 11.8)	0.9 (0.9, ., 0.9)		19 (2, 8, 0, 2, 1, 0)	0 (0, 0, 0, 0, 0, 0)	28 (4, 8, 4, 1, 2, 1)

- For CAUTI, there are only 2 Location Categories: ICU, Ward+.

Example TAP Report Outputs For Group Users

Number of Facilities	Number of Beds	Location (LC)	Events (LC)	Device Days (LC)	DUR % (LC)
10	2,420	87 (15, 6, 66)	44 (17, 0, 27)	60186 (20966, 569, 38651)	17 (45, 7, 13)

CAD (LC)	SIR (LC)	SIR Test	ICU No. Pathogens (CNS,YS,SA,ES,KS,EC)	NICU No. Pathogens (CNS,YS,SA,ES,KS,EC)	Ward+ No. Pathogens (CNS,YS,SA,ES,KS,EC)
19 (7.5, -0.3, 11.8)	0.9 (0.9, ., 0.9)		19 (2, 8, 0, 2, 1, 0)	0 (0, 0, 0, 0, 0, 0)	28 (4, 8, 4, 1, 2, 1)

- Number of common pathogens identified for each location.
- Pathogen list can be found in the footnotes.
- The Pathogen columns for each location category are in the same order as they are listed in parenthesis for the preceding columns.

Example TAP Report Outputs For Group Users

Table 2 – Facilities Within the Group Ranked by CAD

National Healthcare Safety Network
TAP Report for CLABSI Data for Acute Care and Critical Access Hospitals (2015 Baseline)
Facilities within the Group Ranked by CAD
SIR Goal: HHS Goal = 0.5

Facility Rank

A TAP Report is the first step in the CDC TAP Strategy. For more informatin on the TAP Strategy, please visit: http://www.cdc.gov/hai/prevent/tap.html
As of February 16, 2017 at 2:00 PM
Date Range: BS2_CLAB_TAP summaryYr2016 to 2016

facRank	orgID	name	state	medType	numBeds	numLoc	numEvent	facDDays	facDUR	facCADloctype	facSIR	SIRtest
1	10000	DHQP Memorial Hospital	GA		677	27 (8, 0, 19)	157 (77, 0, 80)	112962 (54877, 0, 58085)	27 (71, ., 17)	100 (47.2, 0, 52.8)	1.4 (1.3, ., 1.5)	SIG
2	10401	DHQP Memorial Annex	GA	M	886	31 (7, 1, 23)	123 (57, 4, 62)	99541 (38931, 6884, 53726)	20 (44, 28, 14)	69.1 (32.6, -0.3, 36.9)	1.1 (1.2, 0.5, 1.2)	
3	10587	Dudeck Regional Life Center	IL	M	1,044	40 (7, 1, 32)	115 (27, 11, 77)	105785 (32839, 5901, 67045)	20 (59, 23, 15)	60.4 (8.4, 6.7, 45.2)	1.1 (0.7, 1.3, 1.2)	
4	90001	CDC Health Hospital	GA		357	20 (4, 1, 15)	61 (22, 4, 35)	22527 (6017, 1765, 14745)	16 (38, 15, 13)	49.3 (18.8, 2.6, 27.9)	2.6 (3.4, 1.4, 2.5)	SIG
5	10018	Weiner Center of Medicine	CA		535	20 (3, 1, 16)	53 (22, 2, 29)	20574 (5614, 725, 14235)	10 (36, 8, 8)	42.6 (18.9, 1.4, 22.3)	2.6 (3.5, 1.7, 2.2)	SIG
6	10297	Arcement Medical Center	LA		361	19 (3, 0, 16)	55 (20, 0, 35)	25796 (8169, 0, 17627)	15 (40, ., 12)	42.1 (15.4, 0, 26.7)	2.1 (2.2, ., 2.1)	SIG
7	10064	Falcon Memorial Hospital	GA		457	19 (4, 0, 15)	79 (18, 0, 61)	75493 (28370, 0, 47123)	31 (57, ., 24)	40.3 (2, 0, 38.3)	1 (0.6, ., 1.3)	
8	10957	All Saints Medical	LA		281	9 (2, 0, 7)	47 (9, 0, 38)	16691 (5102, 0, 11589)	14 (40, ., 11)	40.2 (6.7, 0, 33.4)	3.4 (2, ., 4.1)	SIG
9	10962	Louisiana Hospital of Texas	TX		595	20 (5, 1, 14)	62 (13, 2, 47)	40057 (14574, 3750, 21733)	19 (40, 21, 14)	40.2 (4.8, -1.3, 36.7)	1.4 (0.8, 0.3, 2.3)	SIG
10	88888	Georgia Hospital of Louisiana	LA	G	355	24 (5, 1, 18)	47 (12, 6, 29)	16936 (7952, 638, 8346)	11 (27, 7, 7)	38 (7.5, 5.4, 25.1)	2.6 (1.3, 5.1, 3.7)	SIG

1. This report includes CLABSI data for 2015 and forward. Following the 2015 rebaseline, Mucosal Barrier Injury Laboratory-Confirmed Bloodstream Infections (MBI-LCBI) are excluded from CLABSI rates, SIRs and TAP reports.
2. If location-level CADs are the same in a given facility, their ranks are tied.
3. (CNS,YS,SA,ES,KS,EC) = No. of CNS, Yeast (both candida and non-candida species), Staph aureus, Enterococcus species, K. pneumoniae/K. oxytoca, E. coli
4. SIR is set to '.' when predicted number of events is <1.0.
5. LOCATION CAD = (OBSERVED_LOCATION - PREDICTED_LOCATION* SELECTED SIR Goal)
6. SIR TEST = 'SIG' means SIR > SIR Goal significantly
Source of aggregate data: 2015 NHSN CLABSI Data
Data contained in this report were last generated on January 19, 2017 at 12:17 PM.

