

Healthcare Associated Infections/Antimicrobial Resistance: Contain, Control, Prevent

**CSTE Annual Meeting Sunday Workshop
Sunday, June 10, 2018**

Workshop Welcome

Elizabeth Mothershed and Joe Perz, DHQP

FUN FACT: This is the 10th year for the CSTE HAI workshop!

- ARRA funding was signed into law February 17, 2009 (first federal funding to support state HAI programs!)
- The first CSTE Sunday workshop was June 7, 2009 - **WHO WAS HERE?!**

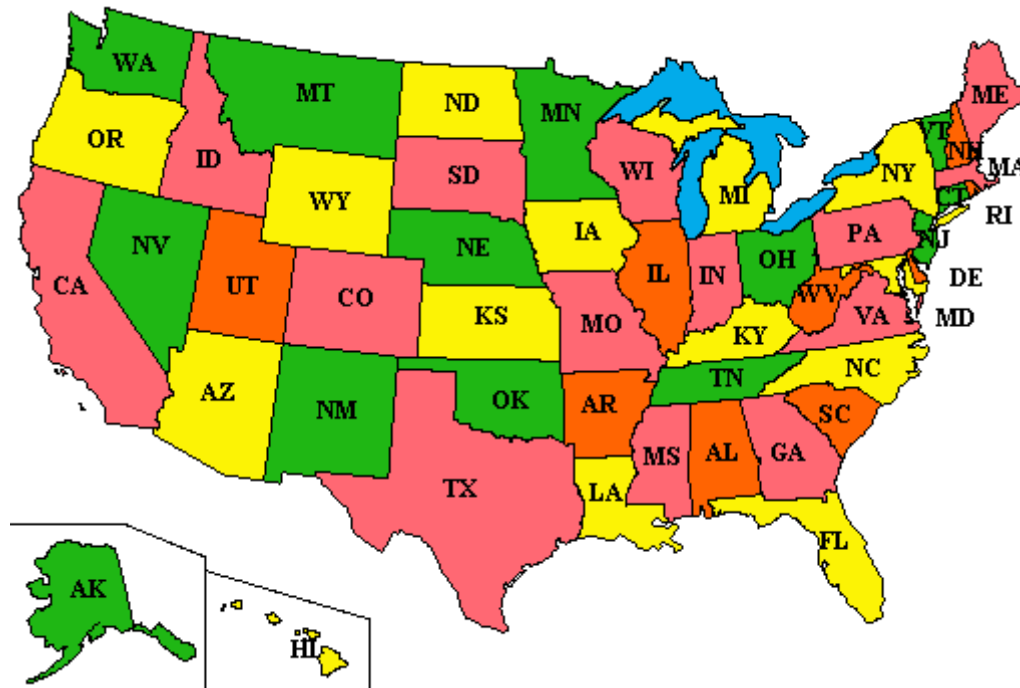
If you have been with your
HAI program for ≥ 10 years



If this is your VERY FIRST
HAI/AR
Sunday workshop



If you are from a state
health department



If you are from a local
health department



If you haven't been
called yet

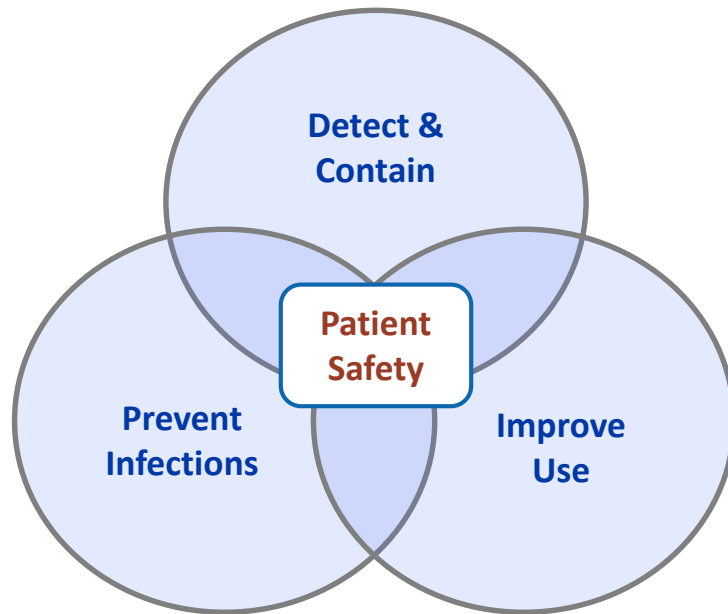


If this your first time visiting Florida!



**YOU ARE
HERE**

Preventing Infections and Combating Antibiotic Resistance in Healthcare



Practices -Programs-Policies

- Data for action
 - NHSN
 - Emerging Infections Program (EIP)
 - Outbreaks
- Evidence-based guidelines and tools.
- Programs and partnerships for implementation.
- Innovation.

A Story of Progress

<https://www.cdc.gov/hai/surveillance/data-reports/data-summary-assessing-progress.html>

Healthcare-associated Infections

Healthcare-associated Infections (HAI)

Data and Statistics

HAI Data Reports

Data Summary: Assessing Progress 2006-2016

2015 HAI Data Report

2015 SIRs Using Historical Baselines

2014 HAI Progress Report

FAQs: 2014 HAI Progress Report

Previous HAI Progress Reports

Antibiotic Resistance Patient Safety Atlas

Types of Infections

Diseases and Organisms

Preventing HAIs

Map: HAI Prevention Activities

Research

Patient Safety

Outpatient Settings

Laboratory Resources

Outbreak and Patient Notifications

Containment Strategy

Widgets, Buttons and Badges

CDC HAI Commentaries

 **Get Email Updates**

To receive email updates about this page, enter your email address:

[CDC](#) > [Healthcare-associated Infections \(HAI\)](#) > [Data and Statistics](#) > [HAI Data Reports](#)

Healthcare-associated Infections in the United States, 2006-2016: A Story of Progress



A Story of Progress

Introduction

- The text and figures that follow constitute a high-level assessment of data reported to the National Healthcare Safety Network (NHSN) combined with data from other sources the Centers for Disease Control and Prevention uses, reflecting on several years of national progress toward elimination of major healthcare-associated infections (HAIs) in acute care hospitals.
- To bridge understanding over the 2014 to 2015 transition between baselines and protocol changes, an advance look at 2016 national standardized infection ratios (SIRs) is included, calculated using both 2015 and historical baselines and models.

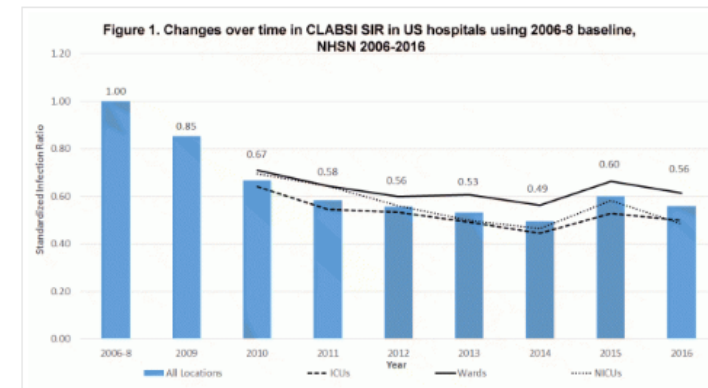
On This Page

- [Central Line-Associated Bloodstream Infection \(CLABSI\)](#)
- [Catheter-associated Urinary Tract Infection \(CAUTI\)](#)
- [Surgical Site Infections \(SSIs\)](#)
- [Methicillin-resistant *Staphylococcus aureus* Bacteremia \(MRSA Bacteremia\)](#)
- [Clostridium difficile Infection \(CDI\)](#)

Central Line-Associated Bloodstream Infection (CLABSI)

Prevention Highlights

- Hospitals have made significant progress in preventing CLABSIs—nationally, there has been a roughly 50% drop in CLABSIs between 2008 and 2016. (Figures 1 and 2)



What's new - Efforts to continue prevention progress

- Broad Agency Announcement - Innovation research
www.cdc.gov/drugresistance/solutions-initiative/innovations-to-slow-AR
 - FY17: Medical devices, C. auris decolonization, environmental sources of AR
 - FY18: 234 white papers, 84 accepted full proposals
- Modeling Infectious Diseases in Healthcare Network (MInD-Healthcare)
<https://www.cdc.gov/hai/research/MIND-Healthcare.html>
 - 5 awardees developing tools and methods to understand spread of HAIs/AR
- CDC *Vital Signs*: Containing Unusual Resistance (April 2018)
www.cdc.gov/vitalsigns

What's new - Tools, recommendations, guidance

- CSTE/CDC/APHL AR Surveillance Task Force 
[www.cste2.org/Publications/CRE ELR Best Practices FINALv1.0 20170515.pdf](http://www.cste2.org/Publications/CRE%20ELR%20Best%20Practices%20FINALv1.0%2020170515.pdf)
- Council for Outbreak Response: HAIs & Antimicrobial Resistance (CORHA) 
(www.corha.org)
 - Outbreak tracking tool
 - Scabies recommendations – detection and response
- CDC TRAIN: Antibiotic Stewardship Training for clinicians
www.train.org/cdctrain/course/1075730/compilation

What's new - Tools, recommendations, guidance

- SHEA/CDC Outbreak Response Training Program

<http://ortp.shea-online.org/>

- Infection control tools for US hospital epis for facility level outbreaks and public health emergencies

- ADOPT – Infection prevention guides for specialty outpatient settings (orthopedic/pain clinics and podiatry)

www.jointcommission.org/joint_commission_cdc_collaborating_on_ambulatory_infection_prevention_project (COMING SOON!)

