Using Data for Action: CDC's TAP Strategy for HAI Prevention

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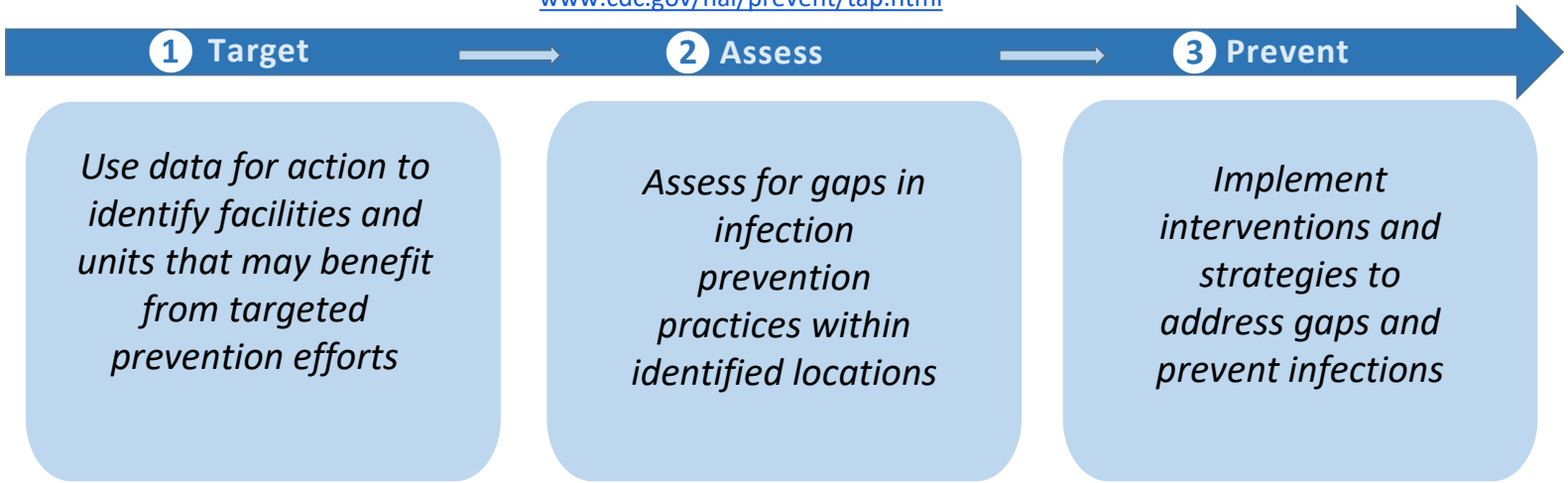
What is the TAP Strategy

- Framework for quality improvement that uses data for action to prevent HAIs
- Allows users to:
  - Prioritize prevention efforts to where they will have the greatest impact
  - Identify specific gaps through standardized assessments
  - Customize strategies to address gaps
- Maximizes impact with limited resources

TAP

Targeted Assessment for Prevention: *Using Data for Action*

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



CDC is available to provide technical assistance for all components of the TAP Strategy for CAUTI, CLABSI, and CDI

What is the TAP Strategy

- Many partners utilize the TAP Strategy
  - Individual facilities and health systems
  - State and local health departments
  - Hospital Associations, HIINs, QIN-QIOs
- Primarily developed for acute care settings, but concepts and tools can be used in other settings
  - If NHSN data are not available, may use other data or contextual factors to target areas of greatest need
  - May modify and tailor Assessment questions to better fit different settings and patient populations
  - Many prevention resources are available for various settings and can be adapted as needed

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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

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

- 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

- Present identified gaps and data to facility using TAP Feedback Report
- Prioritize gaps and develop strategies to implement interventions
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TAP Reports are available within the Patient Safety Component of NHSN for the following facilities and HAIs:

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

Cumulative Attributable Difference (CAD)

A Measure to Target Prevention to Reach HAI Reduction Goals

$CAD = OBSERVED - (PREDICTED * SIR_{goal})$

- CAD is the # of infections needed to prevent to reach an HAI reduction goal (SIR_{goal})

