Georgia Department of Public Health

Using the Targeted Assessment for Prevention (TAP) Strategy at a State and Facility Level

Presentation to: Alliant Quality

Presented by: Liz Smith, MPH

Date: January 19, 2016

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Acknowledgements

- Alliant Quality for hosting this webinar
- DPH HAI Program
- **Everyone who collects and reports the data**

Objectives

- **Background**
  - Explain the TAP Strategy
- **Methods**
  - How DPH created TAP reports
  - Explanation of the SIR and the NNTP
- **Describe Components of the TAP Report**
- **DIY TAP Reports using NHSN**
- **Next Steps**
- **Questions**

BACKGROUND

Background

- The Targeted Assessment for Prevention (TAP) report presents healthcare-associated infection (HAI) data to assist facilities in assessing their performance and progress for self-improvement
- 2015 was the first year the Georgia Department of Public Health (DPH) created and sent TAP reports to Georgia facilities

Georgia's Facility-Specific TAP Report

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Facility Specific Healthcare Associated Infections (HAI) Progress Report, 2014†

Facility Name: Example Hospital
NHSN ID: 00000

		Facility SIR		Number of Infections			Statewide Comparison		Costs
HAI	Type/Unit	SIR*	SIR Interpretation§	Observed	**Number Needed to Prevent**	SIR Goal‡	Georgia SIR (2014)	Top 5 Contributor to Georgia SIR (2014)?	Estimated Cost Per Event^
CAUTI	AP ICU, LTACH	0.60	SIG L	15	-	0.75	1.32	NO	$603 - $1,189
CLABSI	AP ICU, LTACH	2.00	SIG H	10	**8**	0.50	0.53	NO	$30,919 - $65,245
	NICU	NA	NA	NA	-	0.50	0.73	NO	
LabID Events	CDI	1.88	NS	75	**47**	0.70	0.92	YES	$9,118 - $13,574
	MRSA	NC	NC	1	-	0.75	1.05	NO	Not Available
SSI	COLO	0.40	NS	2	-	0.75	0.82	NO	$18,902 - $22,667
	HYST	3.33	SIG H	5	**4**	0.75	0.90	YES	

The first page of the TAP Report is a summary of 2014 HAI data

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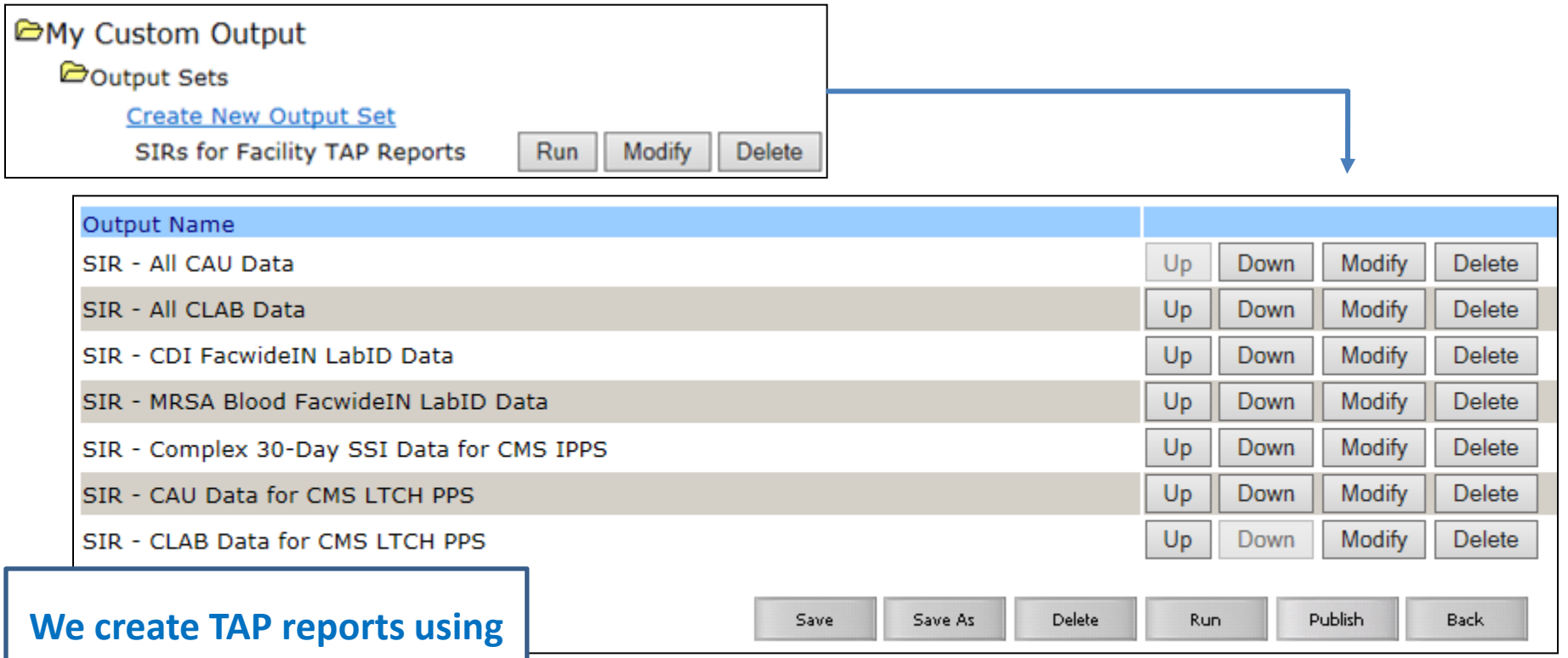
METHODS

