MARYLAND HEALTH CARE COMMISSION

Transition to the 2015 NHSN Rebaseline

Theressa Lee, Director, Center for Quality Measurement and Reporting
Courtney Carta, Acting Chief, Hospital Quality Initiatives

January 25, 2017

Presentation Outline

- Purpose of MHCC HAI Reporting Initiative
- Overview of the rebaseline
- Timeline
- Potential Impacts
- Implications
- SIR Comparisons for original and updated baseline
- Other considerations
- Resources
- Questions

Purpose of MHCC HAI Reporting Initiative

- Monitor and publicly report on hospital performance and quality
- Support our all-payer hospital rate setting system and its quality programs that focus on patient health outcomes and cost savings
- Align with CMS hospital quality programs to demonstrate Maryland's ability to meet or exceed federal requirements

What is the NHSN 2015 Rebaseline?

- CDC uses reported HAI data to calculate the standardized infection ratio (SIR) for each reporting facility
  - SIR = # observed infections/# of predicted infections
  - The number of predicted infections is an estimate based on aggregated data reported to NHSN
    - Risk adjustment variables and aggregate data time periods vary by HAI type
- The rebaseline uses updated aggregated data and risk adjustment variables
  - Variables that are shown to be significant predictors of infections are now included in the risk adjustment models
  - Aggregated data for all infection types will now come from 2015 data (see next slide)

Baseline Data Reference Periods

HAI Type	Original National Baseline Data			2015 Rebaseline
	Acute Care Hospitals (ACH)	Long-term Acute Care Hospitals (LTACH)	Inpatient Rehabilitation Facilities (IRF)	
CLABSIs	2006-2008	2013	2013	2015
CAUTIs	2009	2013	2013	2015
SSIs	2006-2008	None	None	2015 (ACH only)
Hospital-onset C. difficile	2010-2011	None	None	2015
Hospital-onset MRSA bacteremia	2010-2011	None	None	2015
Ventilator-associated events (VAE)	New – No Previous National Baseline Data			2015
Mucosal Barrier Injury (MBI)				2015
Standardized Utilization Ratio (SUR) (all device types)				2015

Factors Included in the Model

Factor	CLABSI	CLABSI (NICU)	CAUTI	CDI	MRSA
CDC Location	X		X		
Facility Type	X		X	X	X
Medical School Affiliation	X		X	X	X
Inpatient quarterly CO prevalence rate				X	X
CDI Test Type				X	
Birthweight		X			
Length of Stay					X
Reporting from ED/Obs locations				X	X
Facility Bed size	X		X	X	
ICU Beds				X	X

Factors Included in the Model: SSI Complex 30-day

Factor	COLO	HYST
Cancer Hospital	X	X
Patient Level Factors		
Age	X	X
ASA Score	X	X
BMI	X	X
Closure technique	X	
Diabetes	X	X
Gender	X	

What is the purpose of the Rebaseline?

- The rebaseline drives progress towards preventing HAIs
  - Significant progress has been made thus far; the bar has been set higher for infection control and prevention
- Risk adjustment is more precise and more facilities can now be included that previously were not included in SIR calculations
- There were major definitional changes to CAUTI in 2015 so the rebaseline makes new calculations more current
- Improved consistency with use of one year of data for all infection and facility types

Timeline for the Rebaseline

- The new baseline became available in January 2017
- The original models will still be available for data through CY2016
- Starting in 2017, SIRs will only be calculated using the 2015 rebaseline models

Implications

- SIRs have changed due to different risk factors and modeling methods
  - Increased progress has “raised the bar”
  - This means that hospitals who have been performing at or above the national baseline may appear to now look the same or worse than the national experience
- CDC notes that the SIRs produced under the new baseline are **NOT** directly comparable to SIRs calculated under the original baselines
  - The rebaseline should be considered a starting point from which to measure future progress.

CDC Example

- CDC provided the following example to demonstrate potential impacts of the rebaseline.
- Example 1:
  - Annual, facility-level CAUTI data from a 300-bed General Acute Care Hospital with Graduate teaching affiliation, reporting for a medical ICU and a Med/Surg Ward

Baseline	# CAUTI Infections	# Predicted	SIR	P-value	95% CI	Catheter Days	Performance
2009	7	10.401	0.673	0.2931	0.294, 1.331	5,996	**Same**
2015	7	2.523	2.774	0.0193	1.213, 5.488	5,996	**Worse**