Example TAP Report Outputs For Group Users

TABLE 3 – Locations Ranked by CAD Within a Facility

National Healthcare Safety Network
TAP Report for CLABSI Data for Acute Care and Critical Access Hospitals (2015 Baseline)
Locations Ranked by CAD Within a Facility
SIR Goal: HHS Goal = 0.5

A TAP Report is the first step in the CDC TAP Strategy. For more informatin on the TAP Strategy, please visit: http://www.cdc.gov/hai/prevent/tap.html
As of February 16, 2017 at 2:00 PM
Date Range: BS2_CLAB_TAP summaryYr2016 to 2016

FACILITY				LOCATION									
Facility Rank	Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Central Line Days	DUR %	CAD	SIR	SIR Test	No. Pathogens (CNS,YS,SA,ES,KS,EC)
1	10000	DHQP Memorial Hospital	6.35		OP WARD	OUT:ACUTE:WARD	0	56					
				1	STEP1	IN:ACUTE:STEP	3	1120	11	2.41	2.6		3 (1, 1, 0, 0, 0, 0)
				2	2W	IN:ACUTE:WARD:M	2	1312	22	1.39	1.6		2 (0, 0, 0, 0, 0, 0)
				3	ICU	IN:ACUTE:CC:MS	4	5073	54	1.33	0.8		4 (0, 2, 0, 2, 0, 0)
				4	STEP2	IN:ACUTE:STEP	2	2105	21	0.89	0.9		2 (0, 1, 1, 0, 0, 0)
				5	1E	IN:ACUTE:WARD:MS	1	402	9	0.81	.		1 (1, 0, 0, 0, 0, 0)
				6	2E	IN:ACUTE:WARD:PP	0	4	0	0	.		
				7	1W	IN:ACUTE:WARD:M	0	28	2	-0.01	.		
				8	TELE	IN:ACUTE:WARD:TEL	0	457	7	-0.21	.		
				9	ICU2	IN:ACUTE:CC:MS	0	564	10	-0.26	.		
2	10401	DHQP Memorial Annex	5.35	1	ICU	IN:ACUTE:CC:MS	3	2181	53	2.06	1.6		3 (1, 1, 0, 0, 0, 0)
				2	2 West	IN:ACUTE:WARD:TEL	2	654	6	1.75	.		2 (0, 0, 1, 0, 0, 1)
				3	6 West	IN:ACUTE:WARD:N	1	382	7	0.85	.		1 (0, 0, 0, 0, 1, 0)
				4	ICU4	IN:ACUTE:CC:MS	2	2692	60	0.84	0.9		2 (0, 1, 0, 0, 0, 0)
				5	ICU3	IN:ACUTE:CC:M	1	496	6	0.81	.		1 (0, 1, 0, 0, 0, 0)
				6	7 East	IN:ACUTE:WARD:S	1	1169	14	0.55	.		1 (0, 0, 0, 0, 1, 0)
				7	5 West	IN:ACUTE:WARD:M	1	2194	21	0.16	0.6		1 (0, 0, 0, 0, 0, 0)

Location Rank and Location

Facility TAP Report – CDI LabID

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 CAD

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
10401	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.

- Data is only applicable at the FACWIDEIN level
- COHCFA Prevalence – allow facilities and groups to see a rate for those CDI events that are potentially associated with a previous stay in that hospital.
  - CO event from a patient discharged from the facility ≤4 weeks earlier

Device-Associated (DA) Module

Procedure-Associated (PA) Module

HAI Antimicrobial Resistance (DA+PA Modules)

Antimicrobial Use and Resistance Module

MDRO/CDI Module - LABID Event Reporting

    All LabID Events

    All MRSA LabID Events

    All MSSA LabID Events

    All C. difficile LabID Events

        Line Listing for All CDIF LabID Events

        Frequency Table for All CDIF LabID Events

        Bar Chart for All CDIF LabID Events

        Pie Chart for All CDIF LabID Events

        Rate Tables for CDIF LabID Data

Modify "Frequency Table for All CDIF LabID Events"

☐ Show descriptive variable names (Print List)   **Analysis Data Set:** LabID_Events   **Type:** Frequency Table   **Data Set Generated On:**

| Title/Format | Time Period | Filters | **Display Options** |

Frequency Table Options:

Selected Variables to include in report:

Row	Column	Page by
location	onset	orgID

Frequency Table Options:

☐ Table percent - Display cell frequency divided by table total

☐ Missing - Include observations with missing values
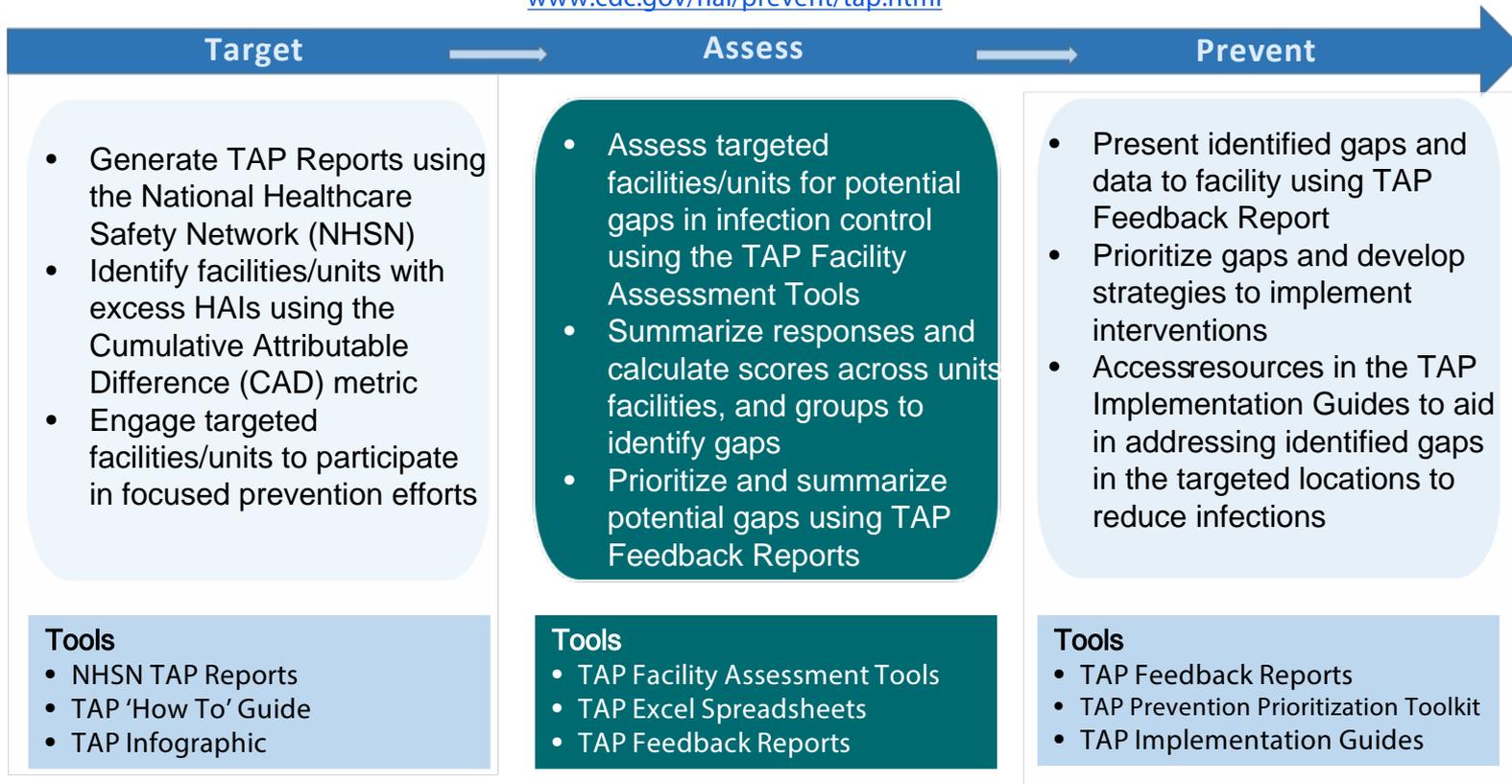
☐ Print the table in list form