Methods



We create TAP reports using NHSN SIR Datasets

Several Comparisons in the Report

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Facility Specific Healthcare Associated Infections (HAI) Progress Report, 2014†

Facility Name: Example Hospital
NHSN ID: 00000

		Facility SIR		Number of Infections			Statewide Comparison		Costs
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CLABSI	AP ICU, LTACH	2.00	SIG H	10	8	0.50	0.53	NO	$30,919 - $65,245
	NICU	NA	NA	NA	-	0.50	0.73	NO	
LabID Events	CDI	1.88	NS	75	47	0.70	0.92	YES	$9,118 - $13,574
	MRSA	NC	NC	1	-	0.75	1.05	NO	Not Available
SSI	COLO	0.40	NS	2	-	0.75	0.82	NO	$18,902 - $22,667
	HYST	3.33	SIG H	5	4	0.75	0.90	YES	

Comparison to national baselines

Comparison to HHS Goals

Comparison to Georgia's overall performance

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Comparison to the National Baseline with the Standardized Infection Ratio

$$\text{Standardized Infection Ratio (SIR)} = \frac{\text{\# of Infections Observed}}{\text{\# of Infections Predicted}}$$

Examples:

- Your facility observed 10 infections and was predicted to have 5. The SIR is 10 ÷ 5 = 2.0. This means your facility had 2 times the number of infections predicted.
- Your facility observed 10 infections and was predicted to have 20. The SIR is 10 ÷ 20 = 0.5. This means your facility had ½ the number of infections predicted.

Comparison to the SIR Goal with the Number Needed to Prevent

Number of Infections Needed to Prevent (NNTP) =
# of Infections Observed – (SIR Goal* # of Infections Predicted)

Examples:

- Your SIR goal is 0.75. Your facility observed 10 infections and was predicted to have 5. The NNTP is 10 - (0.75*5) = 10 - 3.75 = 6.25. This means your facility needs to prevent about 6 infections to reach the SIR goal of 0.75.
- Your SIR goal is 0.50. Your facility observed 10 infections and was predicted to have 20. The NNTP is 10 - (0.5*20) = 10 - 10 = 0. This means your facility has already reached the SIR goal of 0.5

Why Use NNTP?

- **Actionable**
  - More intuitive than SIR
- **Perspective**
  - Brings focus to the patient level
- **Customizable Goals**
  - National baseline data are historical

COMPONENTS OF THE TAP REPORT

What's in the TAP Report

Georgia Department of Public Health

Targeted Assessment for Prevention (TAP) Report

Facility Specific Healthcare Associated Infections (HAI) Progress Report, 2014†

Facility Name: Example Hospital
NHSN ID: 00000

		Facility SIR		Number of Infections			Statewide Comparison		Costs
HAI	Type/Unit	SIR*	SIR Interpretation§	Observed	**Number Needed to Prevent**	SIR Goal‡	Georgia SIR (2014)	Top 5 Contributor to Georgia SIR (2014)?	Estimated Cost Per Event^
CAUTI	AP ICU, LTACH	0.60	SIG L	15	-	0.75	1.32	NO	$603 - $1,189
CLABSI	AP ICU, LTACH	2.00	SIG H	10	**8**	0.50	0.53	NO	$30,919 - $65,245
	NICU	NA	NA	NA	-	0.50	0.73	NO	
LabID Events	CDI	1.88	NS	75	**47**	0.70	0.92	YES	$9,118 - $13,574
	MRSA	NC	NC	1	-	0.75	1.05	NO	Not Available
SSI	COLO	0.40	NS	2	-	0.75	0.82	NO	$18,902 - $22,667
	HYST	3.33	SIG H	5	**4**	0.75	0.90	YES	

The first page of the TAP Report is a summary of 2014 HAI data

What's in the TAP Report

Georgia Department of Public Health

The Targeted Assessment for Prevention (TAP) report presents healthcare-associated infection (HAI) data to assist facilities in assessing their performance and progress for self-improvement. Facility-specific rates are compared to state performance and national benchmarks.

The remaining pages of the TAP Report explain the report components

TAP Report Example:

Targeted Assessment for Prevention (TAP) Report (A)