What to expect today

(all workshop materials available on Basecamp - app or website)

- Workforce training – sharing tools, best practices 
- Table top exercise - Investigation of NTM cluster
- NHSN updates
- AR Lab network update
- High Acuity Long Term Care tour
- Role of Health Department in HAI Prevention 
- Building relationships – best practices 
 - HAI/AR program/state survey agencies
 - City/local/state health departments
 - Epi/lab
- NHSN novice users session (optional)
- Open dialogue on ELC performance measures (outside meeting room)

Sharing Session

Joe Perz, DHQP, Kelley Garner, Arkansas Department of Health, and Erica Washington, Louisiana Department of Health

Sharing Session: Group Discussion

- Spend 20 minutes at your table addressing the discussion prompts provided for each of the two training topics
 - Questions will be up on the screen as well as on your table
 - Designate a reporter from your table and determine your top practices to share if your table gets called on
 - Table moderators will be taking notes and can help to flag an SME if there are any questions

Session A: HAI / AR Public Health Workforce Training

- What strategies and resources are you using to help orient and train health department staff who are new to our subject matter and activities? Which are most useful? What are the biggest gaps?
- Who is the audience for this training? What are the types of staff and how do their needs differ?
- Do you see value in having a national ELC-supported clearinghouse for PH workforce HAI-AR training materials? If so, what would you like to see included?
- Some of our national partner organizations are interested in developing on-line HAI-AR training resources for state and local health department staff. How do you see yourself incorporating these into the on-boarding or continuing education of your staff?

Session B: Healthcare Provider Training

- Consider your current approach as a provider of HAI-AR training to the healthcare community. Are you partnering effectively? What works and what doesn't? What are some of the best ways you have found to deliver HAI-AR training?
- What should be the role of the HAI-AR Program in helping run in-person trainings for front line providers? What should be the role of the HAI-AR Program in promoting or offering on-line trainings? Are there resources that you use and recommend?
- The ELC Ebola supplement asked programs to review infection control training requirements. Do you have any positive outcomes to report?
- Assuming resources are limited, where would you invest your efforts? What are the top priorities and strategies for the next 3-5 years?

Tabletop Exercise: Investigation of an NTM Infection Cluster

Kiran Perkins, Ruth Link-Gelles, and Matt Christ, DHQP

Updates from the National Healthcare Safety Network

2018 CSTE Conference

Casey Thompson, MSN, RN-BC

Nurse Informaticist/Public Health Analyst

Lantana Consulting Group: Contractor for DHQP, CDC

Lindsey Weiner, MPH

Epidemiologist, NHSN Methods and Analytics Team



Updates and Reminders on Available NHSN Trainings

New to NHSN?



- **Complete online trainings**
 - <https://www.cdc.gov/nhsn/training/index.html>
 - “Training Videos”: recorded presentations, ~1 hour, HAI-specific
 - “Quick Learns”: recorded slide-set, ~ 5 – 15 minutes on a single FAQ
 - “Self-paced Interactive Trainings”: interactive software-based, HAI-specific
- **Become familiar with state and/or federal (CMS) reporting requirements**
 - CMS quality reporting programs: <https://www.cdc.gov/nhsn/cms/index.html>
 - Gain access to NHSN’s Group function, if applicable: <https://www.cdc.gov/nhsn/group-users/index.html>
- **NHSN definitions and reporting instructions**
 - <https://www.cdc.gov/nhsn/acute-care-hospital/index.html>
- **Stay updated via NHSN’s quarterly newsletters**
 - <https://www.cdc.gov/nhsn/newsletters/index.html>

NHSN Training Website: New Look!

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

National Healthcare Safety Network (NHSN) Training

[f](#) [t](#) [+](#)

Our mission is to offer learning opportunities in a variety of formats that enhance the knowledge and skills of NHSN facility- and group-level participants and their partners in order that they may effectively use the data obtained from the surveillance system to improve patient and healthcare personnel safety.

Objectives

- Convey NHSN data collection methods, submission requirements, and analysis options to participants so that they may acquire, submit, and disseminate high quality, actionable data.
- Prepare participants to use the NHSN reporting application accurately and efficiently.
- Enhance participants' and their partners' understanding of data quality and the value of adverse event monitoring.
- Encourage collaboration among participants and partners to improve the patient and healthcare personnel safety across the spectrum of care.

Continuing Education

Free CE available for all NHSN education course work.

Training by Component



Patient Safety Component



Biovigilance Component



Healthcare Personnel Safety Component



Dialysis Component



Long-Term Care Facility Component

RESOURCES FOR USERS NEW TO NHSN

Self-paced training for new NHSN enrollment and existing facility set-up.

CONTINUING EDUCATION

Free CE available for all NHSN education course work.

NHSN ANALYSIS

Self-paced training for introductory and advanced NHSN analysis.

REQUEST CDC LED TRAINING

Webinar / In-person training policy and request.

National Healthcare Safety Network (NHSN) Training

[CDC](#) > [NHSN Home](#)

Patient Safety Component Training

[f](#) [t](#) [+](#)

[Expand All +](#) [Collapse All -](#)

Patient Safety Overview

+

Device-associated Module

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BSI - Bloodstream Infections

-

Training Videos



Central Line-associated Bloodstream Infection (CLABSI) - 2018

- [YouTube Link](#) [Video - 79 min]
- [Slideset](#) [PDF - 8 MB]

Self-paced Interactive Training



[CLABSI Training](#) [CBT - 60 min]

Quick Learns



BSI Definition Changes for January 2015

- [YouTube Link](#) [Video - 14 min]



Secondary Bloodstream Infections May 2016

- [YouTube Link](#) [Video - 9 min]

Related Links

UTI - Urinary Tract Infections

+

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NHSN Continuing Education

<http://www.cdc.gov/nhsn/training/continuing-edu.html>

Continuing Education is available for Self-paced Interactive Training and Archived Web-streaming Training

CE available: CNE, CEU, CME, CPH

National Healthcare Safety Network (NHSN) Training

Our mission is to offer learning opportunities in a variety of formats that enhance the knowledge and skills of NHSN facility- and group-level participants and their partners in order that they may effectively use the data obtained from the surveillance system to improve patient and healthcare personnel safety.

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Training by Component

- Patient Safety Component
- Biovigilance Component
- Dialysis Component
- Long-Term Care Facility Component

Continuing Education

National Healthcare Safety Network provides online access to complete the continuing education (CE) certificate process. This process includes registration for a course on the CDC Training and Continuing Education Online system, completing the course posttest and assessment, and printing of the CE certificate. To receive CE, participants must complete this process online.

Expiration

You must submit your answers online before the stated expiration date to be eligible to receive continuing education credit. Please check each course for expiration dates.

Obtaining Continuing Education for NHSN Training Events

- Once you completed viewing the courses, go to [CDC Training and Continuing Education Online](#).
 - If you have not registered as a participant, click on **New Participant** to create a user ID and password; otherwise click on **Participant Login** and login.
 - If you have registered in this system before, please use the same login name and password. This will ensure an accurate transcript.
- Once you have logged in, you will be on the Participant Services page. Click on **Search and Register**. Then click on the second option **keyword search** and enter the course number. You can only register and enter one course at a time.
- Click on the course title (at the bottom of the page). The course information page will come up. Scroll down to **Register Here**. Click on the type of CE that you would like to receive and then **Submit**. Three demographic questions will come up. Complete the questions and then **Submit**.
- From **Participant Services**, click on **Evaluations and Tests**.
- Complete the course evaluation and **Submit**. Once you hit submit, it will give you the option of completing the posttest. The posttest for each training course is very brief.
- Upon achieving a passing posttest score (of 80% or higher), you will be able to immediately print your continuing education certificate from your personal transcript. If you do not post a passing score, you may retake the test.
 - A record of your completion will be located in the transcript and certificate section of your record.
- If you have any questions or problems contact CDC Training and Continuing Education Online at: 1-800-418-7246 or ce@cdc.gov.

Get Email Updates

To receive email updates about this page, enter your email address:

What's this? **Submit**

Related Links

[NHSN Manual: Biovigilance](#)

NHSN WEB STREAMING / WEBINAR EVENTS

SELF-PACED INTERACTIVE TRAININGS

RESOURCES FOR USERS NEW TO NHSN

Self-paced training for new NHSN enrollment and existing facility set-up.

CONTINUING EDUCATION

Free CE available for all NHSN education course work.

NHSN Educational Roadmaps - Available Now!

