

Healthcare-Associated Infections: The New Kid on the Reporting Block

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2

Presentation Overview

- I. Evolution of HAI Reporting in NC
- II. HAI Reporting & Surveillance
- III. Summary of 2012 HAI Surveillance Data
- IV. Future Directions

3

Evolution of HAI Reporting in North Carolina

4

Burden of HAIs in the US

- Estimated in 2002
 - 1.7 million infections annually
 - 99,000 deaths
- 1 out of 20 hospitalized patients affected
- Estimated costs to be \$124 - \$348 million in NC



Sources: Klevens RM, et al. Estimating health care-associated infections and deaths in U.S. hospitals, 2002. Public Health Rep. 2007 Mar-Apr;122(2):160-6.
Sources: Anderson DJ, et al. Statewide costs of health care-associated infections: Estimates for acute care hospitals in North Carolina. Am J Infect Control. 2013 Feb 27.

5

HAI Reporting in NC: A Brief History

- **April 2008:**
 - NC General Assembly convenes the Joint Study Committee on Hospital Infection Control and Disclosure
- **January 2009:**
 - Joint Study Committee issues recommendations to NC General Assembly

6

Joint Study Committee Recommendations:

- “Implement a mandatory, state-operated, statewide hospital acquired infection surveillance and reporting system... operating within the DHHS, Division of Public Health”

7

HAI Reporting in NC: A Brief History

- **2009 legislative session:**
 - NC House Bill 296/Senate Bill 300 introduced with strong support, but funding was not available
 - NC legislators drafted a Special Provision instructing NC DHHS to apply for HAI funds through the American Recovery & Reinvestment Act

8

HAI Reporting in NC: A Brief History

- **2009–2010:**
 - HAI Prevention Program
 - HAI Advisory Group convened
 - Designated infrastructure for HAI reporting
 - State HAI Plan drafted

9

HAI Prevention Program

- **Mission:** Eliminate preventable infections in health care settings
- **Objectives:**
 - Conduct statewide surveillance for HAIs
 - Provide useful, unbiased information to healthcare providers and consumers
 - Promote and coordinate prevention efforts
 - Respond to outbreaks in healthcare settings

10

HAI Reporting in NC: A Brief History

- **2010–2011 legislative session:**
 - Recommendation made by the NC HAI Advisory Group re: reporting platform and targets
 - 2 separate bills introduced (SB 347 & HB 809) with broad bi-partisan support
- **June 27, 2011:**
 - HB 809 signed by Gov. Purdue following unanimous passage in Senate and House

11

NC General Statute 130A-150

- “By December 31, 2011, the Department, in consultation with the State HAI Advisory Group and in accordance with rules adopted by the Commission... shall establish a statewide surveillance and reporting system for specified healthcare associated infections”

12

HAI Reporting & Surveillance

13

10A NC Administrative Code 41A

HAI/NCALSI/CLABSI REPORTING OF HEALTH CARE-ASSOCIATED INFECTIONS

(a) The reporting obligations apply to the following:

- "Reportable" health care facilities designated as such in 10A-202-003.
- "Patient Protection and Safety Programs" as the Department's regulatory scheme required by the Centers for Disease Control and Prevention. This system is designed to be used for the direct, confidential reporting of health-care-associated infections, including health-care-associated bloodstream, urinary tract infections, surgical site infections.
- Health-care-associated infections within a hospital or system facilities in the patient receiving care in a care unit within the premises of a health-care facility or in facilities with no evidence that the infection was present or originating when the patient was admitted to the health-care facility.
- Outpatient or ambulatory care units, including ambulatory surgery centers, ambulatory medical centers for nonreportable health-care-associated infections.
- The Centers for Disease Control and Prevention - National Nosocomial Infection Survey (NNIS) - SPSI rules are applicable for the determination of reporting cases to the Centers for Disease Control and Prevention for acute care hospitals with United States and A broad set of geographic locations.

(b) Reporting shall cover all reportable health-care-associated infections required by Paragraph (1) of this Rule through the National Nosocomial Infection Survey and shall also cover acute care hospitals in the Department. Reporting shall:

- Report all specified health-care-associated infections within 30 days following the end of every calendar month during which the infection was identified.
- Report all required health-care-associated infection documentation or summary data for health-care-associated infections within 30 days following the end of every calendar month.
- Comply with all reporting requirements for patient participation in the National Nosocomial Infection Survey.