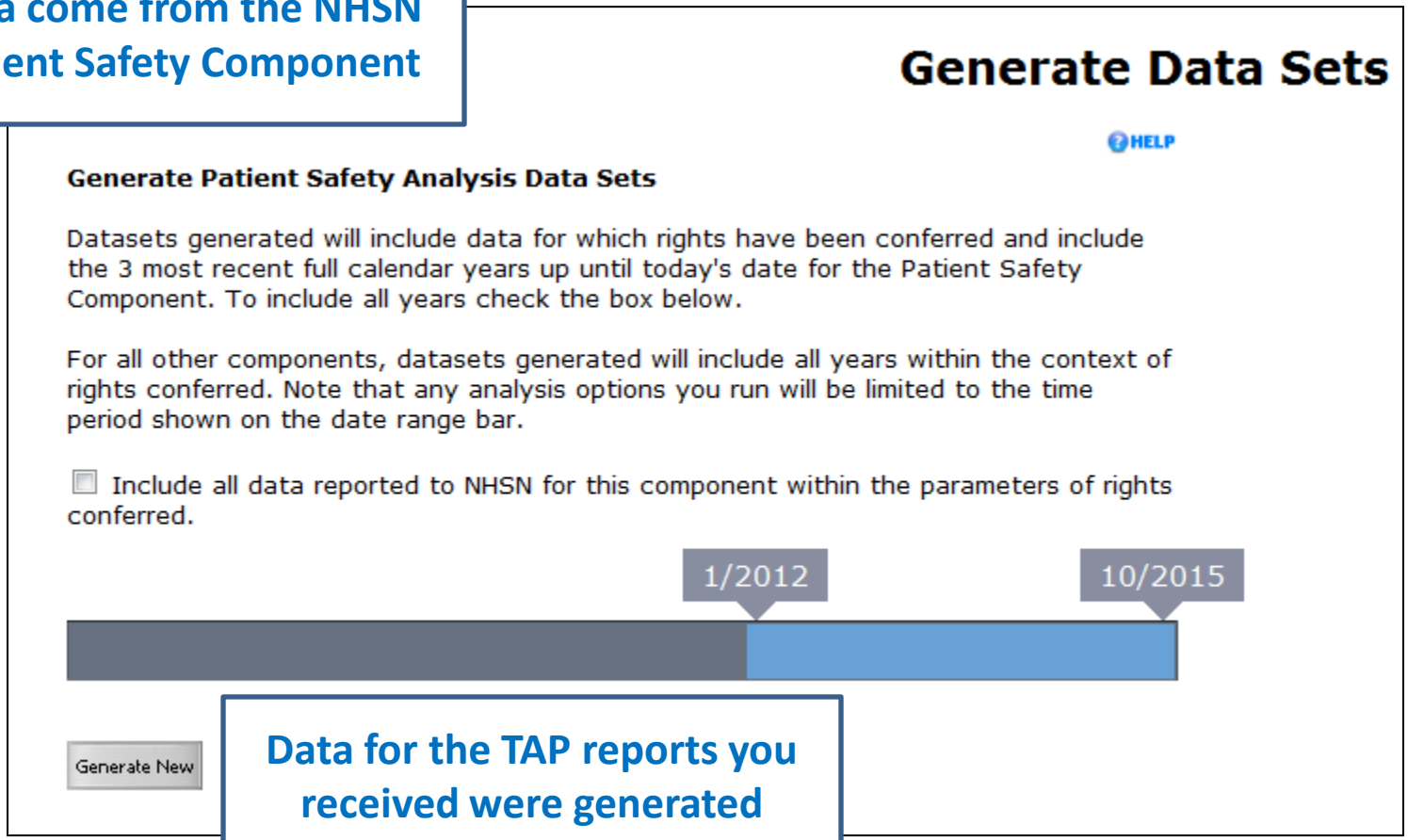
Facility-Specific Healthcare Associated Infections (HAI) Progress Report, 2014†

(B) Facility Name: Hospital A
NHSN ID: 12345

		Facility SIR		Number of Infections		(I)	Statewide Comparison		(L) Costs
(C) HAI	(D) Type/ Unit	(E) SIR*	(F) SIR Interpretation§	(G) Observed	(H) Number Needed to Prevent	SIR Goal‡	(J) Georgia SIR (2014)	(K) Top 5 Contributor to Georgia SIR (2014)?	Estimated Cost Per Event^
CAUTI	AP ICU, LTACH	0.43	SIG L	52	-	0.75	1.32	NO	$603 - $1,189
CLABSI	AP ICU, LTACH	1.40	SIG H	105	68	0.50	0.53	YES	$30,919 - $65,245
	NICU	NA	NA	NA	-	0.50	0.73	NO	
LabID Events	CDI	0.86	NS	6	1	0.70	0.92	NO	$9,118 - $13,574
	MRSA	2.33	NS	7	5	0.75	1.05	YES	Not Available
SSI	COLO	0.00	SIG L	0	-	0.75	0.82	NO	$18,902 - $22,667
	HYST	NC	NC	3	-	0.75	0.90	NO	

Where do the Data Come From?

Data come from the NHSN Patient Safety Component



Data for the TAP reports you received were generated September 11, 2015

What Facilities Receive TAP Reports? What HAI Data do Facilities Report?

103 Acute Care Hospitals

Acute Care Hospitals are required to report:
CLABSI
CAUTI
CDI
MRSA
SSI

5 Critical Access Hospitals

Critical Access Hospitals are NOT required to report HAIs. Data are provided on a voluntary basis

15 Long-Term Acute Care Hospitals

Long Term Acute Care Hospitals are required to report:
CLABSI
CAUTI

2 Children's Hospitals

Children's Hospitals are NOT required to report HAIs. Data are provided on a voluntary basis

B

What Information is Used to Identify My Facility?