Two-Way Table Options:

☑ Row Percent - Display cell frequency divided by row total

☐ Column Percent - Display cell frequency divided by column total

☐ Expected - Expected cell frequencies

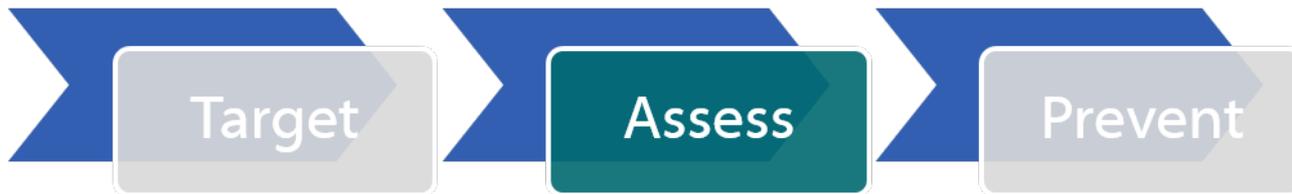☐ Chi-square - Test for independence

TAP

Targeted Assessment for Prevention: *UsingData for Action*
www.cdc.gov/hai/prevent/tap.html

Target → **Assess** → **Prevent**

Target

- Generate TAP Reports using the National Healthcare Safety Network (NHSN)
- Identify facilities/units with excess HAIs using the Cumulative Attributable Difference (CAD) metric
- Engage targeted facilities/units to participate in focused prevention efforts

Tools
- NHSN TAP Reports
- TAP 'How To' Guide
- TAP Infographic

Assess

- Assess targeted facilities/units for potential gaps in infection control using the TAP Facility Assessment Tools
- Summarize responses and calculate scores across units facilities, and groups to identify gaps
- Prioritize and summarize potential gaps using TAP Feedback Reports

Tools
- TAP Facility Assessment Tools
- TAP Excel Spreadsheets
- TAP Feedback Reports

Prevent

- Present identified gaps and data to facility using TAP Feedback Report
- Prioritize gaps and develop strategies to implement interventions
- Accessresources in the TAP Implementation Guides to aid in addressing identified gaps in the targeted locations to reduce infections

Tools
- TAP Feedback Reports
- TAP Prevention Prioritization Toolkit
- TAP Implementation Guides

TAP Facility Assessment Tools

Target   Assess   Prevent

Healthcare-associated Infections (HAI)

Data and Statistics
Types of Infections
Diseases and Organisms
Preventing HAIs
CDI Prevention Strategies
Targeted Assessment for Prevention (TAP)
TAP CAUTI Toolkit Implementation Resources
TAP CDI Implementation Resources
TAP CLABSI Implementation Guide
Toolkits
Basic Infection Control and Prevention Plan for Outpatient Oncology Settings
Outpatient Care Guide
Tools for Protecting Healthcare Personnel
Infection Control Assessment Tools
Water Management Programs
Map: HAI Prevention Activities
Research
Patient Safety
Outpatient Settings

The Targeted Assessment for Prevention (TAP) Strategy

T A P
TARGET   ASSESS   PREVENT

TAP Resources

Target

- Individual Facility User – TAP 'How To' Guide [PDF – 1.41 MB]
- Group User – TAP 'How To' Guide [PDF – 1.35 MB]
- Targeted Assessment for Prevention of Healthcare-Associated Infections: A New Prioritization Metric – Journal article by Soe et al. published in *Infection Control & Hospital Epidemiology* describing the cumulative attributable difference (CAD) metric.
- Example Letter [DOC – 172 KB] – From a State Health Department to a Healthcare Facility, encouraging participation in state and regional prevention collaboratives.
- TAP Strategy Reports – NHSN Guidance on Generating a TAP Report
- TAP Glossary of Terms March 2015 [PDF – 127 KB]
- TAP Training – NHSN Data Entry and Analysis

Assess

- CAUTI TAP Facility Assessment Tool v2.0 – May 2016 [PDF – 2 MB]
- CLABSI TAP Facility Assessment Tool v3.0* – March 2018 [PDF – 1 MB]
- CLABSI TAP Facility Assessment Tool v2.0* – August 2016 [PDF – 924 KB]
- CDI TAP Facility Assessment Tool v5.0* – April 2018 [PDF – 2 MB]
  - CDI TAP Facility Assessment Tool v5.0 – April 2018 – Spanish Translation [PDF – 727 KB]
- CDI TAP Facility Assessment Tool v4.0* – July 2016 [PDF – 1,024 KB]
- CDI Facility Assessment Tool – Instructions [PDF – 383 KB]
- CDI Facility Assessment Tool – Lab section [PDF – 277 KB]
- CDI Facility Assessment Tool – Stewardship section [PDF – 313 KB]

Assess

- CAUTI TAP Facility Assessment Tool v2.0 – May 2016 [PDF – 2 MB]
- CLABSI TAP Facility Assessment Tool v3.0* – March 2018 [PDF – 1 MB]
- CDI TAP Facility Assessment Tool v5.0* – April 2018 [PDF – 2 MB]

TAP Facility Assessment Tools

- Aim to capture *awareness and perceptions* among facility staff and healthcare personnel related to prevention policies and practices
  - Using evidence-based guidance and recommendations

- Should be administered to a variety of staff and healthcare personnel
  - Frontline providers
  - Mid-level staff
  - Facility's senior leadership

- Collection of multiple assessments is recommended for interpreting results
  - The greater number of assessments completed, the greater the ability to identify gaps and target prevention

TAP Facility Assessment Tools

- Actionable information from responses
  - "No" or "Never," "Rarely," "Sometimes" responses
  - "Unknown" responses
  - Divergent responses among different healthcare personnel
- Real-time teaching moments may make deployment an intervention in itself
  - Generates conversation, "Aha" moments, cues to action