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

- We have recently completed the NHSN Educational Roadmaps for each NHSN component
- Tools to improve your comprehension of NHSN surveillance definitions, reporting, and analysis.
- Guided tour of the NHSN training materials and information – from the basics to more advanced training for each individual component and protocol

NHSN Educational Roadmaps



Welcome to the NHSN Education Roadmaps. The NHSN Educational Roadmaps will provide a guided tour of the training materials and information needed to provide a solid foundation of NHSN – from the basics to more advanced training for each individual component or protocol. Below is a list of NHSN components, in each component is a selection of educational and supplemental materials and tools to improve your comprehension of NHSN surveillance definitions, reporting, and analysis (while supporting your work as an NHSN user). To begin this learning experience, select the component below. This training should be used after the enrollment/activation process. If you have not enrolled into NHSN please [enroll here](#).

Select Roadmap for a Component

 Patient Safety Component Surveillance definitions, reporting, and analysis	 Biovigilance Component Surveillance definitions, reporting, and analysis
 Healthcare Personnel Safety Component Surveillance definitions, reporting, and analysis	 Long-term Care Facility Component Surveillance definitions, reporting, and analysis
 Dialysis Component Surveillance definitions, reporting, and analysis	

In-Person Live Training

- CDC hosts an annual training conference in Atlanta
 - 4-5 days
 - *The training course provides information on CMS reporting, definition and protocol clarifications, interactive case studies, analysis, validation, and any changes in reporting for that year*
 - **NEXT YEAR: March 25-29, 2019**
 - Attendees are selected by random lottery system
 - One seat is reserved per state health dept
 - Web-streaming will be available for those not attending in-person

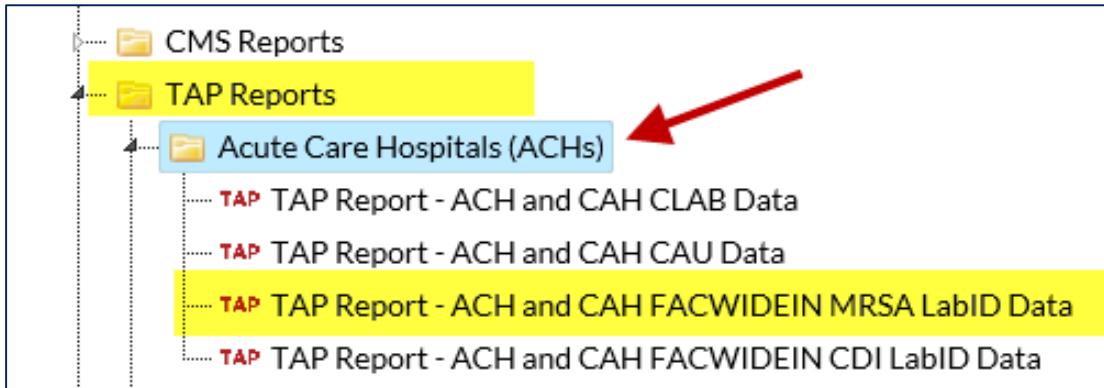
NEW! NHSN TAP Reports for MRSA

TAP Strategy Update: MRSA TAP Reports

- MRSA TAP Reports for acute care & critical access hospitals were added to NHSN in April 2018
- “Target” SIR Goal, by default: 0.75

TAP Report for FACWIDEIN MRSA LabID data for Acute Care and Critical Access Hospitals (2015 Baseline)											
Facilities Ranked by CAD 'Cumulative Attributable Difference'											
SIR Goal: 0.75											
A TAP Report is the first step in the CDC TAP Strategy. For more information on the TAP strategy, please visit: http://www.cdc.gov/hai/prevent/tap.html											
As of: June 6, 2018 at 2:25 PM											
Date Range: All BS2 MRSA TAP											
orgID	name	state	facType	medType	numBeds	numpatdays	MRSA_bldInc Count	numPred	facCAD	SIR	SIRtest
14810	Arcement Medical Center	LA	HOSP-GEN	G	435	136109	38	6.304	33.27	6.028	SIG
1. This report includes facility-wide inpatient data from acute care hospitals for 2015 and forward.											
2. Facility Rank = Priority ranking for Targeted Assessment of Prevention by CAD in descending order											
3. CAD = Observed - Predicted*SIR Goal											
4. SIR is set to '.' when predicted number of events is <1.0. SIR TEST = 'SIG' means SIR > SIR Goal significantly											
Source of aggregate data: 2015 NHSN MRSA Blood LabID Data											
Data contained in this report were last generated on June 4, 2018 at 8:45 AM.											

NHSN Groups Can Generate MRSA TAP Reports



- Table 1: Overall CAD for the Group
- Table 2: Each facility is listed individually; highest CAD at the top!
- CAD: Number of healthcare-onset MRSA blood LabID Events that need to be prevented to reach SIR Goal

TAP Report for FACWIDEIN MRSA LabID data for Acute Care and Critical Access Hospitals (2015 Baseline)

Totals for all Facilities in Group

faccount	numbeds	numpatdays	MRSA_bldIncCount	numPred	grpCAD	SIR	SIRtest
3	422	123188	35	6.445	30.170	5.430	SIG

Table 1

Facilities Ranked by CAD 'Cumulative Attributable Difference'

facRank	orgID	name	state	facType	medType	numBeds	numpatdays	MRSA_bldIncCount	numPred	facCAD	SIR	SIRtest
1	10401	DHQP Memorial Annex	GA	HOSP-GEN	G	145	93759	21	5.025	17.23	4.179	SIG
2	11127	HURT Critical Access Hospital	IA	HOSP-CAH		24	19707	12	0.410	11.69		
3	11305	Dana-Farber Cancer Institute	MA	HOSP-ONC	M	253	9722	2	1.009	1.24	1.983	

Table 2

1. This report includes facility-wide inpatient data from acute care hospitals for 2015 and forward.
 2. Facility Rank = Priority ranking for Targeted Assessment of Prevention by CAD in descending order
 3. CAD = Observed - Predicted*SIR Goal
 4. SIR is set to '.' when predicted number of events is <1.0. SIR TEST = 'SIG' means SIR > SIR Goal significantly
 Source of aggregate data: 2015 NHSN MRSA Blood LabID Data
 Data contained in this report were last generated on April 18, 2018 at 9:32 AM.

**NEW! Changes coming to the FACWIDEIN
(facility-wide inpatient) LabID
denominator form**

Current FacWideIN MDRO/CDI Denominator Form

Setting: Inpatient	Total Facility Patient Days *	1072	Total Facility Admissions *	557	1	
Setting: Outpatient	Total Facility Encounters:					
If monitoring <i>MDRO</i> in a FACWIDE location, then subtract all counts from patient care units with unique CCNs (IRF and IPF) from Totals:					2	
MDRO Patient Days *	987	MDRO Admissions *	414	MDRO Encounters:		3
If monitoring <i>C. difficile</i> in a FACWIDE location, then subtract all counts from patient care units with unique CCNs (IRF and IPF) as well as NICU and Well Baby counts from Totals:						
CDI Patient Days *	822	CDI Admissions *	396	CDI Encounters:		

- Data quality issues
- Changes include:
 - Simplified title and revised language for clarity
 - Encounters field will only display for outpatient units
 - Rows 2 and 3:
 - Added formulas for counts
 - No mention of MDRO and CDI

Sneak Peek!

- Example of 2019 FacWideIN MDRO/CDI denominator form

Setting: Inpatient Total Patient Days * : 203

Total Admissions * : 151 1

If your facility has a CMS-certified rehab unit (IRF) or CMS-certified psych unit (IPF), please subtract these counts from "Total Facility Patient Days" and "Total Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1. 2

Counts = [Total Facility - (IRF + IPF)]

Patient Days * : 140 Admissions * : 85

If your facility has a CMS-certified IRF, CMS-certified IPF, NICU, or Well Baby Unit, please subtract those counts from "Total Facility Patient Days" and "Total Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1. 3

Counts = [Total Facility - (IRF + IPF + NICU + Well Baby Unit)]

Patient Days * : 88 Admissions * : 67

FacWideIN MDRO/CDI Denominator Form

- Our goal is to minimize data quality issues with LabID denominator data entry
- We want to ensure that complete and accurate data are being used for CMS/internal purposes
- Updates are anticipated to go into effect in early 2019

Upcoming HAI Progress Reports

HAI Progress Report Updates

- CDC releases an annual HAI Progress Report, which publishes national and state-level SIRs for various facility types and infection types

2016 Report

- Includes state-level SURs (standardized utilization ratios)
- Undergoing CDC Clearance review; publication expected this summer
- Technical data tables and write-up will be posted to CDC/NHSN websites
- State “fact sheets” will be incorporated into the Patient Safety Atlas
- Webinars and/or previews of the Atlas - TBD
- All states received a preview of their data: March 28 – April 20, 2018

HAI Progress Report Updates

2017 Report

- Data freeze date currently scheduled for: **July 2, 2018**
- Additional details are forthcoming – keep an eye out for an email from NHSN