(c) Report to persons in the name of the reporting hospital and report the health-care-associated infections required by the Centers for Medicare and Medicaid Services listed in the CMS-855 rules beginning on the date specified therein. A summary of the data reporting requirements from the center copy of the CMS-855 rules may be obtained through the CMS QualityNet site: <http://www.qualitynet.org/ce/ContentServer?c=HomePage&path=/QualityNet/855/855rules> and <http://www.cms.gov/medicare/medicare-855rules/855rules.aspx> and <http://www.cms.gov/medicare/medicare-855rules/855rules.aspx>. A copy of the current CMS-855 rules, applicable to this system, is available for inspection in the Office of State Health, 121 S. Coliseum Street, Raleigh, NC 27601.

(d) Beginning October 1, 2012 and quarterly thereafter, the Department shall release reports to the public on health-care-associated infections in North Carolina.

Revised Note: Authority G.S. 136A-202; Department adopted 2/23/2012; 2/23/2012; 2/23/2012.

Source: [http://reports.oush.state.nc.us/ncac.asp?folderName=/Title 10A - Health and Human Services/Chapter 41 - Epidemiology Health](http://reports.oush.state.nc.us/ncac.asp?folderName=/Title%2010A-Health%20and%20Human%20Services/Chapter%2041-Epidemiology%20Health)

14

Who - Hospitals to Report

- Licensed hospitals including:
 - Acute care hospitals
 - Long-term acute care hospitals
 - Inpatient rehabilitation facilities
 - Specialty hospitals including state-operated mental health facilities
- Exceptions to reporting
 - Critical access hospitals
 - Hospitals who have received CMS exception from reporting
 - Example: CLABSI and CAUTI reporting because no intensive care units in hospital

15

What - Reportable HAIs

- Aligned with reporting requirements of Centers for Medicare and Medicaid Services – Inpatient Prospective Payment System

HAI Event	Facility Type	Reporting Start Date
Central Line-Associated Bloodstream Infections (CLABSI)	Short-term acute care hospitals: adult, pediatric, and neonatal ICUs	January 2011
Catheter-Associated Urinary Tract Infections (CAUTI)	Short-term acute care hospitals: adult and pediatric ICUs	January 2012
Surgical Site Infections (SSI)	Short-term acute care hospitals: colon and abdominal hysterectomy procedures	January 2012
CLABSI	Long-term acute care hospitals	October 2012
CAUTI	Long-term acute care hospitals	October 2012
CAUTI	Inpatient rehabilitation facilities	October 2012
MRSA bacteremia (laboratory identification)	Short-term acute care hospitals including specialty hospitals	January 2013
<i>Clostridium difficile</i> (laboratory identification)	Short-term acute care hospitals including specialty hospitals	January 2013

16

When - Reporting Deadlines

- Events (numerator) data
 - Within 30 days of when the event was identified
- Summary (denominator) data
 - Within 30 days of the end of the reporting month
 - Example: May data should be entered in NHSN by June 30

17

How - National Healthcare Safety Network (NHSN)

- Managed by CDC
- Web-based surveillance system, no cost
- Trainings and resources available on-line

<http://www.cdc.gov/nhsn/>

18

How - Reporting via NHSN

- Reporting mechanism
 - Facilities enter data in NHSN
 - NC DPH accesses hospital data via NHSN
 - NC DPH *cannot* change hospital data in NHSN

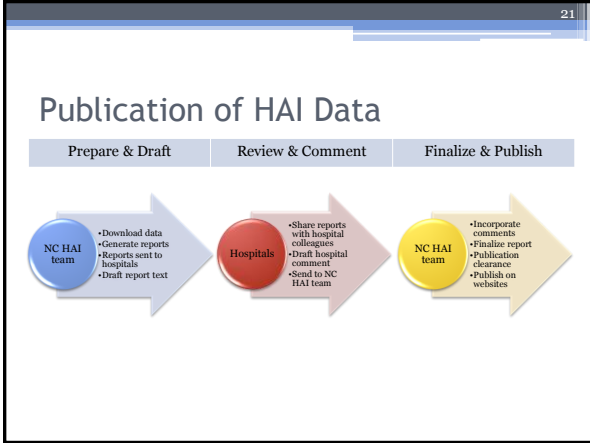
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NC General Statute 130A-150