TAP Assessments allow one to "prioritize and systematically close the gaps." - Jamie Moran, MSN, RN, CIC Qualis Health

Facility Assessment Tool

I. General Infrastructure, Capacity, and Processes (Continued)

Feedback		
Does your facility routinely provide feedback data to healthcare personnel on:		
21. CLABSI rates and/or standardized infection ratios (SIR)?	☐ Yes ☐ No ☐ Unknown	
22. Central line device utilization ratios (DUR)?	☐ Yes ☐ No ☐ Unknown	

Divergent responses

Facility Assessment Tool

II. Appropriate Indications for Indwelling Urinary Catheter Insertion	Response Choices					
	Never	Rarely	Sometimes	Often	Always	Unknown
1. Do ordering providers document an indication for indwelling urinary catheters?	○	○	○	○	○	○
2. Do ordering providers use indwelling urinary catheters for appropriate indications?	○	○	○	○	○	○
3. Do personnel use alternative strategies for management of urinary incontinence (e.g., external catheters, bedside commodes, scheduled toileting, garments/pads)?	○	○	○	○	○	○
4. Do personnel use bladder scanners to confirm urinary retention before placing or replacing urinary catheters?	○	○	○	○	○	○

Teaching tool

Facility Assessment Tool

IV. Contact Precautions/Hand Hygiene	Response					
	Never	Rarely	Sometimes	Often	Always	Unknown
1. Do patients with CDI remain on Contact Precautions for the duration of diarrhea at your facility?	◯	◯	◯	◯	◯	◯
2. Do patients with CDI remain on Contact Precautions beyond the duration of diarrhea at your facility?	◯	◯	◯	◯	◯	◯
3. Are patients with CDI housed separately from patients without CDI (i.e., in private rooms or placed with other CDI patients ['cohorted']) at your facility?	◯	◯	◯	◯	◯	◯
4. Are dedicated or disposable noncritical medical items (e.g., blood pressure cuffs, stethoscopes, thermometers) used for patients with confirmed or suspected CDI?	◯	◯	◯	◯	◯	◯
5. Are Contact Precautions signs used for rooms to designate patients with confirmed or suspected CDI?	◯	◯	◯	◯	◯	◯

Useful 'Unknowns'

Facility Assessment Tool

On-the-floor practices from view of frontline personnel

V. Environmental Cleaning	Response					
	Never	Rarely	Sometimes	Often	Always	Unknown
1. Are high-touch environmental surfaces (e.g., bed rails/controls, tray table) in patient rooms cleaned:						
A. On a daily basis?	◯	◯	◯	◯	◯	◯
B. Upon discharge?	◯	◯	◯	◯	◯	◯
2. Is shared medical equipment cleaned between patient uses?	◯	◯	◯	◯	◯	◯
3. Is there a clear delineation between items cleaned by Environmental Services personnel versus unit-level personnel (e.g., nurses, nursing assistants, clerks)?	◯	◯	◯	◯	◯	◯
4. Is an EPA-registered product that is effective against C. *difficile* spores used for <u>daily</u> disinfection in the rooms of patients with CDI?	◯	◯	◯	◯	◯	◯

Deploying Assessments

Methods for Dissemination

- Collect assessments from facility-wide personnel
  - Senior Leadership
  - Mid-level Leadership
  - Infection Prevention
  - Quality
  - Environmental Cleaning
- Collect assessments from frontline providers
  - From across facility
  - From specific units/locations identified from TAP Reports and/or other contextual factors

Methods for Dissemination

- Paper form

- SurveyMonkey

- Adobe PDF fillable form

- REDCap

★ *Deployment may include a combination of methods* ★

Methods for Dissemination – Paper Forms

- Provide paper Assessments for staff to complete
    - Have staff complete during a training or meeting
    - Provide a drop-box at a designated location

- Avoids any potential technology barriers

- Allows staff to complete at their own pace

Methods for Dissemination - SurveyMonkey

- CDC can provide a live SM link or send the Assessment template to your SM account

- SurveyMonkey link can be provided to staff by:
  - Emailing link directly to respondents
  - Posting link to intranet site or internal newsletter
  - Opening link on shared computer and/or tablet, allowing staff to take turns completing
  - Providing flyers/posters with instructions for accessing link on their own device
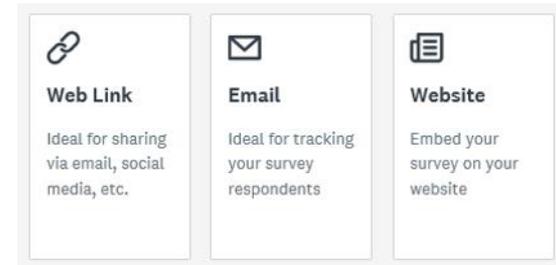
Methods for Dissemination - PDF

- PDF Assessments can be completed electronically
- Requires respondents to have access to email

- *PDFs returned via 'Submit' button must have 'Return Email Address' entered on first page*

  <u>Pre-populate field if:</u>
  - PDF sent via email
  - PDF saved on shared computer

  <u>Instruct respondents to complete field if:</u>
  - Web link is sent via email
  - Web link is shared on intranet

Methods for Dissemination – REDCap

- REDCap is a secure, web-based application used to create and manage online surveys and databases

- Partners with access to REDCap can use TAP Assessment templates

- REDCap Assessments are then distributed electronically using a web link

https://projectredcap.org/about/

Yes, they have been used in my facility

Yes, I have heard of them but they have not been used in my facility

Maybe, they sort of sound familiar

No, this is the first time I've heard about them

If you were to deploy the TAP Facility Assessments, which method(s) do you think would work best for your facility or program? Select all that apply

Paper

SurveyMonkey

PDF Fillable Form

REDCap

Summarizing Assessments

Compiling Assessments

- If received as paper forms:
  - Manually enter response data into Excel

- If received electronically (SurveyMonkey, PDF, or REDCap):
  - Export Assessment data to Excel from respective program

- CDC can assist with data entry and compilation

Step-by-step instructions for all TAP Strategy tools

Email HAIPrevention@cdc.gov

TAP Excel Spreadsheet

- All Assessment responses will be compiled in the TAP Excel Spreadsheet
- Developed to summarize assessment responses using Feedback Report

TAP Feedback Report

Summarizes facility infection data

Summarizes overall 'Leading' and 'Lagging' items

Identifies specific gaps by domain

SAMPLE
Central Line-associated Blood Stream Infection (CLABSI) Facility Assessment Tool—Feedback Report

