Running TAP Reports in NHSN

Carolyn Gould, MD, MSCR

Maggie Dudeck, MPH, CPH

NHSN Training Course
February 17-19, 2015
Atlanta, GA

Objectives

- **Describe the TAP Strategy**

- **Review the methods for calculating the cumulative attributable difference (CAD)**

- **Illustrate the TAP reports as generated from within NHSN**

NHSN Data for Action:
Targeted Assessment for Prevention (TAP)

NHSN Data
Over 4,800 hospitals currently reporting CAUTI, CLABSI, and CDI data

Targeting →

Target hospitals with highest number of excess infections

Partnering for Prevention →

- CMS QIO-QINs
- Health Departments
- Other partners with rights to data
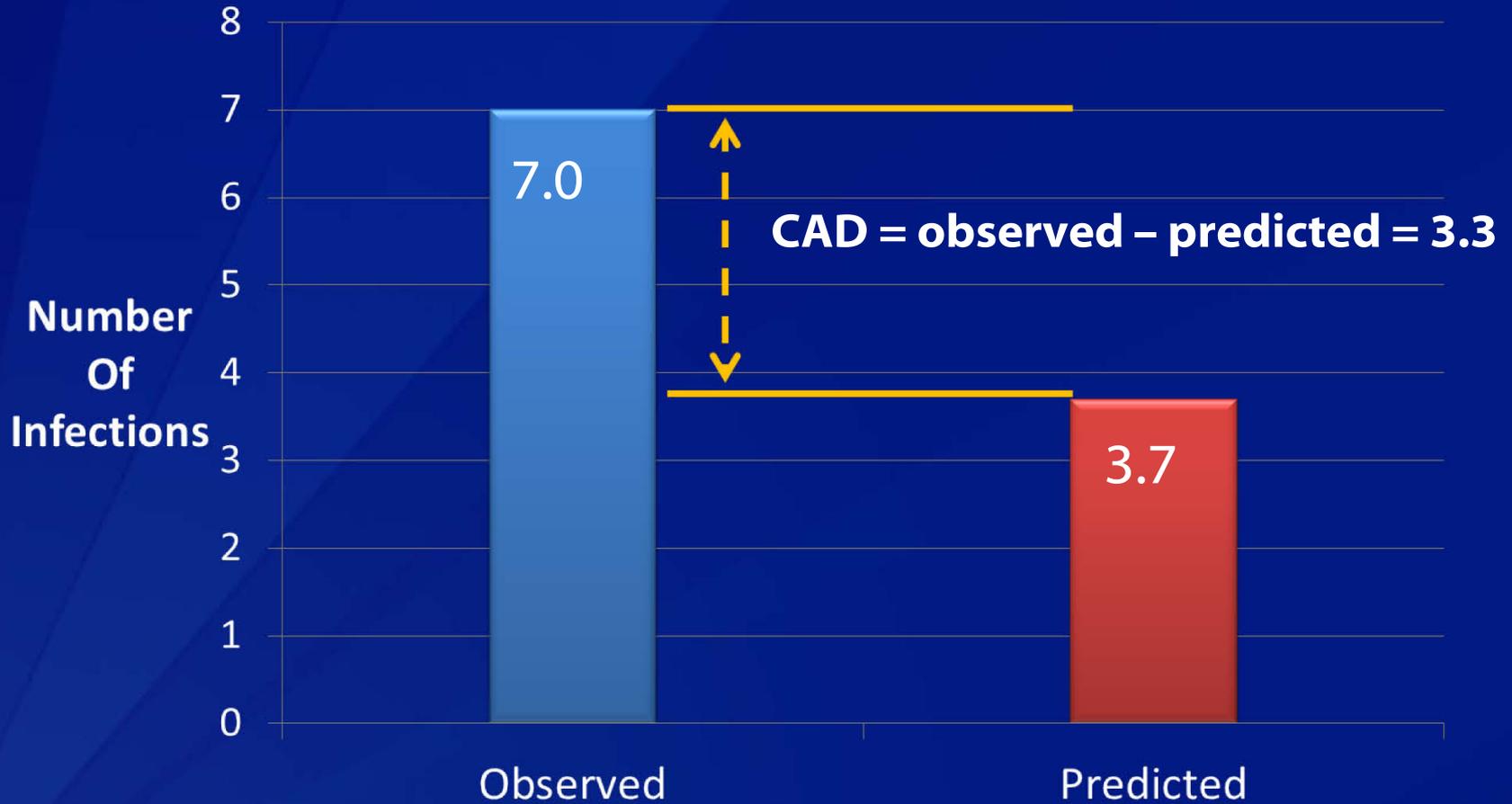
TAP Strategy