- **The name of your facility as it appears in NHSN**
  - Note: efforts were made to update these names if changes in facility names were known
  - If you would like for your facility reports to display a different name, please update NHSN to reflect this
- **Your facility's NHSN orgID number**
  - If multiple facilities share one NHSN orgID number, all applicable data for those facilities are combined in a single report

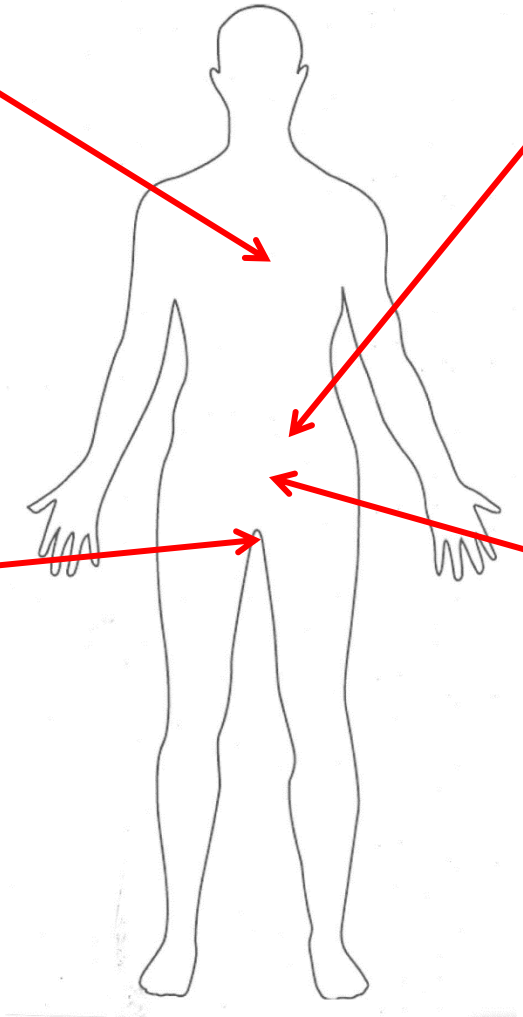
What HAI Data are Reported?
What Locations Report HAI Data?

CLABSI

- Adult, Pediatric, and Neonatal ICUs
- Adult and Pediatric LTAC ICUs and Wards

CAUTI

- Adult and Pediatric ICUs
- Adult and Pediatric LTAC ICUs and Wards



SSI

- Inpatient COLO Procedures
- Inpatient HYST Procedures

LabID

- Facility Wide Inpatient *C. difficile* events
- Facility Wide Inpatient MRSA events

Standardized Infection Ratio

$$\text{Standardized Infection Ratio (SIR)} = \frac{\text{\# of Infections Observed}}{\text{\# of Infections Predicted}}$$

- **Interpreting the SIR**
  - If the SIR is **less than 1.0**, you had **fewer** infections than expected
  - If the SIR is **equal to 1.0**, you had the **predicted** number of infections
  - If the SIR is **greater than 1.0**, you had **more** infections than expected

- **The number of infections predicted is based on national baseline data collected by CDC**
  - These data were collected during 2006-2008 for CLABSI and SSI; 2009 for CAUTI; and 2010-2011 for CDI and MRSA

Why is my SIR "NA" or "NC?"

Facility Nam NHS				
		Facility SIR		Number o
HAI	Type/Unit	SIR*	SIR Interpretation§	Observed
CAUTI	AP ICU, LTACH	0.60	SIG L	15
CLABSI	AP ICU, LTACH	2.00	SIG H	10
	NICU	NA	NA	NA
LabID Events	CDI	1.88	NS	75
	MRSA	NC	NC	1
SSI	COLO	0.40	NS	2
	HYST	3.33	SIG H	5

Why is my SIR "NA" or "NC?"

- **If your SIR value is "NA"**
  - Your facility did not meet the requirements for reporting (the SIR is **Not Applicable**)
    - For example, your facility does not have a NICU. Your NICU SIR will be "NA"
    - For example, your facility is an LTACH, which reports only CLABSI and CAUTI. Your COLO and HYST SIR will be "NA"
- **If your SIR value is "NC"**
  - Your number of infections expected was less than 1.0 so the SIR was **Not Calculated**
    - For example, you observed 2 CLABSI and were expected to have 0.25 CLABSI. Your CLABSI SIR will be "NC"

What is the SIR Interpretation?

- **The data downloaded from NHSN provide the 95% confidence interval and the p-value for the SIR**
  - These determine if your SIR was significantly different from what was predicted based on **national baselines**
  - If your SIR is **SIG L** the number of infections observed was significantly lower than predicted
  - If your SIR is **SIG H** the number of infections observed was significantly higher than predicted
  - If your SIR is **NS**, the number of infections observed was not significantly different than predicted

Why is my SIR Interpretation "NA" or "NC?"

Facility Nam NHS				
		Facility SIR		Number o
HAI	Type/Unit	SIR*	SIR Interpretation§	Observed
CAUTI	AP ICU, LTACH	0.60	SIG L	15
CLABSI	AP ICU, LTACH	2.00	SIG H	10
	NICU	NA	NA	NA
LabID Events	CDI	1.88	NS	75
	MRSA	NC	NC	1
SSI	COLO	0.40	NS	2
	HYST	3.33	SIG H	5

Why is my SIR Interpretation "NA" or "NC?"