Date Range:	8	6	5.0	1.30	0.50	0.70
2016	Number of facility CLABSIs	Number of predicted facility CLABSIs	Facility Cumulative Attributable Difference (CAD), or the number of infections the facility would have needed to prevent to achieve an HAI reduction goal SIR of 0.50	Facility CLABSI Standardized Infection Ratio (SIR)	2014 National CLABSI SIR	2014 State CLABSI SIR
				SIR >1.0 indicates more infections than predicted		

Assessment Overview	Leading*	Lagging†
# Collected: 45	Unit-level leadership involvement in CLABSI prevention activities and use of Insertion 'Bundle' for performance improvement	Champions for CLABSI prevention activities and appropriate nursing staff levels in ICUs
# Analyzed: 45	Training, competency assessments, and routine audits of insertion, maintenance, and access procedures	Documentation of indication for central lines; Daily audits to assess necessity of each central line
Overall Mean Score: 49 out of 68, or 72%	Availability of supplies, aseptic technique, appropriate skin prep, and use of maximal sterile barrier precautions for insertion and maintenance	Avoidance of femoral vein; Replacement of lines if aseptic technique not ensured; Use of ultrasound, sutureless securement devices, and Sterile Sleeve
Note: If this report represents **fewer than 30 assessments**, results may not be fully representative of the awareness and perceptions of infection prevention practices among healthcare personnel. Scoring and results are for the purpose of internal quality improvement and should not be used as a method to benchmark against other units or facilities.	Insertion sites monitored and patients are encouraged to report changes or discomfort of central line	Proper replacement of tubing used to administer propofol infusions every 6-12hrs and use of peripheral sites for blood collection

Selected Deep Dives – Top Opportunities for Improvement #

I. General Infrastructure, Capacity, and Processes	II. Appropriate Use of Central Venous Catheters	III. Proper Insertion Practices for Central Venous Catheters	IV. Proper Maintenance Practices for Central Venous Catheters
Nurse or Physician champion for CLABSI prevention activities	Documentation of indication for central lines	Avoidance of femoral vein for central line insertion in adults	Proper replacement of tubing used to administer propofol infusions every 6-12hrs
Appropriate nursing staff levels in ICUs to reduce risk of CLABSI	Daily audits to assess necessity of each central line	Use of ultrasound guidance for insertion to reduce attempts and mechanical complications	Attempt to use peripheral sites before central lines when collecting blood
Training of ultrasound guidance for central line insertion		Use of sutureless securement devices	
Competency assessments of ultrasound guidance for central line insertion: Upon Hire and Annually		Replacement of central lines within 48hrs when adherence to aseptic technique can't be ensured	
Feedback of central line device utilization ratios (DUR)		Use of Sterile Sleeve to protect pulmonary artery catheters	

TAP Feedback Report

Responses Per Question

Please note: Selected LEADING results are highlighted in green (>75% Yes, or >75% for sum of Often+Always). Selected LAGGING results are highlighted in red (>33% Unknown, >50% No, >50% for sum of Never+Rarely+Sometimes+Unknown). It is strongly encouraged that each unit and facility review all of the data available to target other potential opportunities for improvement, aligning to ongoing and/or planned areas for intervention where possible. Data may not be representative of actual practices, as these are self-reported respondent perceptions.

I. General Infrastructure, Capacity, and Processes

Question	Yes	No	Unknown
1. Is your facility's senior leadership involved in CLABSI prevention activities?	72%	19%	9%
2. Is unit-level leadership involved in CLABSI prevention activities?	78%	13%	9%
3. Does your facility currently have a team/work group focusing on CLABSI prevention?	72%	9%	19%
4. Does your facility have a nurse champion for CLABSI prevention activities?	32%	6%	61%
5. Does your facility have a physician champion for CLABSI prevention activities?	9%	6%	84%
6. Does your facility ensure appropriate nursing staff levels in the intensive care units to reduce the risk of CLABSI?	44%	22%	34%
7. Does your facility use performance improvement initiatives in which multifaceted strategies are "bundled" together to improve compliance with evidence-based recommended practices (e.g., "central line insertion bundle")?	75%	0%	25%
8. Does your facility conduct an assessment to identify and learn from potential defects when a CLABSI occurs?	68%	3%	29%

Displays response frequencies per question and highlights potential gaps

TAP Feedback Report

- Scoring methodology created to help further target prevention and track progress
  - For example, this facility may want to prioritize their Antibiotic Stewardship gaps because they scored lowest on this domain
- Scoring is **not** intended to measure performance or compare across facilities

Assessment Overview	
# Collected:	53
# Analyzed:	53
Overall Mean Score:	51.8 out of 80, or 65%

Note: If this report represents fewer than 30 assessments, results may not be fully representative of the awareness and perceptions of infection prevention practices among healthcare personnel. Scoring and results are for the purpose of internal quality improvement and should not be used as a method to benchmark against other units or facilities.

CDI Feedback Report

Top Opportunities for Improvement: ‡

I. General Infrastructure	II. Antibiotic Stewardship	III. Early Detection, Appropriate Testing	IV. Contact Precautions	V. Environmental Cleaning
63%	42%	62%	75%	60%

TAP Feedback Report

Respondent Demographics

	Number of Respondents	Percent of Respondents	Total Mean Points	Total Mean Score
Respondent Role				
Nurse/Nurse Assistant	32	60%	42.0	52%
Physician/PA/NP	15	28%	59.3	73%
Other	5	9%	45.4	56%
Missing	1	2%	--	--
Respondent inserts, assists with insertion of, or maintains central venous catheters as part of their work at this facility?				
Yes	45	85%	49.7	61%
No	8	15%	33.1	41%
Missing	0	0%	--	--
Unit Type				
ICU	12	23%	48.1	59%
Non-ICU	41	77%	47.0	58%
Missing	0	0%	--	--
Years of Experience at Facility				
Less than 1	11	21%	45.5	56%
1 to 5 years	27	51%	47.9	59%
6 to 10 years	14	26%	45.9	57%
Over 10 years	1	2%	66.5	82%
Missing	0	0%	--	--

Displays a breakdown of respondent types and their scores

Feedback Report Demo

T A P

Targeted Assessment for Prevention: *Using Data for Action*
www.cdc.gov/hai/prevent/tap.html

Target	Assess	Prevent

Target

- Generate TAP Reports using the National Healthcare Safety Network (NHSN)
- Identify facilities/units with excess HAIs using the Cumulative Attributable Difference (CAD) metric
- Engage targeted facilities/units to participate in focused prevention efforts