  Positive CAD = more infections than predicted ("excess") based on goal

  Negative CAD = fewer infections than predicted based on goal

- SIR_{goal} = Target or goal defined by the User when running TAP Reports

Cumulative Attributable Difference (CAD)

Facility Org ID	CCN	Summary YR	Events	Number Predicted	Urinary Catheter Days	SIR	SIR p-value	95% Confidence Interval
10000		2017	50	70.805	39772	0.706	0.0097	0.530, 0.923

CAD = Observed # HAIs – (Predicted # HAIs x SIR goal)

CAD = 50 – (70.805 x 0.50*)

CAD = 14.60

Our facility would have had to prevent 15 additional infections to reach our goal

*Custom SIR goal = 0.50

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!

Instructions for running a TAP Report can be found at:

https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html

Facility TAP Report – CLABSI or CAUTI

Units ranked by CAD within a facility.

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	.		

The Facility CAD indicates how many infections this hospital would have had to prevent to reach its goal.

Facility TAP Report – CDI LabID or MRSA

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 are only applicable at the FACWIDEIN level
- CDI and MRSA TAP Reports will also include an NHSN Line Listing that displays the number of infections by unit (note that these are counts, not adjusted rates or SIRs)

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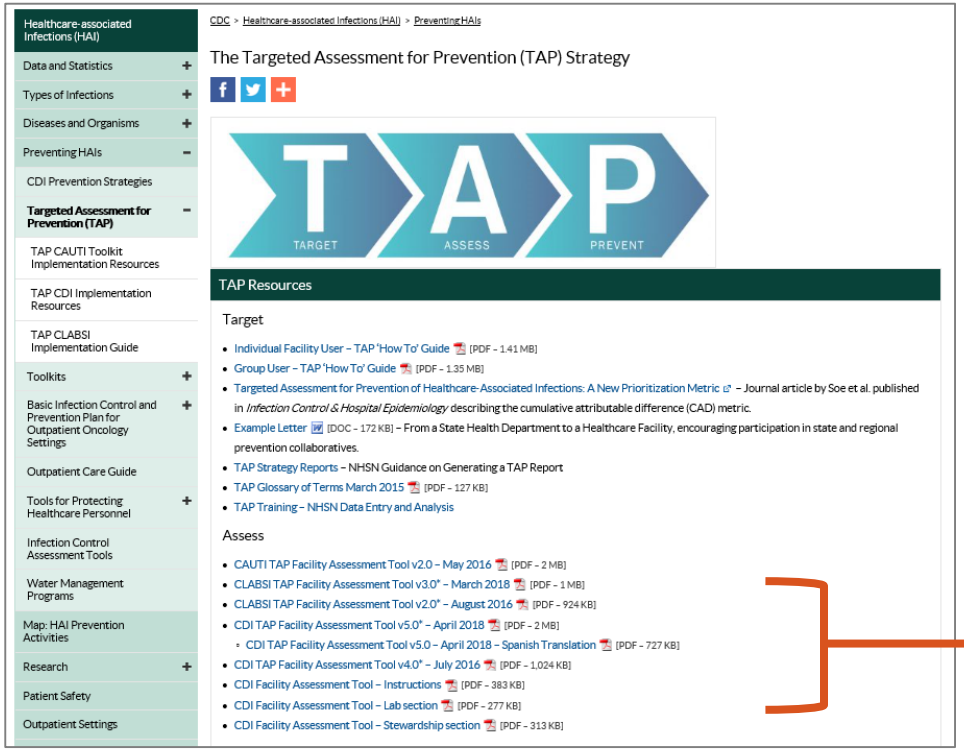


TAP Facility Assessments for CAUTI, CLABSI, and CDI
http://www.cdc.gov/hai/prevent/tap.html

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
- Real-time teaching moments may make deployment an intervention in itself
  - Generates conversation, “Aha” moments, cues to action
- Actively engages frontline staff in quality improvement and infection prevention efforts

TAP Assessments allow one to “prioritize and systematically close the gaps.”