- **If your SIR Interpretation is "NA"**
  - Your facility did not meet the requirements for reporting (the SIR is **Not Applicable**)
  - Because the SIR was Not Applicable, the 95% confidence interval and the p-value were Not Applicable
- **If your SIR Interpretation is "NC"**
  - Your number of infections expected was less than 1.0 so the SIR was **Not Calculated**
  - Because there is no SIR, the 95% confidence interval and the p-value were Not Calculated

Where do the Observed Data Come From?

Output Name				
SIR - All CAU Data	Up	Down	Modify	Delete
SIR - All CLAB Data	Up	Down	Modify	Delete
SIR - CDI FacwideIN LabID Data	Up	Down	Modify	Delete
SIR - MRSA Blood FacwideIN LabID Data	Up	Down	Modify	Delete
SIR - Complex 30-Day SSI Data for CMS IPPS	Up	Down	Modify	Delete
SIR - CAU Data for CMS LTCH PPS	Up	Down	Modify	Delete
SIR - CLAB Data for CMS LTCH PPS	Up	Down	Modify	Delete

Save | Save As | Delete | Run | Publish | Back

We create TAP reports using NHSN SIR Datasets

Why is my observed value “NA”?

Facility Nam NHS				
		Facility SIR		Number o
HAI	Type/Unit	SIR*	SIR Interpretation§	Observed
CAUTI	AP ICU, LTACH	0.60	SIG L	15
CLABSI	AP ICU, LTACH	2.00	SIG H	10
	NICU	NA	NA	NA
LabID Events	CDI	1.88	NS	75
	MRSA	NC	NC	1
SSI	COLO	0.40	NS	2
	HYST	3.33	SIG H	5

Why is my observed value “NA”?

- **Your facility did not meet the requirements for reporting (Not Applicable)**
  - ***Note: this is different from having 0 infections***
  - For example, your facility did not use central lines in your AP ICU. Your observed value for AP ICU CLABSI is “NA”

What is the Number Needed to Prevent? What are the SIR Goals?

Number of Infections Needed to Prevent (NNTP) =
# of Infections Observed – (SIR Goal* # of Infections Predicted)

- **Even if you had fewer infections observed than expected, you may still have a NNTP**
  - This is because the 2013 HHS SIR goals are lower than the national baseline
- **The 2013 HHS SIR goals are:**
  - 0.5 for CLABSI
  - 0.70 for CDI
  - 0.75 for CAUTI, COLO, HYST, and MRSA

What is the Georgia SIR?

- **Georgia's SIR represents the overall state performance for each HAI**

$$\text{State SIR} = \frac{\text{Total \# of Infections Observed for All Applicable Facilities}}{\text{Total \# of Infections Expected for All Applicable Facilities}}$$

What is the Top 5 Contributor to Georgia SIR?

- **For each HAI, facilities were ranked by their NNTP**
- **The 5 facilities with the highest NNTP will see "YES" in this column**
  - all other facilities will see "NO" in this column

Where do the Estimated Costs per Event Come From?

- Zimlichman E, Henderson D, Tamir O, et al. Health Care–Associated Infections: A Meta-analysis of Costs and Financial Impact on the US Health Care System. *JAMA Intern Med*. 2013;173(22):2039-2046. doi:10.1001/jamainternmed.2013.9763
  - Cost data are presented as a range of attributable costs per case adjusted to 2012 dollars
  - Link to article: http://archinte.jamanetwork.com/article.aspx?articleid=1733452

From: **Health Care–Associated Infections: A Meta-analysis of Costs and Financial Impact on the US Health Care System**

JAMA Intern Med. 2013;173(22):2039-2046. doi:10.1001/jamainternmed.2013.9763

Table 1. Estimates of Costs and LOS Attributed to the 5 Major Health Care–Associated Infections for the US Adult Inpatient Population at Acute Care Hospitals[a]

Health Care-Associated Infection Type	Cost, 2012 $US	LOS (as Total, ICU), d
Surgical site infections	20 785 (18 902-22 667)[b]	11.2 (10.5-11.9)[b]
MRSA	42 300 (4005-82 670)[b]	23.0 (14.3-31.7)[b]
Central line-associated bloodstream infections	45 814 (30 919-65 245)[b,c]	10.4, 6.9 (6.9-15.2, 3.5-9.6)[b,c]
MRSA	58 614 (16 760-174 755)[c]	15.7 (7.9-36.5)[c]
Catheter-associated urinary tract infections	896 (603-1189)[b]	NR
Ventilator-associated pneumonia	40 144 (36 286-44 220)[b,c]	13.1, 8.4 (11.9-14.3, 7.8-9.0)[b,c]
Clostridium difficile infections	11 285 (9118-13 574)[b]	3.3 (2.7-3.8)[b]

Abbreviations: ICU, intensive care unit; LOS, length of hospital stay; MRSA, methicillin-resistant *Staphylococcus aureus*; NR, not reported.

[a] Data are reported as mean (95% CI) values.

[b] Estimates obtained from literature and 100 000-trial Monte Carlo simulations using triangular distribution.