Additional Fictitious Example

Facility	Previous Baseline			2015 Baseline		
	# of CLABSIs	Predicted # of CLABSIs	SIR	# of CLABSIs	Predicted # of CLABSIs	SIR
Hospital A	10	20.32	**0.49**	10	9.37	**1.07**
Hospital B	7	21.85	**0.32**	7	8.21	**0.85**
Hospital C	8	19.78	**0.40**	8	6.29	**1.27**
Hospital D	6	20.37	**0.29**	6	4.35	**1.38**
Hospital E	6	19.29	**0.31**	6	5.23	**1.15**
Hospital F	15	24.72	**0.61**	15	6.34	**2.37**
Hospital G	12	22.74	**0.53**	12	8.78	**1.37**

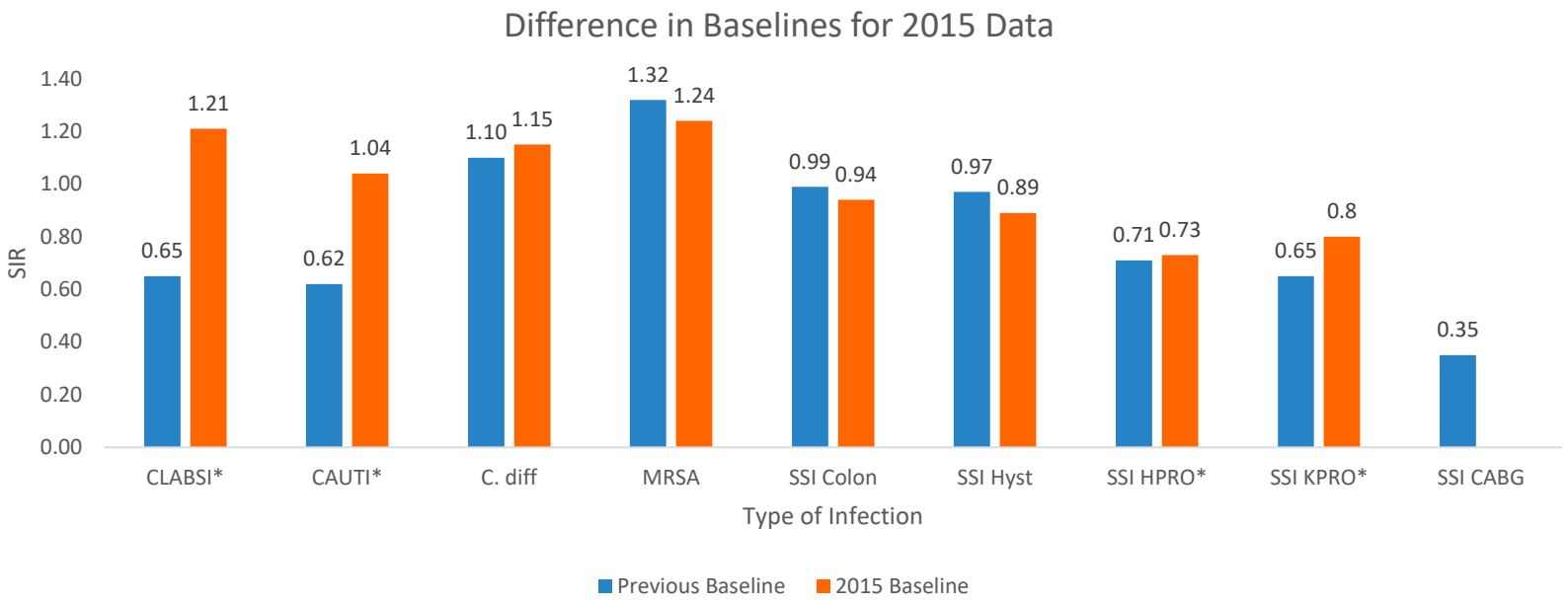
Statewide Changes – 2015 Preliminary Findings

Infection	Previous Baseline			2015 Baseline		
	SIR	Confidence Interval	Performance†	SIR	Confidence Interval	Performance†
CLABSI*	0.65	(0.59, 0.72)	Better	1.21	(1.06, 1.30)	Worse
CAUTI*	0.62	(0.56, 0.68)	Better	1.04	(0.90, 1.10)	Same
C. Diff	1.10	(1.06, 1.15)	Worse	1.15	(1.10, 1.20)	Worse
MRSA	1.32	(1.16, 1.51)	Worse	1.24	(1.07, 1.42)	Worse
SSI: COLO	0.99	(0.85, 1.14)	Same	0.94	(0.83, 1.06)	Same
SSI: HYST	0.97	(0.71, 1.28)	Same	0.89	(0.71, 1.11)	Same
SSI: HPRO*	0.71	(0.55, 0.91)	Better	0.73	(0.50, 1.01)	Same
SSI: KPRO*	0.65	(0.49, 0.83)	Better	0.80	(0.45, 1.31)	Same
SSI: CABG	0.35	(0.19, 0.6)	Better	Not available	Not available	Not Available

* Indicates infections with change in performance status

† Indicates performance compared to the national experience

Statewide Changes (cont.)