- Jamie Moran, MSN, RN, CIC, formerly of Qualis Health

TAP Facility Assessment Tools

- 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

- Collect assessments from frontline providers
  - From across facility
  - From specific units/locations identified from TAP Reports, line listings, or other contextual factors
- Multiple deployment methods are available:
  - Paper
  - SurveyMonkey
  - RedCAP

Deployment may include a combination of methods

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

III. Aseptic Indwelling Urinary Catheter Insertion	Response Choices					
	Never	Rarely	Sometimes	Often	Always	Unknown
1. Are supplies/kits for proper aseptic indwelling urinary catheter insertion available in all patient care locations where urinary catheters are inserted?	○	○	○	○	○	○
2. Does your facility require at least two personnel to be present for indwelling urinary catheter insertions – one to perform the insertion and the other(s) to observe the procedure to ensure proper aseptic technique (e.g., using a checklist)?	○	○	○	○	○	○
3. Does the person inserting the indwelling urinary catheter document the insertion procedure (e.g., date, person[s] performing procedure, complications)?	○	○	○	○	○	○

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 daily disinfection in the rooms of patients with CDI?	○	○	○	○	○	○
5. Is an EPA-registered product that is effective against C. *difficile* spores used for post-discharge (terminal) disinfection in the rooms of patients with CDI?	○	○	○	○	○	○
6. Is adequate time provided for post-discharge (terminal) cleaning of patient rooms?	○	○	○	○	○	○
7. Are manufacturer instructions followed for use of disinfectants (e.g., appropriate contact time, pre-cleaning)?	○	○	○	○	○	○