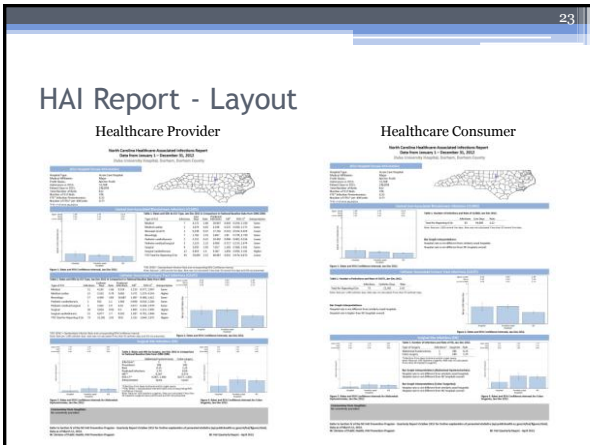
- “The Department shall release to the public aggregated and provider-specific data...if it deems the release of this data to be reliable and necessary to protect the public's health.”

20

Monthly Data Reconciliation Process



- 22
- ## Publication of HAI Data
- Report published on a quarterly basis, one quarter behind the data
 - April 2013 report includes Jan-Dec 2012
 - July 2013 report includes Jan-Mar 2013
 - Publish HAI Reports online on website at <http://epi.publichealth.nc.gov/cd/hai/figures.html>



24

Summary of 2012 HAI Surveillance Data

Central Line-Associated Bloodstream Infections (CLABSI)

- Adult and pediatric ICUs

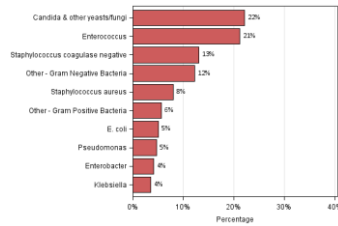
HAI	Reported Infections	Central line days	Rate	Rate 95% CI	2011 US Rate
CLABSI	270	254,968	1.06 per 1,000 central line days	0.93-1.19	1.09 per 1,000 central line days

HAI	Predicted Infections	SIR	SIR 95% CI	Interpretation	Notes
CLABSI	520	0.52	0.46-0.59	Sig Lower	No H sig higher 13 H sig lower

Based on national 2006-2008 baseline data
 SIR: Standardized Infection Ratio (Number reported infections/number of predicted infections)
 CI: Confidence Interval

CLABSI - Adult and Pediatric ICUs

- Pathogens identified from CLABSI (n=335)



- Multi-drug resistant organisms
 - Enterobacteriaceae: 63
 - CRE: 3 (5%)
 - Enterococcus: 71
 - VRE: 30 (42%)
 - S. aureus: 27
 - MRSA: 12 (44%)

Central Line-Associated Bloodstream Infections (CLABSI)

- Neonatal ICUs

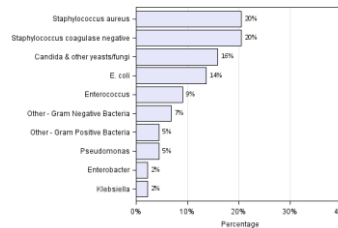
HAI	Reported Infections	Central line days	Rate	Rate 95% CI	2011 US Rate
CLABSI	39	46,615	0.84 per 1,000 central line days	0.57-1.10	1.50 per 1,000 central line days

HAI	Predicted Infections	SIR	SIR 95% CI	Interpretation	Notes
CLABSI	117	0.33	0.24-0.45	Sig Lower	No H sig higher 6 H sig lower

Based on national 2006-2008 baseline data
 SIR: Standardized Infection Ratio (Number reported infections/number of predicted infections)
 CI: Confidence Interval

CLABSI - Neonatal ICUs

- Pathogens identified from CLABSI (n=44)



- Multi-drug resistant organisms
 - Enterobacteriaceae: 9
 - CRE: 0 (0%)
 - Enterococcus: 4
 - VRE: 0 (0%)
 - S. aureus: 9
 - MRSA: 3 (33%)

Catheter-associated Urinary Tract Infections (CAUTI)