Target → Assess → Implement

- **Target** facilities using **TAP Report function** available in NHSN
- **Assess** gaps in infection prevention in targeted facilities/units using **Facility Assessment Tools**
- **Implement** interventions to address the gaps in infection prevention using **Implementation Guidance**

Using a Measure to Help Target Prevention Efforts to Reach HAI Reduction Goals: Cumulative Attributable Difference (CAD)

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

- ☐ Target SIR can be chosen based on goals of a group, state, organization, or national target
    - ▪ Lower target SIR → larger excess number of infections
- ☐ CAD interpretation:
    - ▪ Positive CAD = more infections than predicted ("excess")
    - ▪ Negative CAD = fewer infections than predicted

Cumulative Attributable Difference (CAD)

Sample CAUTI TAP Report: Facility Level

- ☐ **Facilities are ranked by CAD in descending order**
- ☐ **Data separated by ICU vs. non ICU locations**
- ☐ **TAP report also includes data on device utilization and pathogens**

Facility rankings   *Device utilization data*   *Event data*   *Pathogen data*

FACILITY RANK	ORGID	STATE	BEDS	NO.LOCATION (ICU,NON-ICU)	CAUTIS (ICU,NON-ICU)	DEVICE DAYS (ICU,NON-ICU)	DU% (ICU,NON-ICU)	CAD (ICU, NON-ICU)	SIR (ICU,NON-ICU)	ICU: TOTAL NO. PATHOGENS (% EC,YS,PA,KPO,FS,PM,ES)
1	001	AA	325	6(4,2)	42(34,8)	6861(5364,1497)	26(56,9)	22.9(17.8,5.2)	2.2(2.1,2.8)	37 (24, 14, 16, 8, 11, 0, 0)
2	002	AA	586	3(2,1)	73(70,3)	14292(13898,394)	48(70,4)	21.6(20.1,1.5)	1.4(1.4,2)	78 (27, 17, 10, 17, 12, 1, 0)
3	003	AA	471	3(2,1)	28(26,2)	6255(5880,375)	51(72,9)	15.6(15.1,0.6)	2.3(2.4,1.4)	28 (21, 36, 7, 7, 7, 0, 0)
4	004	AA	340	1(1,0)	36(36,.)	6760(6760,.)	84(84,.)	13(13,.)	1.6(1.6,.)	36 (36, 36, 8, 6, 0, 0, 0)
5	005	AA	646	4(4,0)	45(45,.)	11569(11569,.)	71(71,.)	12.2(12.2,.)	1.4(1.4,.)	45 (22, 31, 4, 9, 2, 2, 16)