Antimicrobial Use and Resistance (AUR) Module Updates

Casey Thompson, MSN, RN-BC

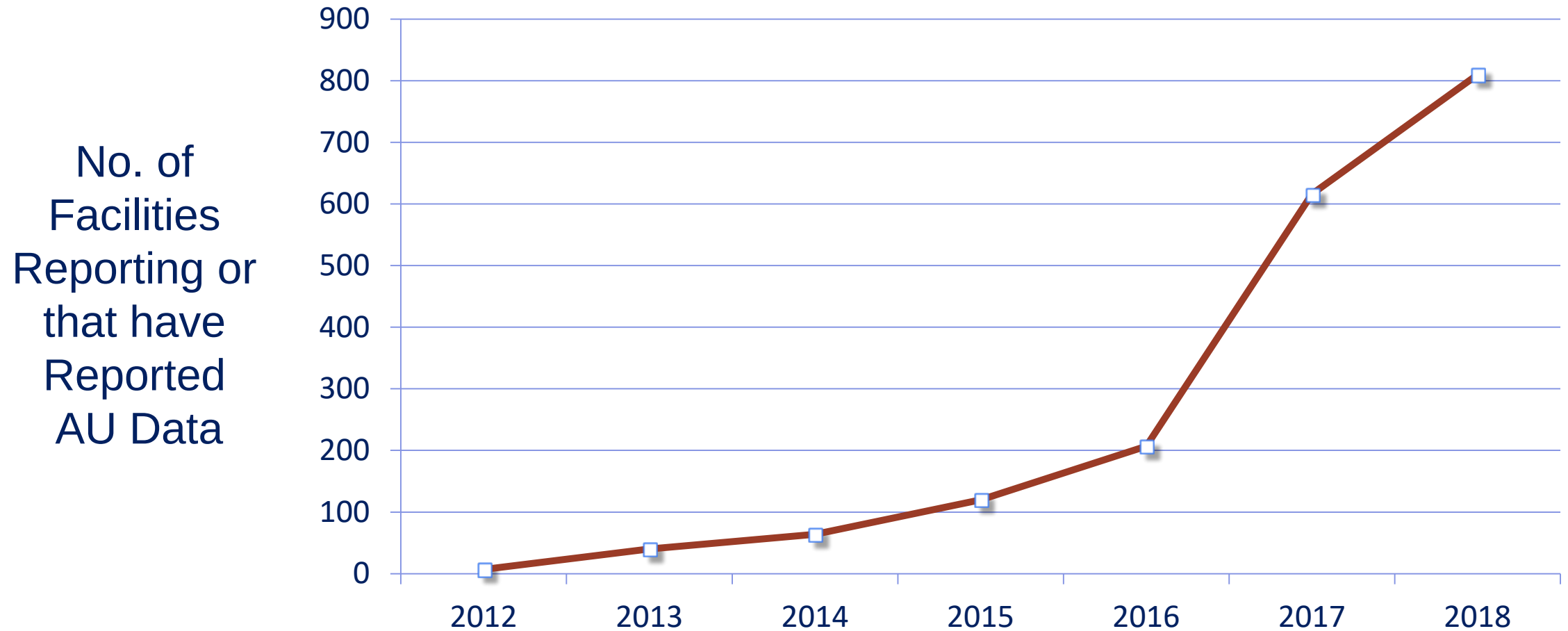
Nurse Informaticist/Public Health Analyst

Lantana Consulting Group | Contractor for the Division of Healthcare Quality
Promotion, CDC

Submission Metrics

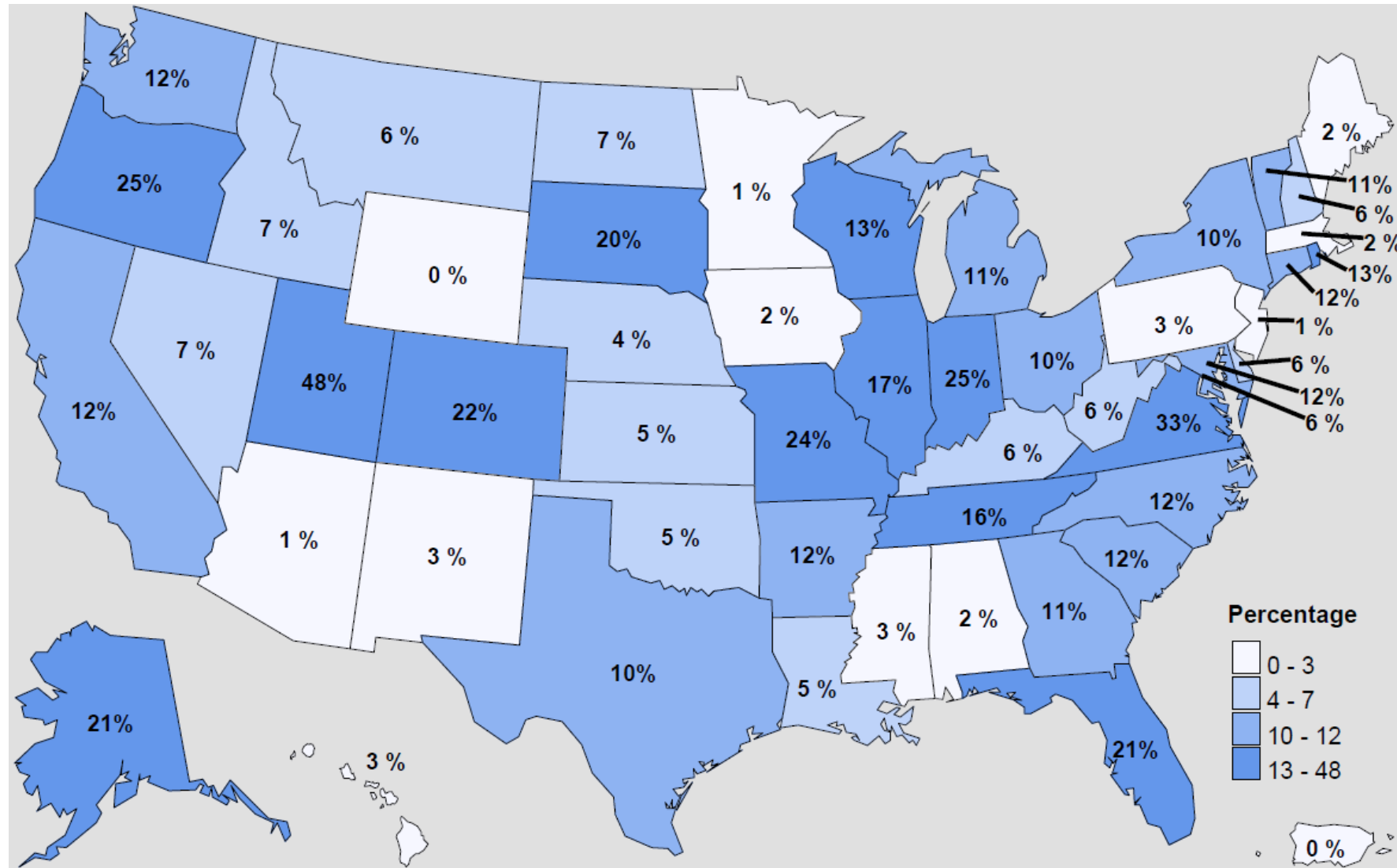
- 805 facilities submitted at least one month of data
 - From 49 states (+AE & DC)
 - Bed size
 - Average = 215
 - Median = 168
 - Min/Max = 6, 1455
 - Teaching status
 - Teaching: 65%
 - (of all Teaching) Major teaching: 47%
- 326 facilities submitted at least one month of AR Option data