Tools
- NHSN TAP Reports
- TAP 'How To' Guide
- TAP Infographic

Assess

- Assess targeted facilities/units for potential gaps in infection control using the TAP Facility Assessment Tools
- Summarize responses and calculate scores across units, facilities, and groups to identify gaps
- Prioritize and summarize potential gaps using TAP Feedback Reports

Tools
- TAP Facility Assessment Tools
- TAP Excel Spreadsheets
- TAP Feedback Reports

Prevent

- Present identified gaps and data to facility using TAP Feedback Report
- Prioritize gaps and develop strategies to implement interventions
- Access resources in the TAP Implementation Guides to aid in addressing identified gaps in the targeted locations to reduce infections

Tools
- TAP Feedback Reports
- TAP Prevention Prioritization Toolkit
- TAP Implementation Guides

Addressing Identified Gaps

Target → Assess → **Prevent**

The Targeted Assessment for Prevention (TAP) Strategy

TAP Implementation Guides
http://www.cdc.gov/hai/prevent/tap.html

TAP Resources

Target

Assess

Prevent

- TAP CAUTI Toolkit Implementation Guide: Links to Example Resources
- TAP CDI Implementation Guide: Links to Example Resources
- TAP CLABSI Implementation Guide: Links to Example Resources

For questions pertaining to the TAP Strategy and the accompanying TAP tools, please contact: HAIPrevention@cdc.gov

Prevent

- TAP CAUTI Toolkit Implementation Guide: Links to Example Resources
- TAP CDI Implementation Guide: Links to Example Resources
- TAP CLABSI Implementation Guide: Links to Example Resources

TAP Implementation Guides

CDC > Healthcare-associated Infections (HAI) > Preventing HAIs > Targeted Assessment for Prevention (TAP)

TAP Clostridium difficile infection (CDI) Implementation Guide: Links to Example Resources

Disclaimer: The links in the domains below are not mutually exclusive nor do they represent an exhaustive list of all the possible resources available. Furthermore, the links presented do not constitute an endorsement of these organizations or their programs by the Centers for Disease Control and Prevention (CDC) or the federal government, and none should be inferred.

Also refer to the following guidelines:

Strategies to Prevent *Clostridium difficile* Infections in Acute Care Hospitals: 2014 Update

Clinical Practice Guidelines for *Clostridium difficile* Infection in Adults: 2010 Update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA) [PDF – 25 pages]

Other relevant CDC guidelines.

CDI Prevention Primer Slide Set [PPT – 7.3 MB]

> I. General Infrastructure, Capacity, and Processes

> II. Antibiotic Stewardship

> III. Early Detection and Isolation, Appropriate Testing

> IV. Contact Precautions/Hand Hygiene

> V. Environmental Cleaning

Domains align with TAP Assessments

TAP Implementation Guides

▪ Each Domain provides actionable partner resources that can be used to address gaps and prevent infections

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ˇ **I. General Infrastructure, Capacity, and Processes**

Engagement of Leadership, Champions, and Staff

- **Engage the Senior Executive Module – Comprehensive Unit-based Safety Program (CUSP) Toolkit** ↗

  Tools focused on engaging and defining the roles and responsibilities of senior executives in a quality improvement initiative, from the Agency for Healthcare Research and Quality (AHRQ)

- *Clostridium difficile* **Infection (CDI) Toolkit – A Healthcare Professional's Guide to Preventing CDIs** ↗

  Compilation of guidelines, recommendations, and tools for reducing CDI, including general strategies to engage Atom Alliance

- **Prevent and Manage Infections Safely: C. difficile Leadership Fact Sheet** 📕 [PDF – 2 pages] ↗

  Information about the importance of promoting prevention of C. difficile for nursing home leadership, from Advancing Excellence in America's Nursing Homes

Prevention Resources

❷ Implementation Guide

❶ Feedback Report

III. Early Detection, Appropriate Testing
62%

C. difficile tests ordered for appropriate indications: Diarrhea with no other known cause

C. difficile tests ordered for appropriate indications: Testing for diagnosis of CDI

Promptness of C. difficile tests ordered

⌄ III. Early Detection and Isolation, Appropriate Testing

- **Guidance to Providers: Testing for _C. difficile_ Infection** 📕 [PDF – 3 pages] ☐

  Recommendations for CDI testing, including a sample diagnostic algorithm (pg. 2), from Vanderbilt University Medical Center

❸ Partner Resource

Diagnostic Algorithm for _C. difficile_ Infection:

Patient with clinically-significant diarrhea (3 or more loose stools per day for at least 1 to 2 days)? — **NO** → Observe for 24 hrs to assess for persistence of symptoms. Do not order test for _C. difficile_.

YES

Has patient been taking laxatives over the past 24-48 hours? — **YES** → Stop laxative and gauge clinical response prior to ordering _C. difficile_ testing.

NO

Enter order for a single stool specimen to be tested for _C. difficile_. Place patient on empiric Contact Precautions while awaiting results.

C. difficile test results positive? — **NO** → Alternative diagnosis as cause of diarrheal symptoms made?

YES (from positive)

Continue treatment and Contact Precautions. Do not send follow-up _C. difficile_ test (i.e. as a test of cure)

YES (alternative diagnosis) → Stop Contact Precautions

NO (alternative diagnosis) → If _C. difficile_ strongly suspected despite one negative test, a second test may be sent vs. empiric treatment for _C. difficile_ infection.

Prevention Resources

III. Proper Insertion Practices for Central Venous Catheters

- **Vascular Catheter Insertion Checklist** 🅿 [PDF – 552 KB] ↗

Checklist to be completed by the inserter and assistant to document steps before, during, and after central line insertion, from BJC

Healthcare

What We've Learned

TAP Strategy

Targeted Assessment for Prevention: *Using Data for Action*

① Target → Assess → Prevent

■ We generated a CDI TAP Report and found we needed to prevent 23 infections to reach our SIR goal of 0.70

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
	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.

TAP Strategy

Targeted Assessment for Prevention: *Using Data for Action*

Target ➝ ② **Assess** ➝ **Prevent**

- We administered the TAP Facility Assessment across our facility
  - May choose to administer to select units based on data
  - Collected responses from Frontline Providers, Mid-level Staff, and Senior Leadership

Clostridium difficile Infection (CDI)
Targeted Assessment for Prevention (TAP) Facility Assessment Tool

I. General Infrastructure, Capacity, and Processes	Response
1. Does your facility's senior leadership actively promote CDI prevention activities?	○Yes ○No ○Unk
2. Is unit-level leadership involved in CDI prevention activities?	○Yes ○No ○Unk
3. Does your facility have a team/work group focusing on CDI prevention?	○Yes ○No ○Unk
4. Does your facility have a staff person with dedicated time to coordinate CDI prevention activities?	○Yes ○No ○Unk
5. Does your facility have a nurse champion for CDI prevention activities?	○Yes ○No ○Unk
6. Does your facility have a physician champion for CDI prevention activities?	○Yes ○No ○Unk

TAP Strategy

Targeted Assessment for Prevention: *Using Data for Action*

- Created our TAP Feedback Report
- Identified and prioritized our potential gaps
- Accessed actionable resources
- Implemented strategies to address those gaps

Getting Started

TAP Strategy 'How To' Guide

- Running TAP Reports

- Interpreting TAP Reports

- Communicating TAP Report Data

- Assessing for Gaps

- Implementing Infection Prevention Strategies

Click variable name to be directed to more information in this guide.