- Adult and pediatric ICUs

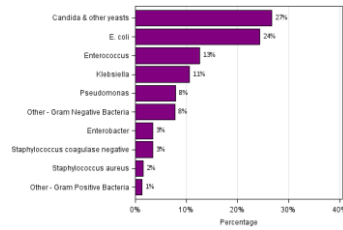
HAI	Reported Infections	Catheter days	Rate	Rate 95% CI	2011 US Rate
CAUTI	789	342,544	2.31 per 1,000 catheter days	2.15-2.47	1.94 per 1,000 catheter days

HAI	Predicted Infections	SIR	SIR 95% CI	Interpretation	Notes
CAUTI	707	1.12	1.04-1.20	Sig Higher	8 H sig higher 5 H sig lower

Based on national 2009 baseline data
 SIR: Standardized Infection Ratio (Number reported infections/number of predicted infections)
 CI: Confidence Interval

CAUTI - Adult and Pediatric ICUs

- Pathogens identified from CAUTI (n=862)



- Multi-drug resistant organisms
 - Enterobacteriaceae: 395
 - CRE: 12 (3%)
 - Enterococcus: 109
 - VRE: 9 (8%)
 - S. aureus: 14
 - MRSA: 8 (57%)

Surgical Site Infections (SSI)

- Abdominal Hysterectomies

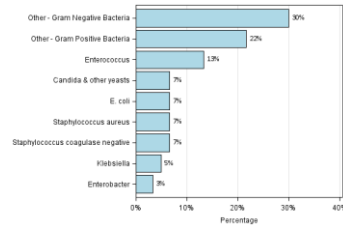
HAI	Reported Infections	Procedures	Rate	Rate 95% CI	2011 US Rate
SSI	64	9,586	0.67 per 100 inpatient surgeries	0.50-0.83	0.64 per 100 inpatient surgeries

HAI	Predicted Infections	SIR	SIR 95% CI	Interpretation	Notes
SSI	94	0.68	0.52-0.87	Sig Lower	All H similar

Based on national 2006-2008 baseline data
 SIR: Standardized Infection Ratio (Number reported infections/number of predicted infections)
 CI: Confidence Interval

SSI - Abdominal Hysterectomies

- Pathogens identified from SSIs (n=61)



- Multi-drug resistant organisms
 - Enterobacteriaceae: 16
 - CRE: 0 (0%)
 - Enterococcus: 8
 - VRE: 0 (0%)
 - S. aureus: 4
 - MRSA: 2 (50%)

33

Surgical Site Infections (SSI)

- Colon Surgery

HAI	Reported Infections	Procedures	Rate	Rate 95% CI	2011 US Rate
SSI	210	8,704	2.41 per 100 inpatient surgeries	2.09-2.74	2.40 per 100 inpatient surgeries

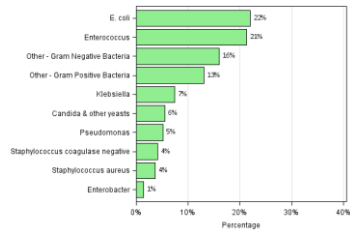
HAI	Predicted Infections	SIR	SIR 95% CI	Interpretation	Notes
SSI	284	0.33	0.24-0.45	Sig Lower	No H sig higher 6 H sig lower

Based on national 2006-2008 baseline data
SIR: Standardized Infection Ratio (Number reported infections/number of predicted infections)
CI: Confidence Interval

34

SSI - Colon Surgeries

- Pathogens identified from SSIs (n=268)



- Multi-drug resistant organisms
 - Enterobacteriaceae: 94
 - CRE: 0 (0%)
 - Enterococcus: 57
 - VRE: 9 (16%)
 - S. aureus: 10
 - MRSA: 10 (100%)

35

Future Direction

36

Plans for the Future

- No additional reportable HAIs in foreseeable future
- Among those already reportable
 - Data validation
 - Assess use of NC baseline versus national baseline
 - Assess trends over time
- Continue to partner in HAI collaboratives to reduce HAIs in hospitals

37

Other HAI-related Activities

- Carbapenem-resistant *Enterobacteriaceae* (CRE)
- One and Only Safe Injection Campaign



38

Questions?

HAI Prevention Program

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