Yearly Submission into the AU Option*



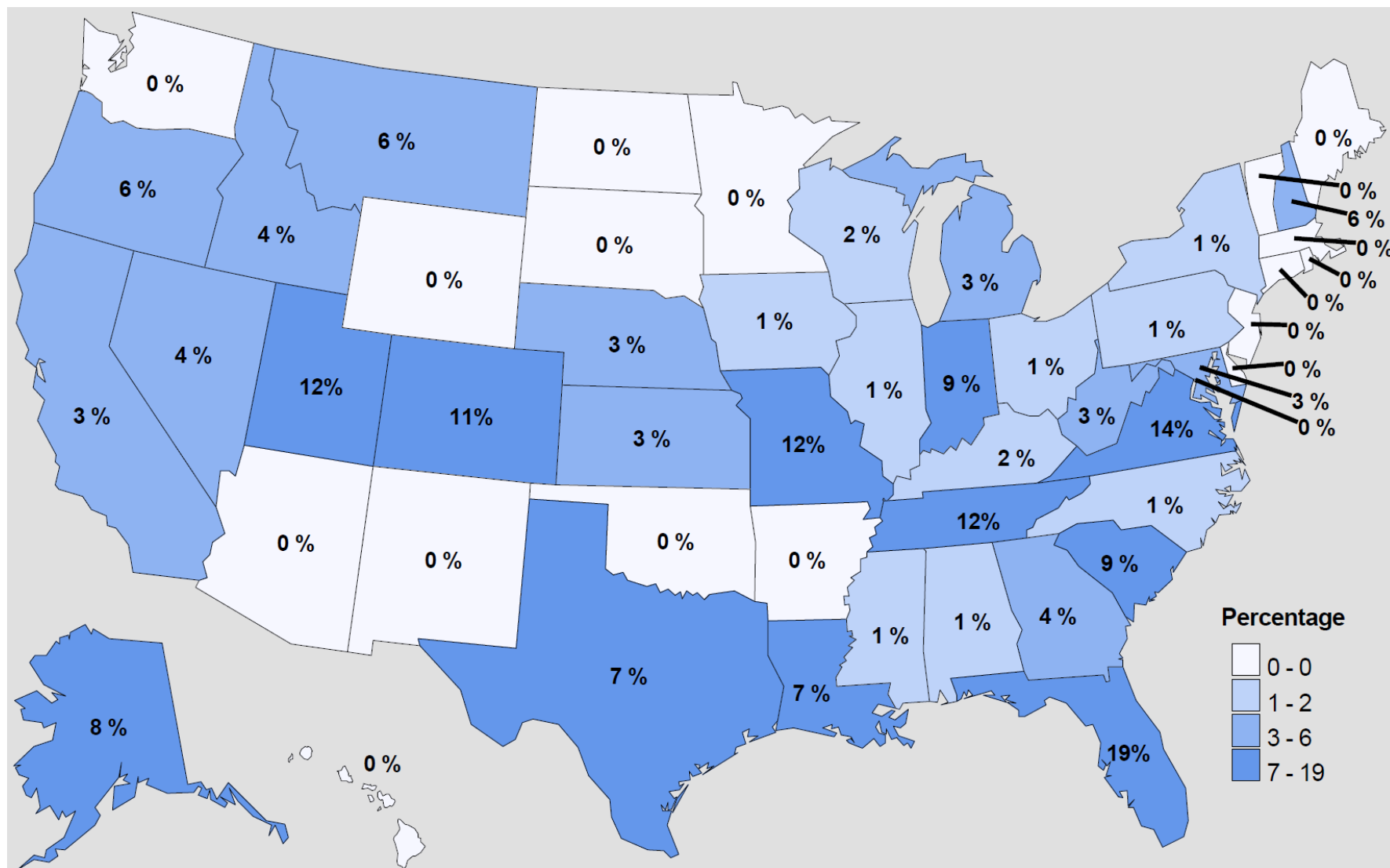
*As of May 1, 2018

Percentage of facilities ever-reporting into NHSN's AU Option, May 2018



*Denominator is all NHSN-enrolled acute care hospitals

Percentage of facilities ever-reporting into NHSN's AR Option, May 2018



*Denominator is all NHSN-enrolled acute care hospitals

Plans for the SAAR

- Current SAARs are based on 2014 AU data
- Plan to update adult and pediatric SAARs using 2017 data
 - Reassess all variables potentially associated with AU
 - If sample sizes are sufficient and data are clean, we can investigate new factors and location types not previously assessed:
 - Adult step down, Oncology units, other ICU types

Questions?
Email the NHSN Helpdesk: NHSN@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



AR Lab Network Update

Allison Brown, DHQP

High-Acuity Long Term Care: A Brief Tour

Eleanor Adams, New York State Department of Health



Health Department Driven Prevention: HAIs, CDI and MRSA BSI

Alex Kallen

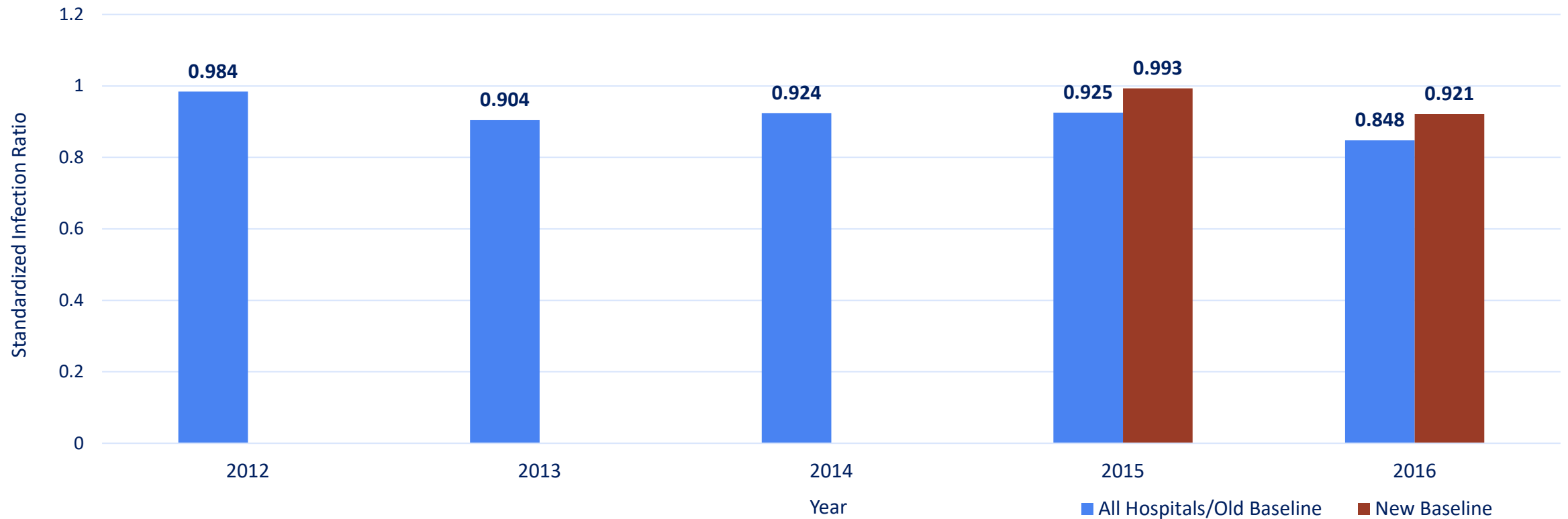
CSTE Sunday Workshop

June 10, 2018

National Action Plan to Prevent Healthcare-Associated Infections Progress and Targets for 2020

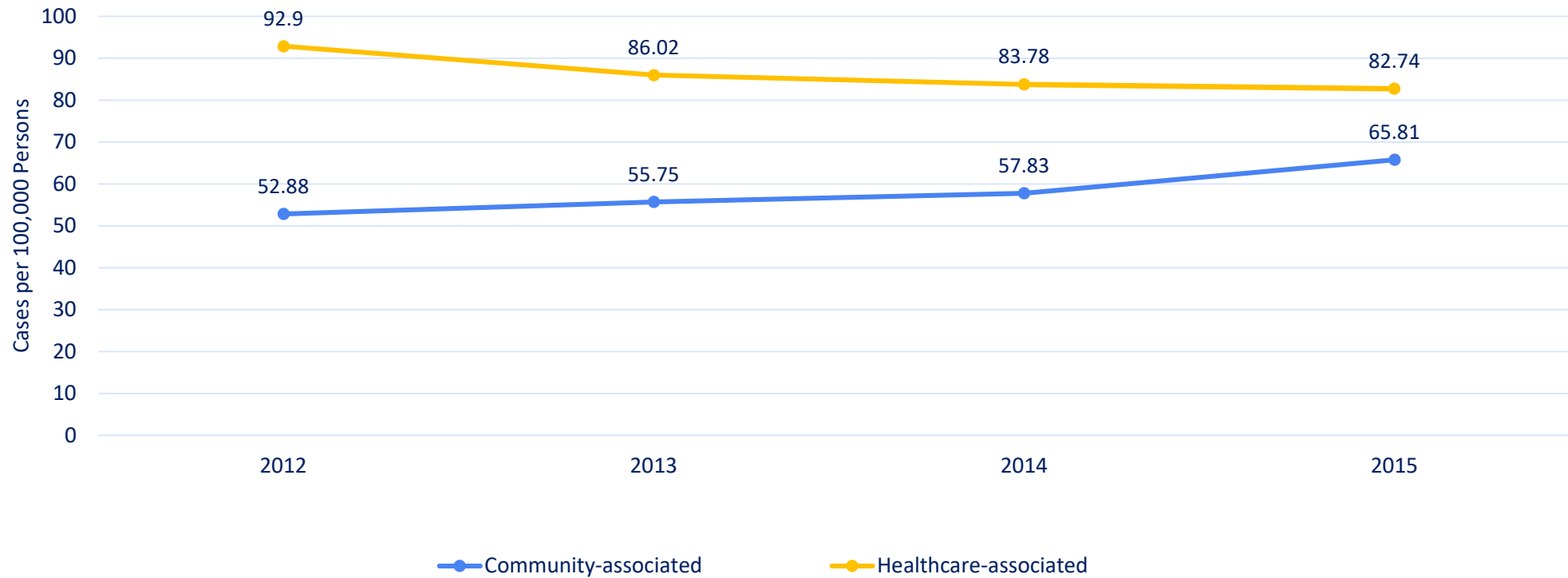
Measure	Data Source	Baseline Years	2013 Target	Progress By 2014	Targets for 2020
Reduce central-line associated bloodstream infections (CLABSI) in ICU and ward-located patients	CDC/ NHSN	2006-2008	50% reduction or .50 SIR	50% reduction or .50 SIR	50% reduction from 2015 baseline
Reduce catheter-associated urinary tract infections (CAUTI) in ICU and ward-located patients	CDC/ NHSN	2009	25% reduction or .75 SIR	no change	25% reduction from 2015 baseline
Reduce the incidence of invasive healthcare-associated methicillin-resistant Staphylococcus aureus (MRSA) infections	CDC/EIP/ ABC	2007-2008	50% reduction	36% reduction	50% reduction from 2015 baseline
Reduce facility-onset methicillin-resistant Staphylococcus aureus (MRSA) in facility-wide healthcare	CDC/ NHSN	2010-2011	25% reduction or .75 SIR	13% reduction or .87 SIR	50% reduction from 2015 baseline
Reduce facility-onset Clostridium difficile infections in facility-wide healthcare	CDC/ NHSN	2010-2011	30% reduction or .70 SIR	8% reduction or .92 SIR	30% reduction from 2015 baseline
Reduce the rate of Clostridium difficile hospitalizations	AHRQ/ HCUP	2008	30% reduction	18% increase	30% reduction from 2015 baseline
Reduce Surgical Site Infection (SSI) admission and readmission	CDC/ NHSN	2006-2008	25% reduction or .75 SIR	18% reduction or .82 SIR (2012)	30% reduction from 2015 baseline