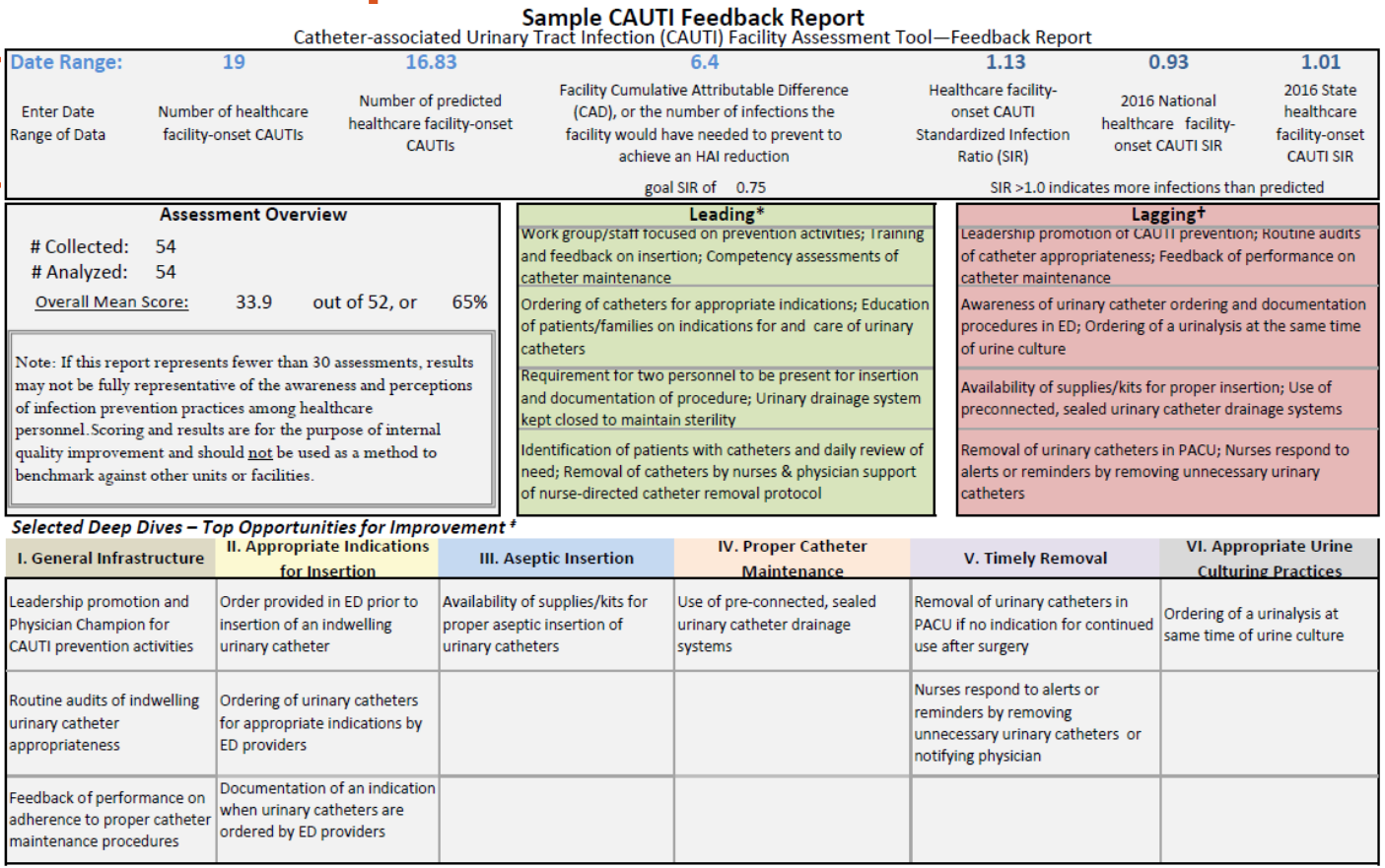
Summarizing Assessments

TAP Feedback Reports

- Report created for each facility that summarizes TAP Facility Assessment results and identifies opportunities for improvement
  - Allows facilities to customize prevention efforts to areas of greatest need

- Facilities can further target prevention by identifying gaps that may be unique to select groups
  - Can review results and tailor interventions to specific units and/or respondent roles (e.g., Nurses, Physicians, Environmental Services)

TAP Feedback Report



Sample CAUTI Feedback Report

Catheter-associated Urinary Tract Infection (CAUTI) Facility Assessment Tool—Feedback Report

Date Range:	19	16.83	6.4	1.13	0.93	1.01
Enter Date Range of Data	Number of healthcare facility-onset CAUTIs	Number of predicted healthcare facility-onset CAUTIs	Facility Cumulative Attributable Difference (CAD), or the number of infections the facility would have needed to prevent to achieve an HAI reduction	Healthcare facility-onset CAUTI Standardized Infection Ratio (SIR)	2016 National healthcare facility-onset CAUTI SIR	2016 State healthcare facility-onset CAUTI SIR
			goal SIR of 0.75	SIR >1.0 indicates more infections than predicted		

Assessment Overview

Collected: 54
Analyzed: 54
Overall Mean Score: 33.9 out of 52, 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.

Leading*	Lagging†
Work group/staff focused on prevention activities; Training and feedback on insertion; Competency assessments of catheter maintenance	Leadership promotion of CAUTI prevention; Routine audits of catheter appropriateness; Feedback of performance on catheter maintenance
Ordering of catheters for appropriate indications; Education of patients/families on indications for and care of urinary catheters	Awareness of urinary catheter ordering and documentation procedures in ED; Ordering of a urinalysis at the same time of urine culture
Requirement for two personnel to be present for insertion and documentation of procedure; Urinary drainage system kept closed to maintain sterility	Availability of supplies/kits for proper insertion; Use of preconnected, sealed urinary catheter drainage systems
Identification of patients with catheters and daily review of need; Removal of catheters by nurses & physician support of nurse-directed catheter removal protocol	Removal of urinary catheters in PACU; Nurses respond to alerts or reminders by removing unnecessary urinary catheters