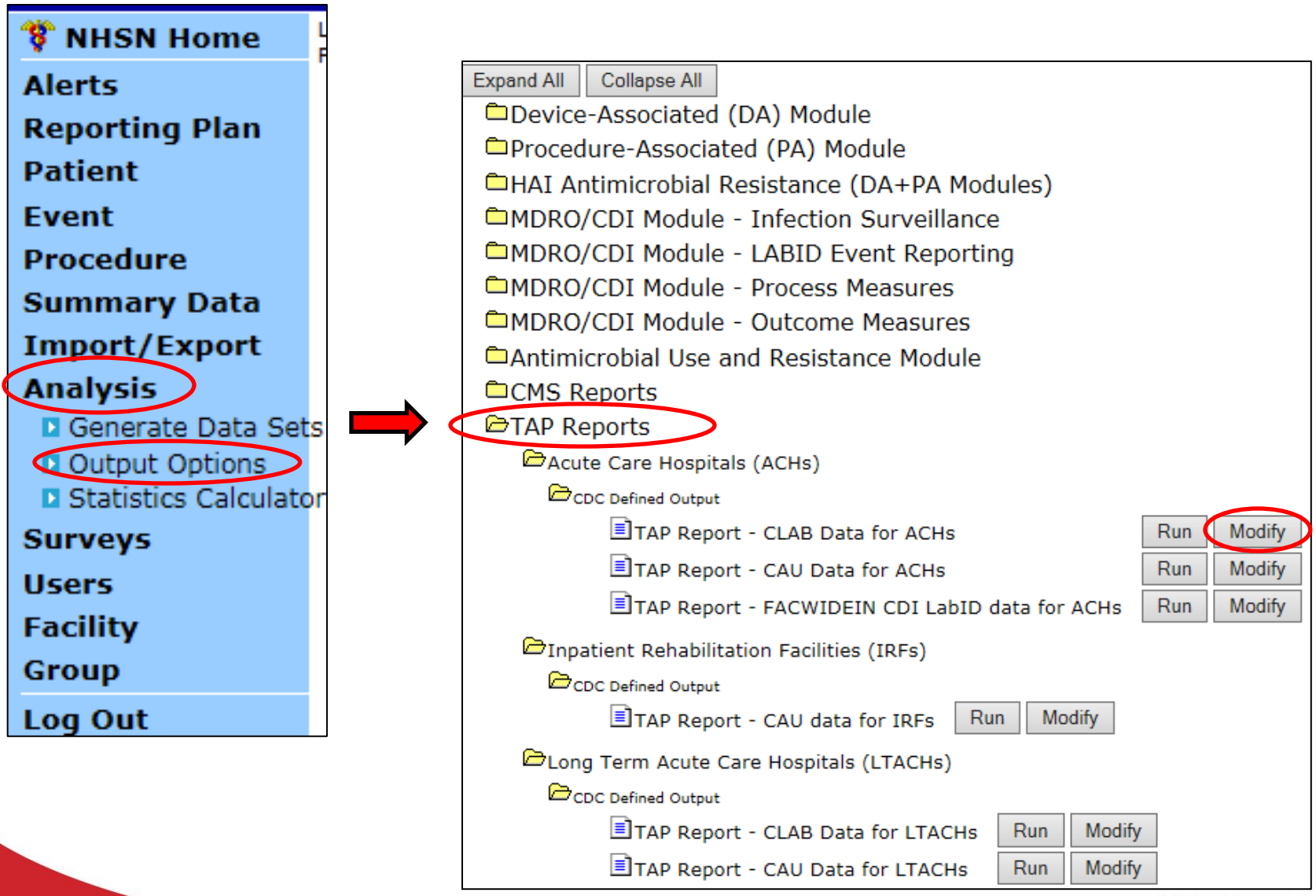
[c] Estimates obtained from literature and 100 000-trial Monte Carlo simulations, using general distribution.