CDI SIR in U.S. Acute Care Hospitals

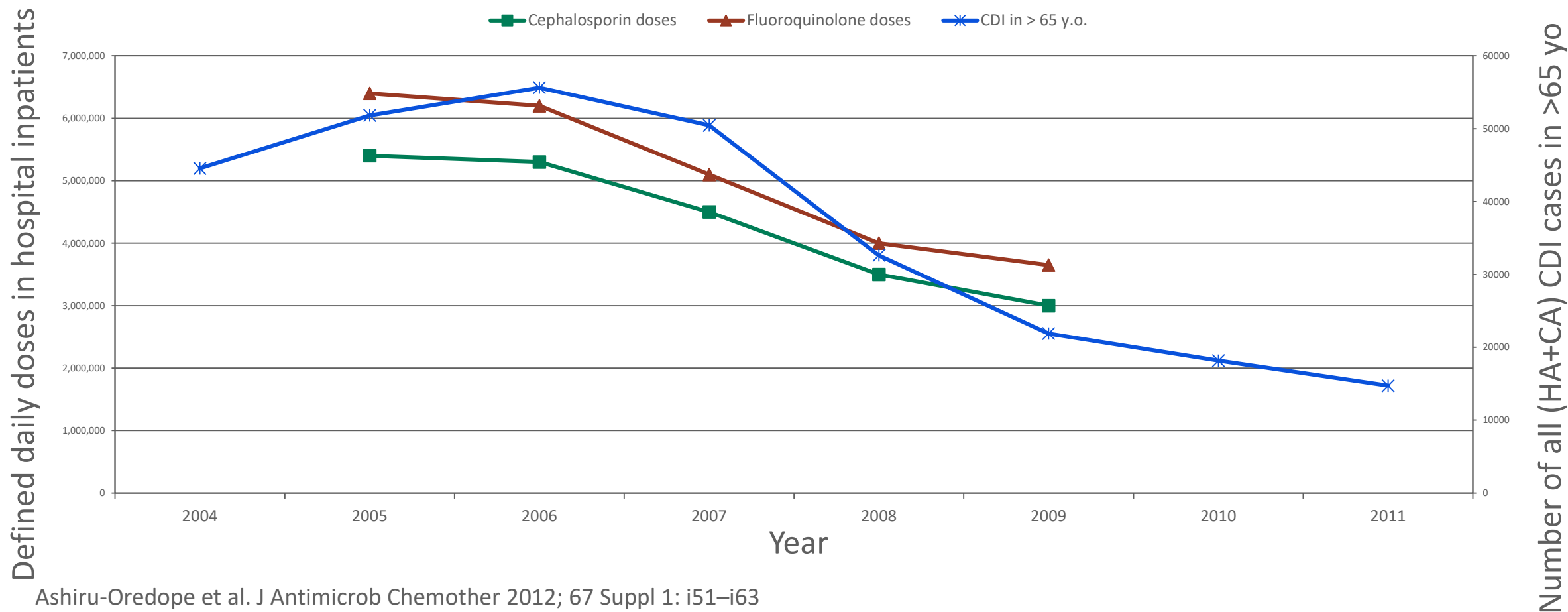


Community-onset CDI are Static or Increasing

Reported crude incidence of community-associated and healthcare-associated CDI Emerging Infections Program sites, 2012-2015



Prevention of *Clostridium difficile* Infections (CDI) in England



Ashiru-Oredope et al. J Antimicrob Chemother 2012; 67 Suppl 1: i51–i63

Wilcox MH et al. Clinical Infectious Diseases 2012;55(8):1056–63

<http://www.hpa.org.uk/web/HPAweb&Page&HPAwebAutoListName/Page/1179745282408>

Figure 1. Changes over time in CLABSI SIR in US hospitals using 2006-8 baseline, NHSN 2006-2016

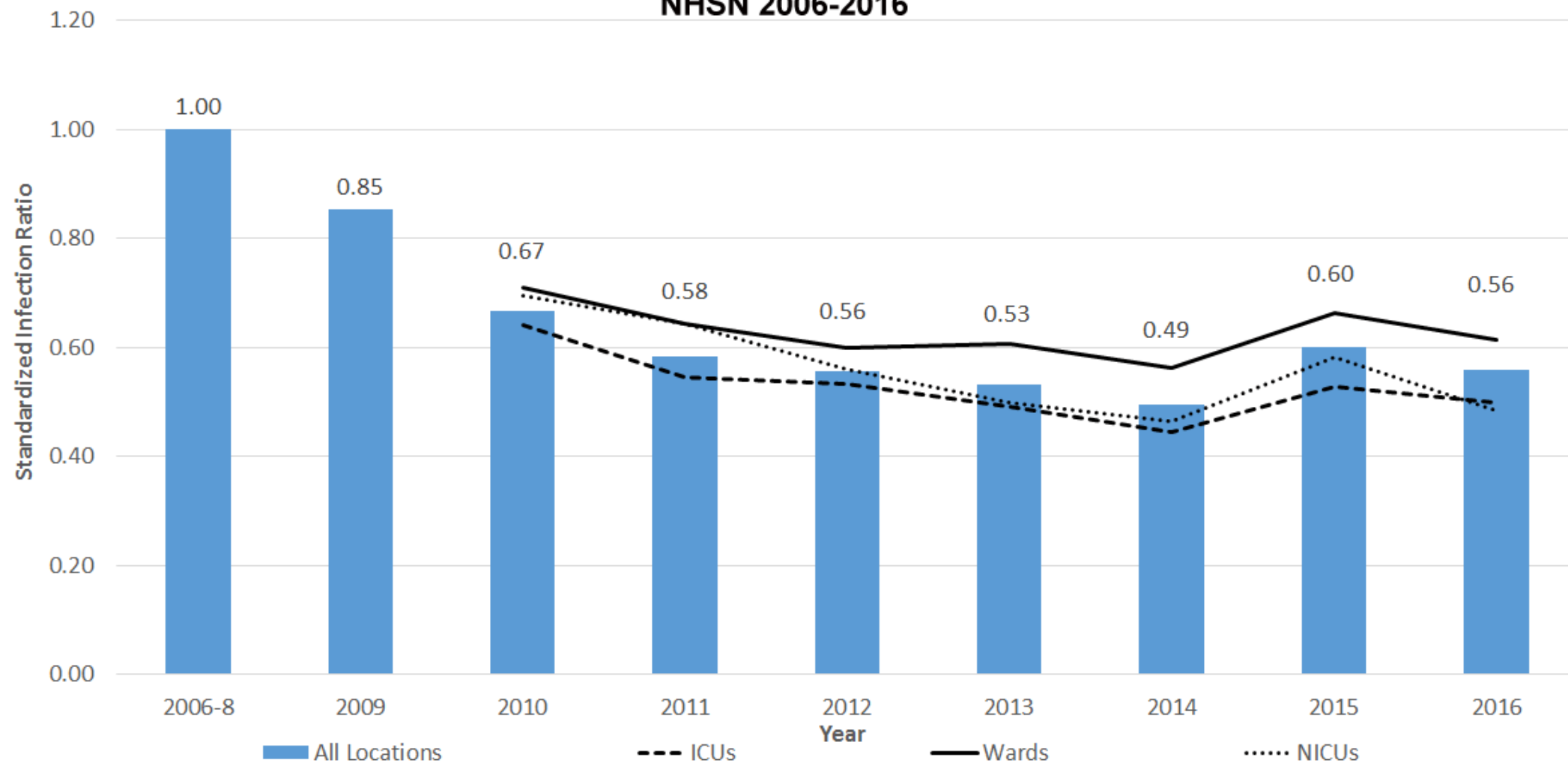


Figure 2. Changes over time in CLABSI SIR in US hospitals using 2015 baseline, NHSN 2015-2016