The unit-specific TAP Report output displays facility units ranked by their CADs.

CDI data are reported to NHSN on a facility-wide basis. Thus, TAP Reports for CDI will only display facility-wide CADs and will not provide unit-level rankings or unit-level CADs.

The surgical intensive care unit (SICU) at DHQP Memorial reported 5 CAUTI events and 5 pathogens during this reporting period. Shown here, 3 pathogens were yeast. This information can help facilities understand the events reported and implement the most appropriate prevention strategies.

Individual Facility, Unit-Specific Report - CAUTI example
Date Range: CAU_TAP summary Yr 2013 to 2013

Facility										
Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Urinary Catheter Days	DUR %	CAD	SIR
1000	DHQP Memorial	5.73	1	SICU	IN:ACUTE:CC:S	5	502	81	3.38	2.3
			2	NEURO	IN:ACUTE:CC:N	3	257	77	1.58	1.5
			3	BURN	IN:ACUTE:CC:B	2	162	61	1.10	1.6
			4	REHAB	IN:ACUTE:WARD:REHAB	1	76	11	0.18	0.9
			5	2N	IN:ACUTE:WARD:M	1	239	20	-0.20	0.6
			6	6S	IN:ACUTE:WARD:M	1	261	20	-0.31	0.5

If location-level CADs are the same in a given facility, their ranks are tie
(EC, YS, PA, KS, PM, ES) = No. of E. coli, yeast (both candida and non-candida species), P. aeruginosa, K. pneumoniae/K. oxytoca, Proteus Mirabilis, Enterococcus species
SIR is set to '.' when expected number of events is < 1.0
LOCATION CAD = (OBSERVED_LOCATION - EXPECTED_LOCATION*0.75)

Rounding the CAD up to a whole number when explaining the data to leadership ensures that they understand how many infections they would have needed to prevent to reach the SIRgoal.

The SIR will display as missing when the predicted number of events is less than

https://www.cdc.gov/hai/pdfs/prevent/tap-guide-for-individual-facility-user.pdf

Tips for Success

- Collaborate with partners
  - State Health Departments, Hospital Associations, QIN-QIOs, HIINs, and others utilize the TAP Strategy and may be able to offer support
  - CDC is available to offer technical assistance

- Align prevention efforts
  - Integrate TAP Strategy with new and ongoing efforts to enhance prevention
  - Deploy Assessments during meetings and training

Tips for Success

- Explore Assessment deployment options
  - Use method(s) that best fits facility's needs to optimize participation and completion

- Leadership support
  - Engage leadership and identify 'Champions'
    - Facility wide and unit-level
  - Encourage leaders to communicate intent/importance of TAP Strategy and promote completion of Assessments

Gaining buy-in

Provide the TAP Infographic as an introduction to the TAP Strategy

The Targeted Assessment for Prevention Strategy

A quality improvement framework that targets resources to maximize efficiency for the reduction of healthcare-associated infections (HAIs)

CAUTI • CDI • CLABSI

Prevent HAIs by targeting locations with excess infections, assessing for gaps, and implementing interventions

TARGET
TAP Reports use data for action to identify facilities and units with the greatest burden of excess infections, targeting efforts to most efficiently reach prevention goals

PREVENT
TAP Implementation Guides contain actionable tools and resources that allow facilities to customize their interventions based on identified gaps

ASSESS
TAP Assessments systematically identify gaps in prevention and opportunities for improvement, while serving as real-time teaching moments among multidisciplinary staff

Gaining buy-in

Share the TAP Testimonials as examples of partner experiences

TAP Strategy *Partner Testimonials*
February 2019 | Volume 1, Issue 1

Successes

TAP brings unit-based leaders at the hospital to the table…helping to collect Assessments so that we could identify gaps in prevention efforts.
– Louisiana Department of Health

TAP Facility Assessments allow frontline staff to become engaged in quality improvement efforts to alleviate infections in their facilities. The TAP Strategy is the best friend leadership and frontline staff have in reducing infections and enhancing staff education. It continues to be a "game changer" if widely employed!
– Health Services Advisory Group, Florida

The TAP Facility Assessment pinpointed housekeeping services as an opportunity for improvement. As a result, our team was able to bring housekeeping into our improvement processes and provide much needed education on their importance in preventing the spread of CDI.
–Chinle Comprehensive Health Care Facility, AZ

Benefits

Facilities have verbalized that TAP allows teams to focus on where the issues are. It provides a complete model for assessing individual units or hospitals and provides evidence-based practices that have a direct impact on patient care. Nursing leadership can quickly identify educational opportunities by utilizing the TAP Facility Assessment Tool.
– Health Services Advisory Group, Florida

Utilizing the TAP Strategy, we were able to engage the largest health system in the state. We worked together to create a CDI testing strategy for several target locations that has since been adapted and implemented throughout the organization.
– Health Services Advisory Group, Ohio

Our facility saw a 60% reduction in the median number of CDI cases/month in 2018 compared with 2016-2017, culminating in reaching zero CDI cases for December 2018. This is the first time our facility has observed zero CDI cases in any month since tracking began.
–Chinle Comprehensive Health Care Facility, AZ

Lessons Learned

The greatest piece of advice is to make the TAP Strategy driven by the facilities themselves. While the TAP Strategy is a quality improvement program led by our HAI/AR Program, we brand all materials as coming from the facility itself. We also recommended that TAP unit-based leaders not be IPs. This further reinforced the need for shared infection control responsibilities.
– Louisiana Department of Health

A facility champion is a must; healthcare professionals that truly get TAP will be the biggest supporters. Utilize the value-based purchasing (VBP) SIR thresholds (SIR goal) when generating TAP Reports to engage senior leadership. TAP is perfect for providing an understandable metric (CAD) for senior leadership to appreciate the number of infections above or below the VBP threshold.
– Health Services Advisory Group, Florida