Selected Deep Dives – Top Opportunities for Improvement ‡

I. General Infrastructure	II. Appropriate Indications for Insertion	III. Aseptic Insertion	IV. Proper Catheter Maintenance	V. Timely Removal	VI. Appropriate Urine Culturing Practices
Leadership promotion and Physician Champion for CAUTI prevention activities	Order provided in ED prior to insertion of an indwelling urinary catheter	Availability of supplies/kits for proper aseptic insertion of urinary catheters	Use of pre-connected, sealed urinary catheter drainage systems	Removal of urinary catheters in PACU if no indication for continued use after surgery	Ordering of a urinalysis at same time of urine culture
Routine audits of indwelling urinary catheter appropriateness	Ordering of urinary catheters for appropriate indications by ED providers			Nurses respond to alerts or reminders by removing unnecessary urinary catheters or notifying physician	
Feedback of performance on adherence to proper catheter maintenance procedures	Documentation of an indication when urinary catheters are ordered by ED providers				

Summarizes facility infection data

Summarizes overall 'Leading' and 'Lagging' items

Identifies specific gaps by domain

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. Does your facility's senior leadership actively promote CAUTI prevention activities?	31%	44%	24%
2. Is unit-level leadership involved in CAUTI prevention activities?	37%	24%	39%
3. Does your facility currently have a team/work group focusing on CAUTI prevention?	85%	4%	11%
4. Does your facility have a staff person with dedicated time to coordinate CAUTI prevention activities?	81%	11%	7%
5. Does your facility have a nurse champion for CAUTI prevention activities?	76%	6%	18%
6. Does your facility have a physician champion for CAUTI prevention activities?	50%	29%	21%

Displays response frequencies per question and highlights potential gaps

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Addressing Identified Gaps

Target → Assess → **Prevent**

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

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

TAP Catheter-Associated Urinary Tract Infection (CAUTI) Implementation Guide: Links to Example Resources

Open All | Close All

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.

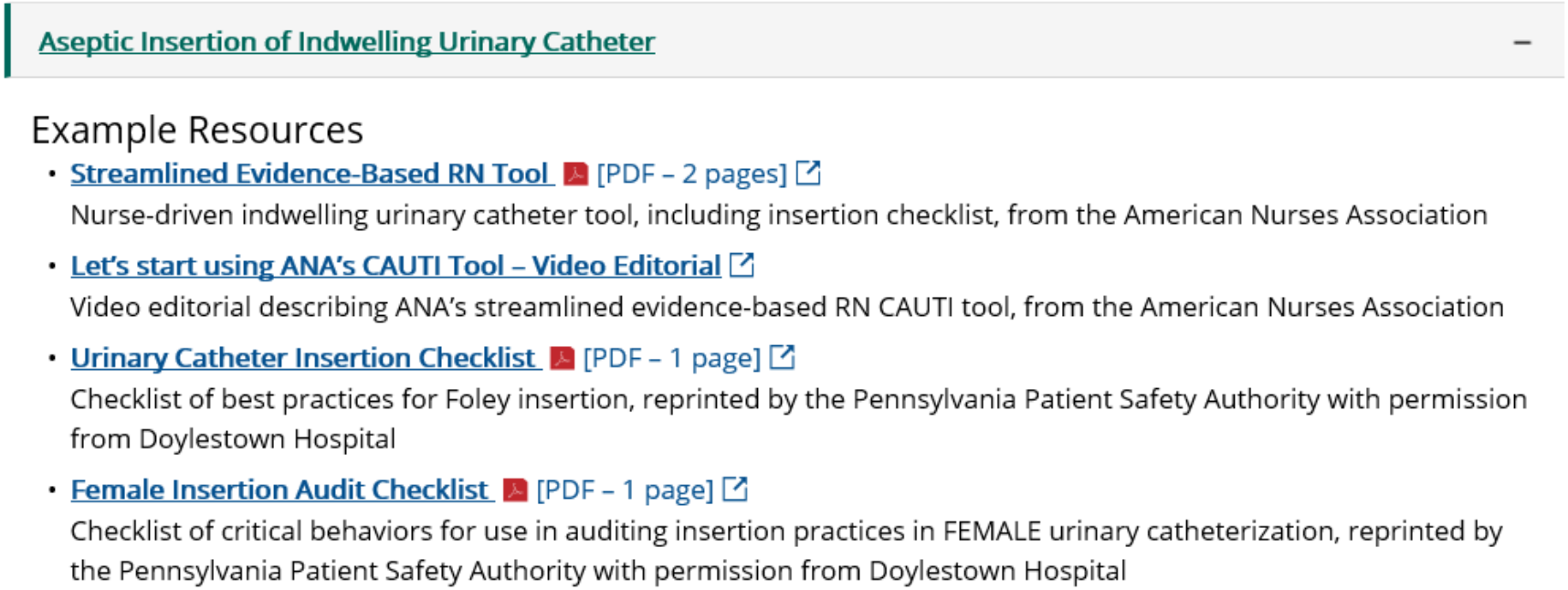
See also the CDC Guideline for Prevention of Catheter-Associated Urinary Tract Infections 2009 [PDF – 407 KB]