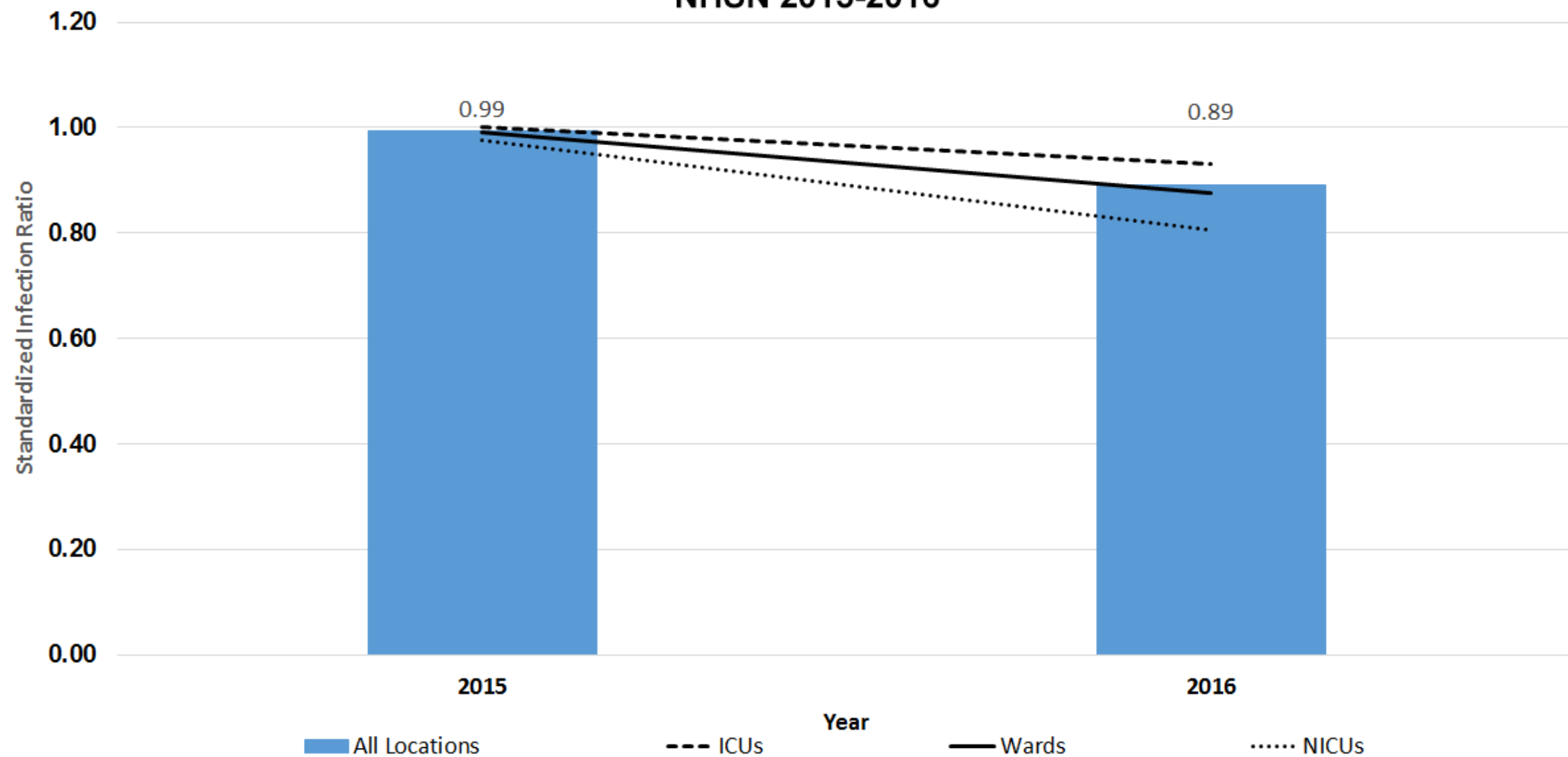


Figure 7. Changes over time in non-yeast CAUTI SIR in US hospitals using 2009 baseline, NHSN 2009-2016

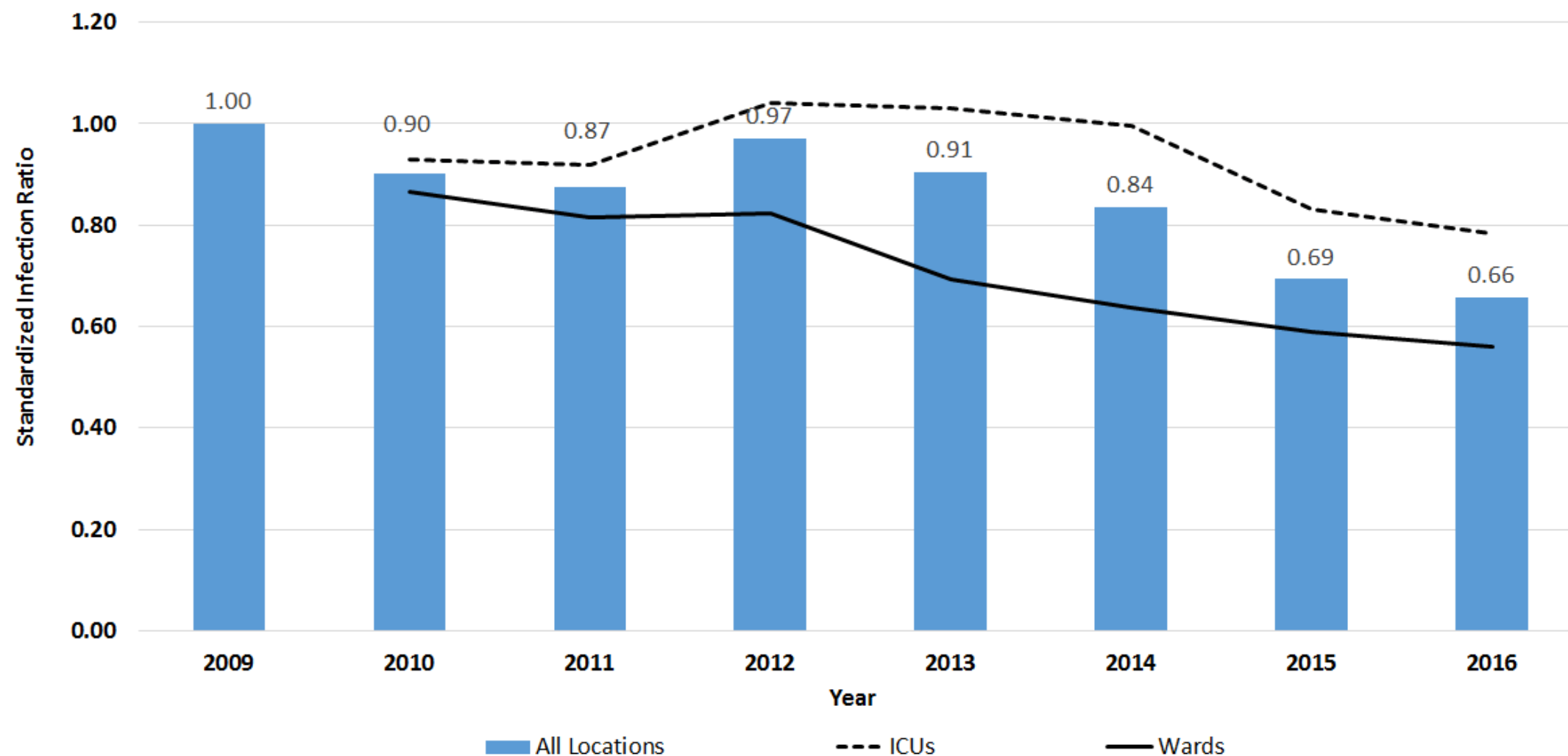
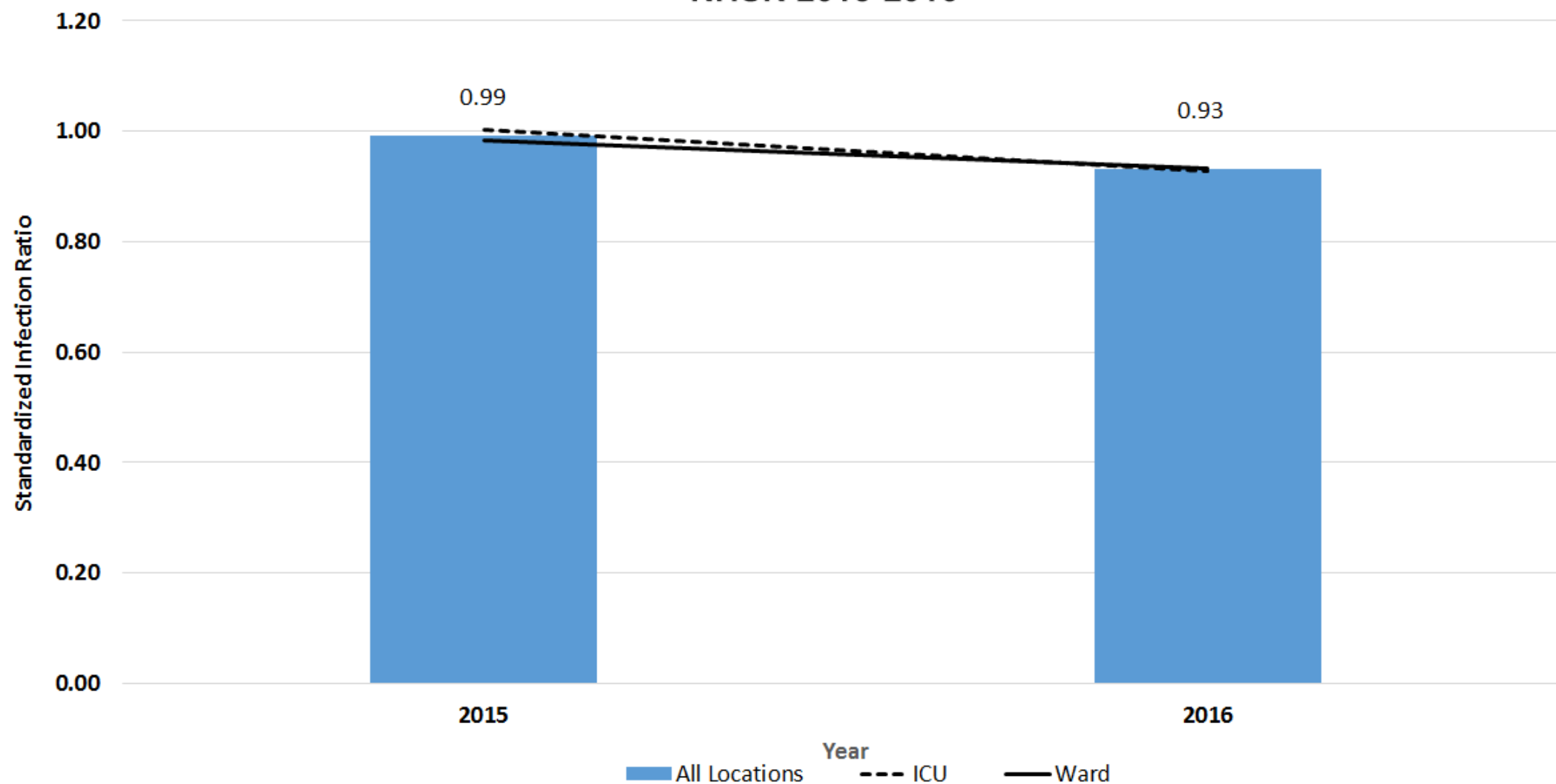