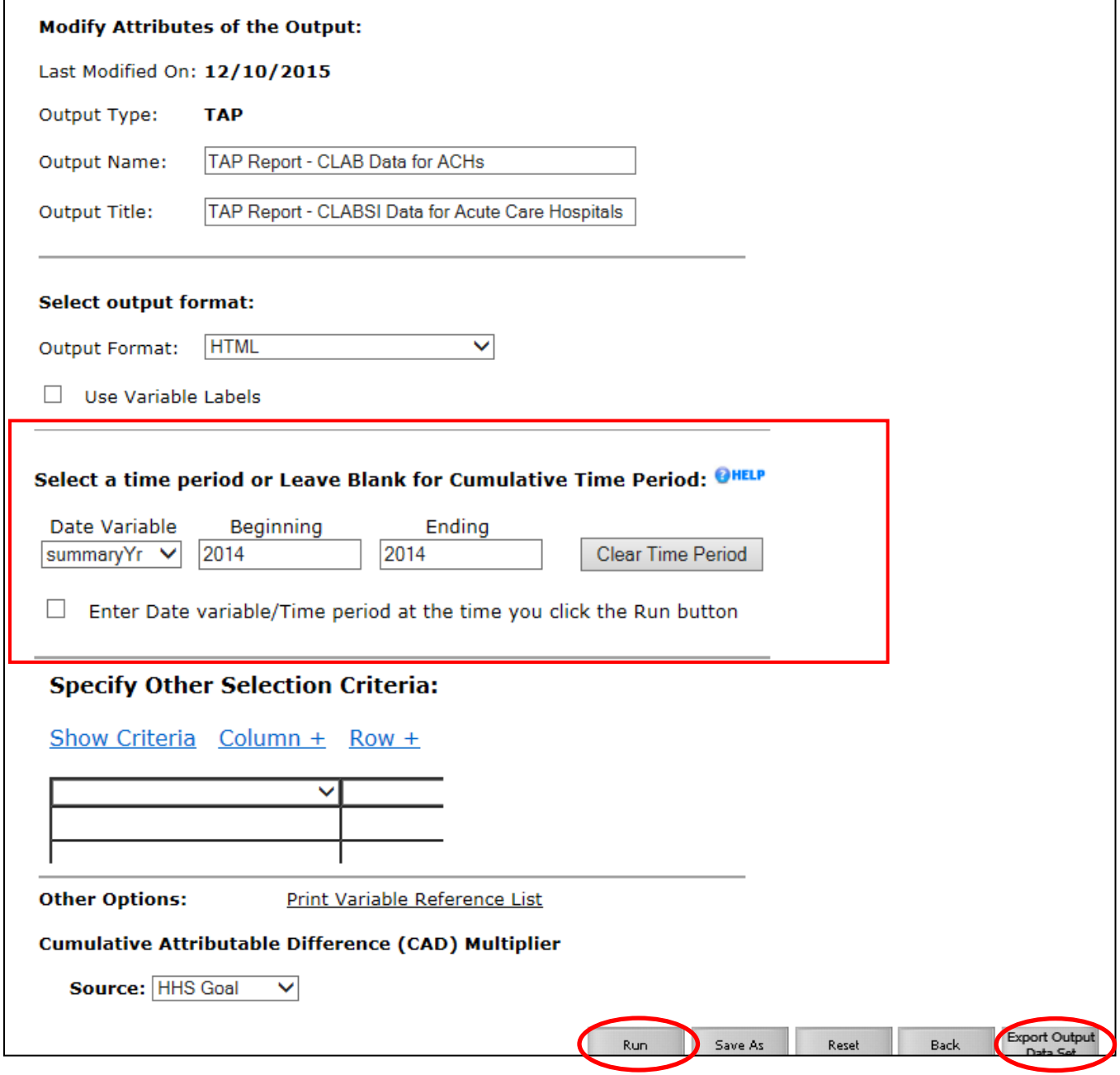
Table Title:

Estimates of Costs and LOS Attributed to the 5 Major Health Care–Associated Infections for the US Adult Inpatient Population at Acute Care Hospitals[a]

DIY TAP REPORT

Create Your Own TAP Report




Modify Attributes of the Output:
Last Modified On: 12/10/2015
Output Type: TAP
Output Name: TAP Report - CLAB Data for ACHs
Output Title: TAP Report - CLABSI Data for Acute Care Hospitals
Select output format:
Output Format: HTML
Use Variable Labels
Select a time period or Leave Blank for Cumulative Time Period:
HELP
Date Variable
Beginning
Ending
summaryYr
2014
2014
Clear Time Period
Enter Date variable/Time period at the time you click the Run button
Specify Other Selection Criteria:
Show Criteria
Column +
Row +
Other Options:
Print Variable Reference List
Cumulative Attributable Difference (CAD) Multiplier
Source: HHS Goal
Run
Save As
Reset
Back
Export Output Data Set

National Healthcare Safety Network

TAP Report - CAUTI Data for Acute Care Hospitals

Locations Ranked by CAD Within a Facility

As of: January 12, 2015 at 1:46 PM

Date Range: CAU_TAP summaryYr 2013 to 2013

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)
10018	DHQP MEMORIAL HOSPITAL	8.17	1	ICU	IN:ACUTE:CC:MS	5	400	32	4.31	.		5 (2, 1, 1, 0, 0, 1)
			2	JOYREHAB	IN:ACUTE:WARD:REHAB	2	50	25	1.86	.		6 (0, 0, 0, 0, 0, 0)
			3	INPEDREB	IN:ACUTE:WARD:REHAB_PED	1	20	20	0.96	.		1 (0, 0, 0, 0, 0, 0)
			4	ONC M	IN:ACUTE:CC:M	1	310	56	0.47	.		1(1, 0, 0, 0, 0, 0)
			4	ONC_MS	IN:ACUTE:CC:MS	1	310	56	0.47	.		1 (0, 1, 0, 0, 0, 0)
			6	ONC_S	IN:ACUTE:CC:S	1	310	56	0.40	.		1 (0, 0, 0, 0, 1, 0)
			7	5G	IN:ACUTE:CC:C	0	1	100	0.00	.		
			7	AA.3RD	IN:ACUTE:WARD:MS	0	1	100	0.00	.		
			7	AA.4TH	IN:ACUTE:WARD:MS	0	1	100	0.00	.		
			7	AA.5TH	IN:ACUTE:WARD:MS	0	2	100	0.00	.		
			11	INSURGCC	IN:ACUTE:CC:S	0	10	33	-0.02	.		
			12	MD	IN:ACUTE:CC:B	0	10	33	-0.03	.		
			13	S-ICU	IN:ACUTE:CC:S	0	20	20	-0.04	.		
			14	ICU/CCU	IN:ACUTE:CC:C	0	125	31	-0.19	.		