- General Infrastructure, Capacity, and Processes +
- Appropriate Indications for Indwelling Urinary Catheter Insertion +
- Aseptic Insertion of Indwelling Urinary Catheter +
- Proper Indwelling Urinary Catheter Maintenance +
- Timely Removal of Indwelling Urinary Catheter +
- Appropriate Urine Culturing Practices +

Domains align with TAP Assessments

TAP Implementation Guides

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



Prevention Resources

- **Streamlined Evidence-Based RN Tool** [PDF – 2 pages]

  Nurse-driven indwelling urinary catheter tool, including insertion checklist and bladder scan protocol, from the American Nurses Association

Indwelling Urinary Catheter (IUC) Insertion Checklist to Prevent CAUTI in the Adult Hospitalized Patient: Important Evidence-Based Steps.	Yes	Yes with Reminder	Comments
Before IUC insertion:			
1) **Determine if IUC is appropriate per the CDC Guidelines** (CDC, 2009) (See page 1, Box 1).			
2) **Select smallest appropriate IUC** (14 Fr., 5ml or 10 ml balloon is usually appropriate unless ordered otherwise).			
3) **Obtain assistance PRN** (e.g., 2-person insertion, mechanical aids) **to facilitate appropriate visualization/insertion technique.**			
4) **Perform hand hygiene.**			
Patient Preparation/Insertion of IUC:			
1) **Perform peri-care**, then, **re-perform hand hygiene.**			
2) **Maintain strict aseptic technique throughout the actual IUC insertion procedure, re-perform hand hygiene upon completion.** • Use sterile gloves and equipment and establish/maintain sterile field. • Do not pre-inflate the balloon to test it, as this is not recommended.			
3) **Insert IUC to appropriate length and check urine flow before balloon inflation to prevent urethral trauma.** • In males, insert fully to the IUC "y" connection, or in females, advance ~1 inch or 2.5 cm beyond point of urine flow.			
4) **Inflate IUC balloon correctly:** Inflate to 10 ml for catheters labeled 5 ml or 10 ml per manufacturer's instructions.			

* https://www.nursingworld.org/~4aede8/globalassets/practiceandpolicy/innovation--evidence/clinical-practice-material/cauti-prevention-tool/anacautipreventiontool-final-19dec2014.pdf

TAP Tools

	Tools	Location
Target	TAP Reports	NHSN Patient Safety Component
	'How To' Guide	TAP Website
	TAP Report Quick Reference Guides	TAP Website
Assess	TAP Facility Assessments	TAP Website (Email CDC for SurveyMonkey or REDCap)
	TAP Excel Spreadsheets	Email HAIPrevention@cdc.gov
	User Guide	Email HAIPrevention@cdc.gov
Prevent	TAP Feedback Report	Component of TAP Excel Spreadsheets
	TAP Implementation Guides	TAP Website
	Prevention Prioritization Toolkit	TAP Website

TAP Website: *www.cdc.gov/hai/prevent/tap.html*
Technical Assistance from CDC: Email HAIPrevention@cdc.gov

Thank You!

Katie White - wwg6@cdc.gov
HAIPrevention@cdc.gov
TAP Website: *www.cdc.gov/hai/prevent/tap.html*