We would recommend targeting specific disciplines involved in processes that affect the transmission of CDI to complete the Assessment, then review the results together as a multidisciplinary team.
–Chinle Comprehensive Health Care Facility, AZ

Gaining buy-in

- Share NHSN TAP Report data with leadership

- The CAD translates a target SIR into a numeric HAI prevention goal, providing a concrete goal to drive action

- CAD = # of infections needed to prevent to reach SIRgoal
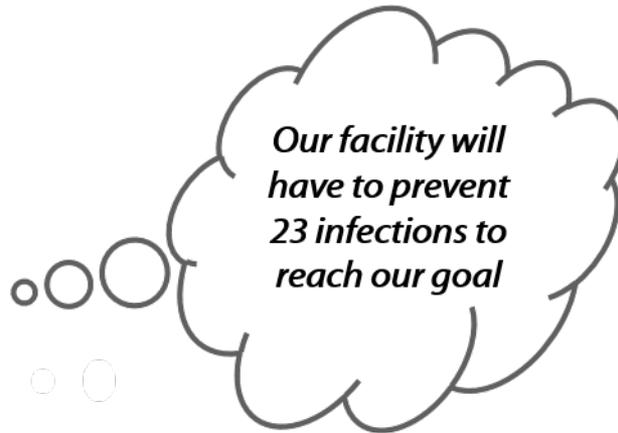
Gaining buy-in

Share Sample Feedback Report as example of end product after Assessment deployment

⭐ *Describe technical assistance available from CDC and other prevention partners*

Sample CDI Feedback Report
Clostridium difficile Infection (CDI) Facility Assessment Tool—Feedback Report

Date Range: 2017	54.00 Number of healthcare facility-onset CDIs	55.67 Number of predicted healthcare facility-onset CDIs	15.03 Facility Cumulative Attributable Difference (CAD), or the number of infections the facility would have needed to prevent to achieve an HAI reduction goal SIR of 0.7	0.97 Healthcare facility-onset CDI Standardized Infection Ratio (SIR)	0.92 2016 National healthcare facility-onset CDI SIR	0.88 2016 State healthcare facility-onset CDI SIR
				SIR >1.0 indicates more infections than predicted		

Assessment Overview	Leading*	Lagging†
# Collected: 53 # Analyzed: 53 Overall Mean Score: 77.5 out of 126, or 62%	Facility leadership promotion of CDI prevention activities; Hand hygiene training, auditing, and feedback	Review of antibiotics for other conditions in CDI pts; Monitoring and reducing use of high risk ABX
Note: If this report represents fewer than 30 assessments, results may not be fully representative of the awareness and perceptions of infection prevention practices among healthcare personnel. Scoring and results are for the purpose of internal quality improvement and should not be used as a method to	Documentation of an indication for Cdiff tests; Rapid implementation of Contact Precautions and patients remain on CP for the duration of diarrhea	Training, competency assessments, and audits of environmental cleaning; Competency assessments of hand hygiene & PPE; Feedback of AU data
	Personnel hand washing with soap and water after contact with CDI pt/environment and a process in place to ensure patients perform hand washing	Appropriate ordering of C diff tests, prompt collection of stool when ordered, & communication of CDI status on transfer to/from facility
	Cleaning of shared medical equipment between patients; Sufficient time for terminal cleaning using label instructions for disinfectants	Proper use of contact precaution signs; Visitor education/adherence to hand hygiene & PPE; Daily cleaning of surfaces in patient rooms

Top Opportunities for Improvement: ‡

I. General Infrastructure 59%	II. Antibiotic Stewardship 54%	III. Early Detection, Appropriate Testing 60%	IV. Contact Precautions 69%	V. Environmental Cleaning 62%
Training of environmental cleaning/disinfection: At least annually	Review of antibiotics for other conditions for patients with new or recent CDI diagnosis	Providers avoid ordering C. difficile tests for inappropriate indications: Diarrhea with a known cause	Use of Contact Precautions signs for rooms of patients with confirmed or suspected CDI	Cleaning of high-touch surfaces in patient rooms: On a daily basis
Conduct competency assessments on hand hygiene, PPE use, & environmental cleaning	Monitor and Reduce use of 3rd/4th Gen. Cephalosporins	C. difficile tests ordered within 24hrs	Placement of Contact Precautions signs in easily visible locations	EPA product effective against C. difficile for daily disinfection in CDI rooms
Routine audits & feedback of contact precaution signs, dedicated equipment, & patient placement	Monitor and Reduce use of Clindamycin	Promptness of stool collection when tests ordered	Family/visitor education on use of gown/gloves for Contact Precautions	EPA product effective against C. difficile for Terminal disinfection in CDI rooms
Routine audits of cleaning of environmental surfaces & shared medical equipment	Reduce use of Fluoroquinolones	Communication of CDI status upon transfer to your facility	Adherence to use of gowns/gloves: Families/Visitors	
Feedback of antibiotic use data to personnel		Communication of CDI status to receiving facilities upon transfer from your facility	Adherence to hand hygiene policies: Families/Visitors	

TAP Tools

	Tools	Location
Target	TAP Reports	NHSN Patient Safety Component
	TAP Infographic & TAP Testimonials	TAP Website
	TAP Report Reference Guides	TAP Website / NHSN Website https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html
Assess	TAP Facility Assessments	TAP Website
	TAP Excel Spreadsheets	Email: HAIPrevention@cdc.gov
	TAP Tools Guide	Email: HAIPrevention@cdc.gov
Prevent	TAP Feedback Report	Component of TAP Excel Spreadsheets
	TAP Implementation Guides	TAP Website

TAP Website: *www.cdc.gov/hai/prevent/tap.html*

TAP Strategy Resources

- TAP FAQs: http://www.cdc.gov/hai/prevent/tap.html
- TAP Report Quick Reference Guides:
  https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html

- Journal article by Soe et al. published in *Infection Control & Hospital Epidemiology* describing the cumulative attributable difference (CAD) metric.

  https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/div-classtitletargeted-assessment-for-prevention-of-healthcare-associated-infections-a-new-prioritization-metricdiv/9C6A5C82359703538798D31F16A3407A

Additional Resources

- 2016 National and State HAI Progress Report: https://www.cdc.gov/hai/data/portal/progress-report.html

- Rebaseline Web page: https://www.cdc.gov/nhsn/2015rebaseline/index.html

- HHS Action Plan Goals for 2020:

  https://health.gov/hcq/prevent-hai-measures.asp

- Help with the TAP Strategy: email HAIPrevention@cdc.gov

- Help with TAP Reports: email NHSN@cdc.gov

Thank You!

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348   www.cdc.gov

NHSN@cdc.gov
HAIPrevention@cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.