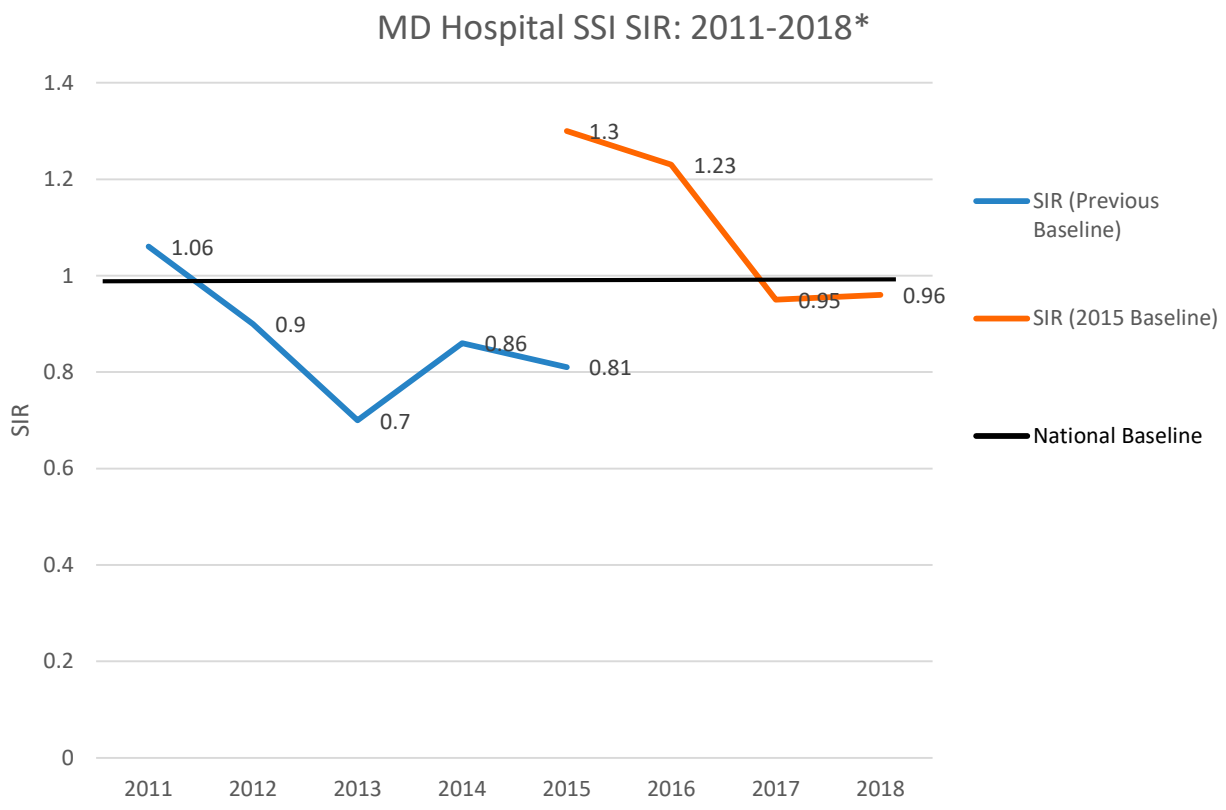


Interpretations

- In 2015, MD saw 35% fewer CLABSIs than predicted compared to the 2006-2008 national experience.

- In 2015, MD saw 21% more CLABSIs than predicted, based on the 2015 national experience

Visual Display



*Fictitious Data

Other considerations

- Trending data over time
  - Original and new baseline SIRs are not comparable
- Re-reporting 2015 data
  - CMS re-reported 2015 Hospital Compare data using the new baseline
  - This leaves a disconnect between 2015 data already reported in MHCQR
  - MHCC will not republish 2015 MHCQR data with updated baselines
  - 2016 data will be reported using new baselines
- Conveying information to the public
  - The changes are significant and may look like performance has gotten worse
  - We will add information on our website to clarify the changes

Resources

NHSN Rebaseline Site

http://www.cdc.gov/nhsn/2015rebaseline/

Questions?

https://healthcarequality.mhcc.maryland.gov/

Courtney Carta, MSPH

Courtney.carta@maryland.gov

410-764-3275