ICU vs. non-ICU location data separated

Sample CAUTI TAP Report: Unit Level

FACILITY		LOCATION								
FACILITY RANK	ORGID	LOCATION RANK*	LOCATION	CDC LOCATION TYPE	EVENT	DEVICE DAYS	DU	CAD	SIR	TOTAL NO. PATHOGENS (%EC,YS,PA,KPO,FS,PM,ES)
1	001	1	1073	IN:ACUTE:CC:B	14	1783	48%	6.2	1.78	16 (31, 6, 25, 13, 0, 0, 0)
		1	11001	IN:ACUTE:CC:S	10	1443	64%	6.2	2.66	10 (30, 10, 0, 10, 10, 0, 0)
		3	1004	IN:ACUTE:CC:M_PED	4	197	18%	3.8	.	5 (20, 0, 20, 0, 40, 0, 0)
		4	10011	IN:ACUTE:STEP	5	964	13%	3.2	2.72	5 (20, 80, 0, 0, 0, 0, 0)
		5	1012	IN:ACUTE:WARD:M	3	533	6%	2	2.96	4 (50, 0, 25, 0, 0, 0, 0)
		6	1002	IN:ACUTE:CC:M	6	1941	78%	1.5	1.34	6 (0, 50, 17, 0, 17, 0, 0)
2	002	1	POD	IN:ACUTE:CC:MS	24	5358	80%	11.7	1.94	26 (19, 31, 12, 12, 4, 4, 0)
		2	NSTU	IN:ACUTE:CC:NS	46	8540	65%	8.4	1.22	52 (31, 10, 10, 19, 15, 0, 0)
		3	N- REHA	IN:ACUTE:WARD:REHAB	3	394	4%	1.5	2.00	3 (0, 0, 33, 67, 0, 0, 0)
3	003	1	ICU	IN:ACUTE:CC:MS	19	4666	74%	13.4	3.39	21 (19, 48, 0, 10, 5, 0, 0)
		2	NCCU	IN:ACUTE:CC:NS	7	1214	64%	1.7	1.31	7 (29, 0, 29, 0, 14, 0, 0)
		3	REHAB	IN:ACUTE:WARD:REHAB	2	375	9%	0.6	1.40	2 (0, 0, 0, 50, 0, 50, 0)
4	004	1	ICU OSB	IN:ACUTE:CC:T	36	6760	84%	13	1.56	36 (36, 36, 8, 6, 0, 0, 0)
5	005	1	1A	IN:ACUTE:CC:MS	19	4729	75%	8.1	1.74	19 (21, 47, 0, 0, 0, 0, 11)
		2	2AB	IN:ACUTE:CC:T	12	1706	69%	6.2	2.06	12 (33, 17, 8, 8, 0, 0, 17)
		3	2CD	IN:ACUTE:CC:CT	4	2410	71%	-0.1	0.97	4 (0, 75, 0, 0, 25, 0, 0)
		4	1BD	IN:ACUTE:CC:NS	10	2724	65%	-2	0.83	10 (20, 0, 10, 30, 0, 10, 30)

Reporting locations ranked within facilities

Practical Approach to TAP Strategy: Tennessee Example

HAI: CAUTI   Target SIR: 0.75

Number of Infections: 67

Number Predicted: [   ] -OR- Current SIR: 1.3

Compute

Need to prevent 29 infections to reach target SIR of 0.75

Clear Form

Slide courtesy of Marion Kainer

About the TAP reports in NHSN…

- **TAP Reports bring together data elements from other reports within NHSN:**

  - Annual Survey
  - Rate Tables
  - SIRs
  - Event-level information (CLABSI and CAUTI only)

- **TAP reports will only include data for which there is a corresponding denominator reported.**

Currently Available TAP Reports

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

- **TAP reports are available for facility <u>and</u> Group Users**

- **Group users can run TAP reports, dependent on the rights accepted by member facilities**

Currently Available TAP Reports

☐ **TAP Reports are organized by facility type within the "TAP Reports" Output Options folder:**

Running TAP Reports

□ **Default output format is HTML**

- ▪ If another format, (e.g., RTF) is selected, change the orientation to "Landscape"

□ **RECOMMENDATION: Use of variable labels will provide more descriptive column headers**

Select output format:

Output Format:	HTML ▾

☑ Use Variable Labels

Running TAP Reports

- **TAP Reports will be generated for a single, cumulative time period**

  - Click "Run" to obtain a cumulative TAP Report that would be inclusive of <u>all</u> data reported in the generated datasets (e.g., January 2012 to present)

  - Click "Modify" to limit the TAP Report to a specific time period

Example TAP Report Output – CAUTI

☐ **For CLABSI and CAUTI, Group users will see two tables – the first table (shown here) will include one row, per facility.**

☐ **The data will be ranked by Facility CAD**

National Healthcare Safety Network
TAP Report - CAUTI data for Acute Care Hospitals
Locations Ranked by CAD Within a Facility
As of: February 2, 2015 at 11:11 AM
Date Range: All CAU_TAP