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

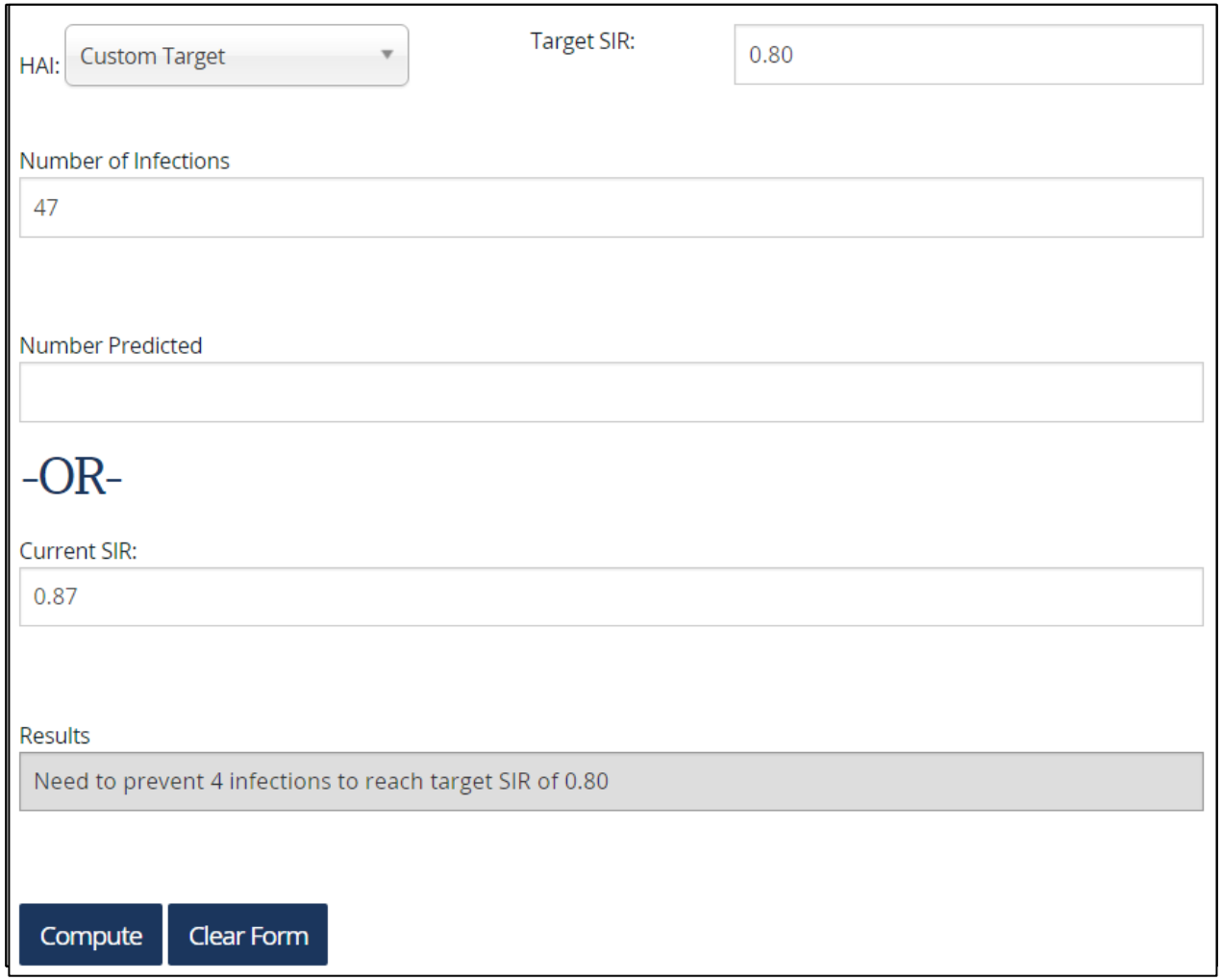
(EC,YS,PA,KS,PM,ES) = No. of E. Coli, Yeast (both candida and non-candida species), P. aeruginosa, K. pneumoniae/K. oxytoca, Proteus Mirabilis, Enterococcus species

SIR is set to '.' when expected number of events is <1.0.

LOCATION CAD = (OBSERVED_LOCATION - EXPECTED_LOCATION* 0.75)

Tennessee DPH HAI Calculator

- https://tn.gov/health/article/hai-prevention-calculator



NEXT STEPS

Next Steps: Feedback on the 2014 Report

- **If you received a 2014 TAP report, your feedback is important!**
- **An anonymous 15-question feedback survey is available at https://www.surveymonkey.com/r/L2H7H2L**
- **Use the survey to let us know:**
  - If your data were accurate
  - Changes you would make to the TAP report
  - What you found useful about the TAP report
  - How often you would like a TAP report
  - Training you would like

Next Steps: NHSN Data Quality

- **We plan on examining the quality of data entered into NHSN and addressing issues such as:**
  - Duplicated HAI events
  - Missing, late, and incomplete data
  - Errors in device days or patient days
- **Addressing these issues will improve the accuracy of data reported at the facility and state levels**

Questions and Comments

- **Liz Smith** at Elizabeth.Smith@dph.ga.gov
- **Jeanne Negley** at Jeanne.Negley@dph.ga.gov