Facility Rank	Facility Org ID	Facility Name	State	Type of Affiliation	Number of Beds	Location (I, N, W)	Events (I, N, W)	Device Days (I, N, W)	DUR % (I, N, W)	CAD (I, N, W)	SIR (I, N, W)	SIR Test	ICU No. Pathogens (EC,YS,PA,KS,PM,ES)	Ward+ No. Pathogens (EC,YS,PA,KS,PM,ES)
1	15331	Decennial Medical Center	GA	U	.	1 (1, 0)	2 (2, 0)	576 (576, 0)	50 (50, .)	1.1 (1.1, 0)	1.7 (1.7, .)		2 (1, 0, 0, 0, 0, 0)	0 (0, 0, 0, 0, 0, 0)
2	10000	DHQP Memorial Hospital	GA		.	3 (1, 2)	1 (0, 1)	1119 (434, 685)	11 (5, 48)	-1.4 (-1.4, 0)	0.3 (0, 0.8)		0 (0, 0, 0, 0, 0, 0)	1 (0, 0, 0, 0, 0, 0)

Data value will be '.' if there is no location reporting. SIR set to '.' when expected number of events < 1.0. DUR% not calculated if device days or patient days are missing at facility level.

(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

Facility Rank = Priority ranking for Targeted Assessment of Prevention by CAD in descending order

I,N,W= ICU, WARD+

CAD = (OBSERVED_ICU - EXPECTED_ICU* 0.75) + (OBSERVED_WARD - EXPECTED_WARD* 0.75)

SIR TEST = 'SIG' means SIR > 1 significantly

Data contained in this report were last generated on February 2, 2015 at 8:50 AM.

Example TAP Report Output – CAUTI

☐ **The second table will be displayed for both facility and group users and will rank locations within the facility.**

☐ **NOTE: Facility users will <u>not</u> see a facility rank, since the data in this table are limited to one facility.**

National Healthcare Safety Network
TAP Report - CAUTI data for Acute Care Hospitals
Locations Ranked by CAD Within a Facility
As of: February 2, 2015 at 11:11 AM
Date Range: All CAU_TAP

FACILITY				LOCATION										
Facility Rank	Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Urinary Catheter Days	DUR %	CAD	SIR	SIR Test	No. Pathogens (EC,YS,PA,KS,PM,ES)
1	15331	Decennial Medical Center	1.14	1	ICU/CCU	IN:ACUTE:CC:C	2	576	50	1.14	1.74		2 (1, 0, 0, 0, 0, 0)
2	10000	DHQP Memorial Hospital	-1.40	1	INMEDWARD	IN:ACUTE:WARD:M	1	674	47	0.04	0.78		1 (0, 0, 0, 0, 0, 0)
				2	11	IN:ACUTE:WARD:BHV	0	11	100	-0.01	.		
				3	MD ICU	IN:ACUTE:CC:B	0	434	5	-1.43	0.00		

If location-level CADs are the same in a given facility, their ranks are tied.

(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)

Data contained in this report were last generated on February 2, 2015 at 8:50 AM.

Example TAP Report Output – CDI

☐ **For CDI, only one table will be displayed for group and facility users.**

☐ **Again, facility users will not see a facility rank.**

National Healthcare Safety Network
TAP Report - FACWIDEIN CDI LabID data for Acute Care Hospitals
Facilities Ranked by CAD 'Cumulative Attributable Difference'
As of: February 2, 2015 at 11:26 AM
Date Range: All CDI_TAP

Facility Rank	Facility Org ID	Facility Name	State	Type of Facility	Type of Affiliation	Number of Beds	Patient Days	COHCFA Prevalence Rate	CDIF Facility Incident HO LabID Event Count	CDIF Facility Incident HO LabID Number Expected	Facility CAD	SIR	SIR Test
1	10000	DHQP Memorial Hospital	GA	HOSP-GEN		239	11026	0.00	3	6.709	-1.70	0.450	
2	15331	Decennial Medical Center	GA	HOSP-GEN	U	200	11902	0.00	1	7.132	-3.99	0.140	

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 assicuated CDI prevalence rate per 100 admissions
CAD = Observed - Expected* 0.7
SIR TEST = 'SIG' means SIR > 1 significantly
Data contained in this report were last generated on February 2, 2015 at 8:50 AM.

Comparing TAP Report Results

- Facility users are able to run TAP reports using all of the data entered into NHSN

- Group users are able to run TAP reports using all of the data entered into NHSN for which they have rights to access (as granted by the member facilities)

Comparing TAP Report Results

National Healthcare Safety Network
TAP Report - CAUTI data for Acute Care Hospitals
Locations Ranked by CAD Within a Facility
As of: February 2, 2015 at 11:11 AM
Date Range: All CAU_TAP

CAUTI TAP Report, as run by the Group

FACILITY				LOCATION										
Facility Rank	Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Urinary Catheter Days	DUR %	CAD	SIR	SIR Test	No. Pathogens (EC,YS,PA,KS,PM,ES)
1	15331	Decennial Medical Center	1.14	1	ICU/CCU	IN:ACUTE:CC:C	2	576	50	1.14	1.74		2 (1, 0, 0, 0, 0, 0)
2	10000	DHQP Memorial Hospital	-1.40	1	INMEDWARD	IN:ACUTE:WARD:M	1	674	47	0.04	0.78		1 (0, 0, 0, 0, 0, 0)
				2	11	IN:ACUTE:WARD:BHV	0	11	100	-0.01	.		
				3	MD ICU	IN:ACUTE:CC:B	0	434	5	-1.43	0.00		

If location-level CADs are the same in a given facility, their ranks are tied.
(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)
Data contained in this report were last generated on February 2, 2015 at 8:50 AM.

Comparing TAP Report Results

National Healthcare Safety Network
TAP Report - CAUTI Data for Acute Care Hospitals
Locations Ranked by CAD Within a Facility
As of: February 2, 2015 at 12:02 PM
Date Range: All CAU_TAP

CAUTI TAP Report, as run by the Facility

FACILITY			LOCATION										
Facility Org ID	Facility Name	Facility CAD	Location Rank	Location	CDC Location	Events	Urinary Catheter Days	DUR %	CAD	SIR	SIR Test	No. Pathogens (EC,YS,PA,KS,PM,ES)
10000	DHQP Memorial Hospital	0.07	1	FICU	IN:ACUTE:CC:M	3	124	28	2.81	.		3 (0, 1, 0, 0, 0, 0)
			2	CMICU_N	IN:ACUTE:CC:C	1	125	31	0.81	.		1 (0, 0, 0, 0, 0, 0)
			3	ON_MS	IN:ACUTE:CC:MS	1	300	60	0.71	.		1 (0, 0, 0, 0, 0, 0)
			4	BURN	IN:ACUTE:CC:B	1	110	85	0.64	.		1 (0, 0, 0, 0, 0, 0)
			5	12345	IN:ACUTE:CC:M	1	252	39	0.62	.		1 (0, 1, 0, 0, 0, 0)
			6	ON_S	IN:ACUTE:CC:S	1	400	57	0.22	0.96		1 (0, 0, 0, 0, 0, 0)
			7	3 CENTRAL	IN:ACUTE:WARD:M	0	0	.	0.00	.		
			7	LTAC	IN:ACUTE:SCA:LTAC	0	0	0	0.00	.		
			9	11	IN:ACUTE:WARD:BHV	0	11	100	-0.01	.		
			10	00001	IN:ACUTE:WARD:ONC_HONC	0	12	1	-0.02	.		
			10	5W	IN:ACUTE:CC:C	0	12	55	-0.02	.		
			10	PICU2	IN:ACUTE:CC:MS_PED	0	10	100	-0.02	.		

Comparing TAP Report Results

☐ **Remember! A group may only have access to a <u>subset</u> of the facility's data**

☐ **When comparing TAP reports (as with any other report in NHSN), it's important to keep in mind the following:**

- What time period is being reviewed
- What locations are included in the analysis
- Are there any other factors by which the analysis is limited?

Coming in Summer 2015…

□ **In the Summer 2015 release of NHSN, users will be able to specify a value for the multiplier used in the calculate of the CAD**

- Currently, NHSN uses the HHS Action Plan Goal target SIR as the multiplier
- Users will be able to customize this to use the National SIR, a State SIR, or other desired goal

Questions??

nhsn@cdc.gov