Figure 6. Changes over time in CAUTI SIR in US hospitals using 2015 baseline, NHSN 2015-2016



MRSA BSI rates, Emerging Infections Program surveillance area, United States, 2005-2014

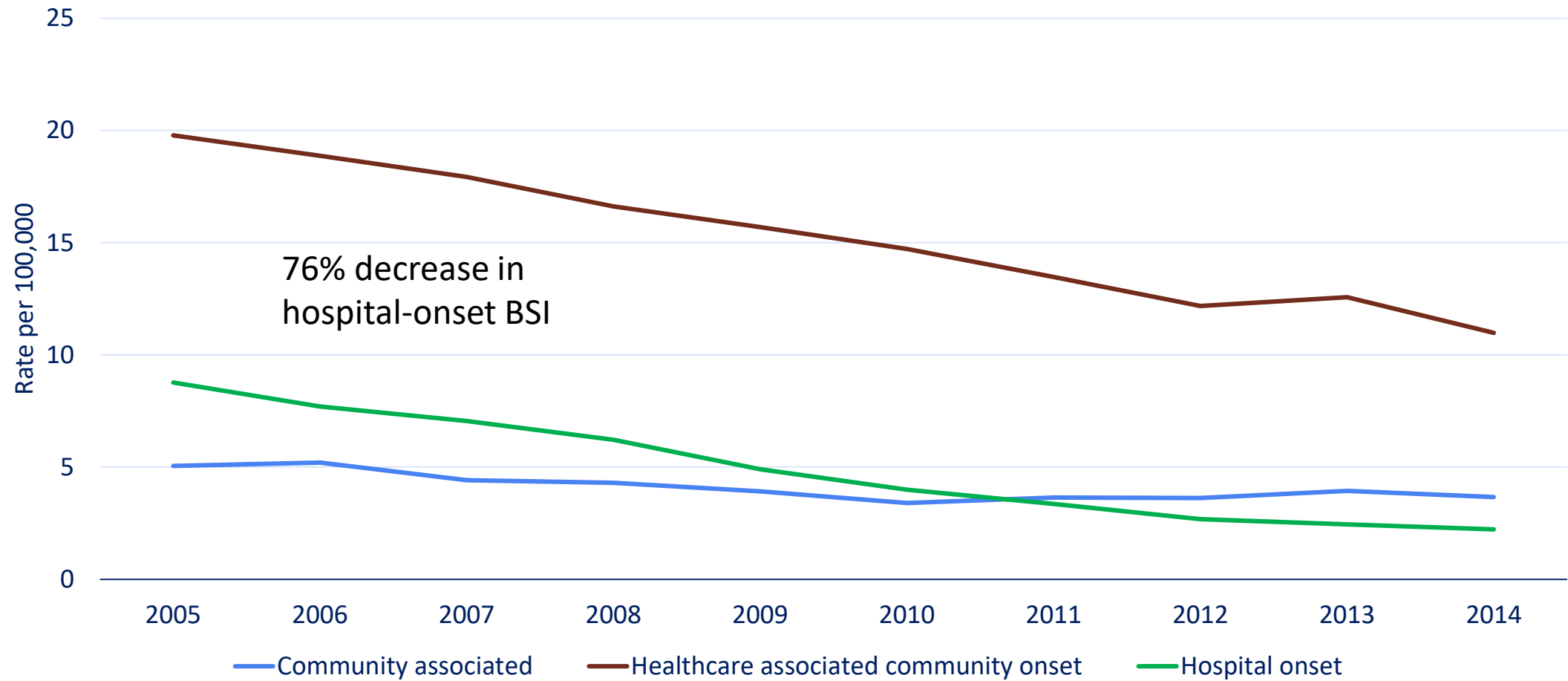


Figure 13. Changes over time in hospital-onset MRSA bacteremia SIR in US hospitals using 2011 baseline, NHSN 2011-2016

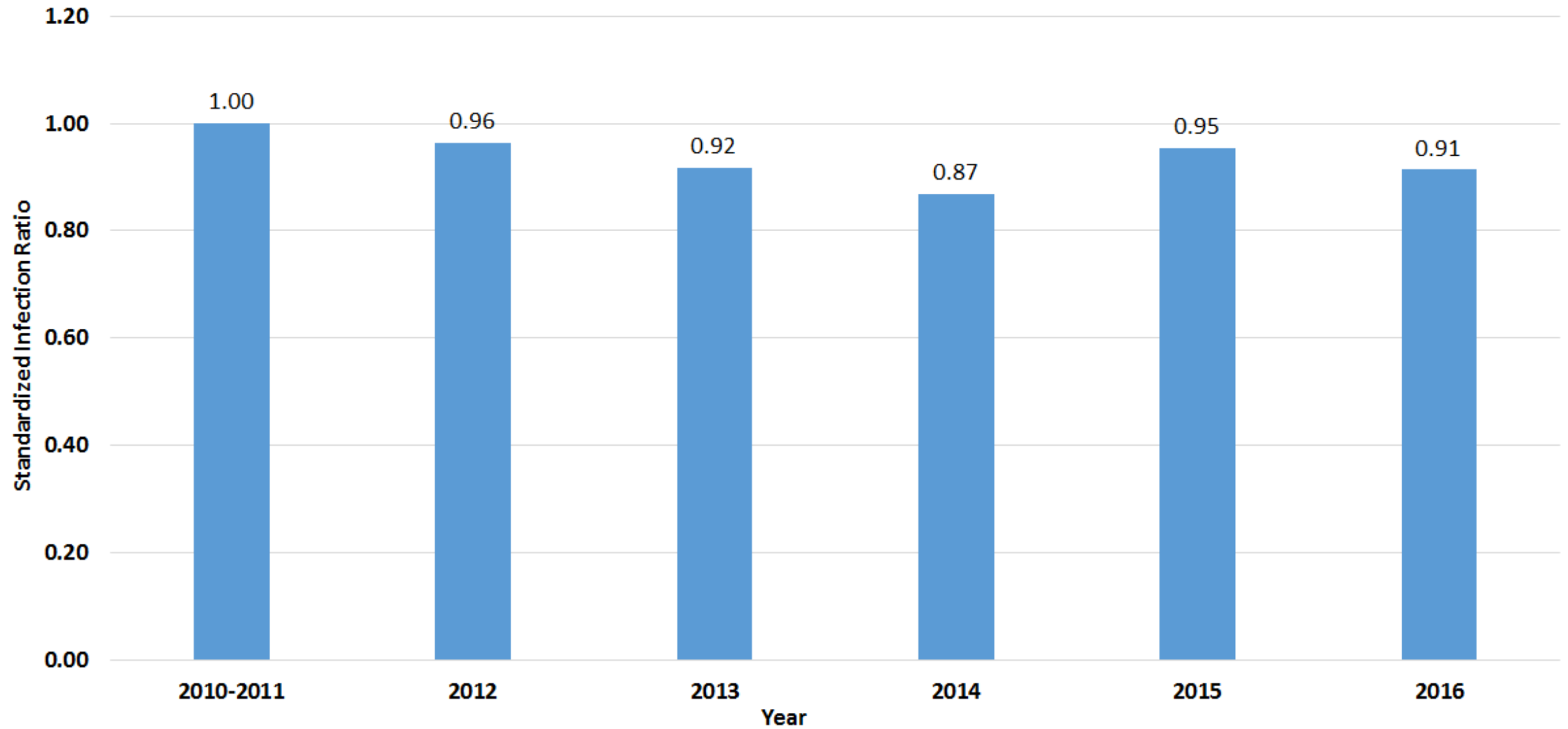
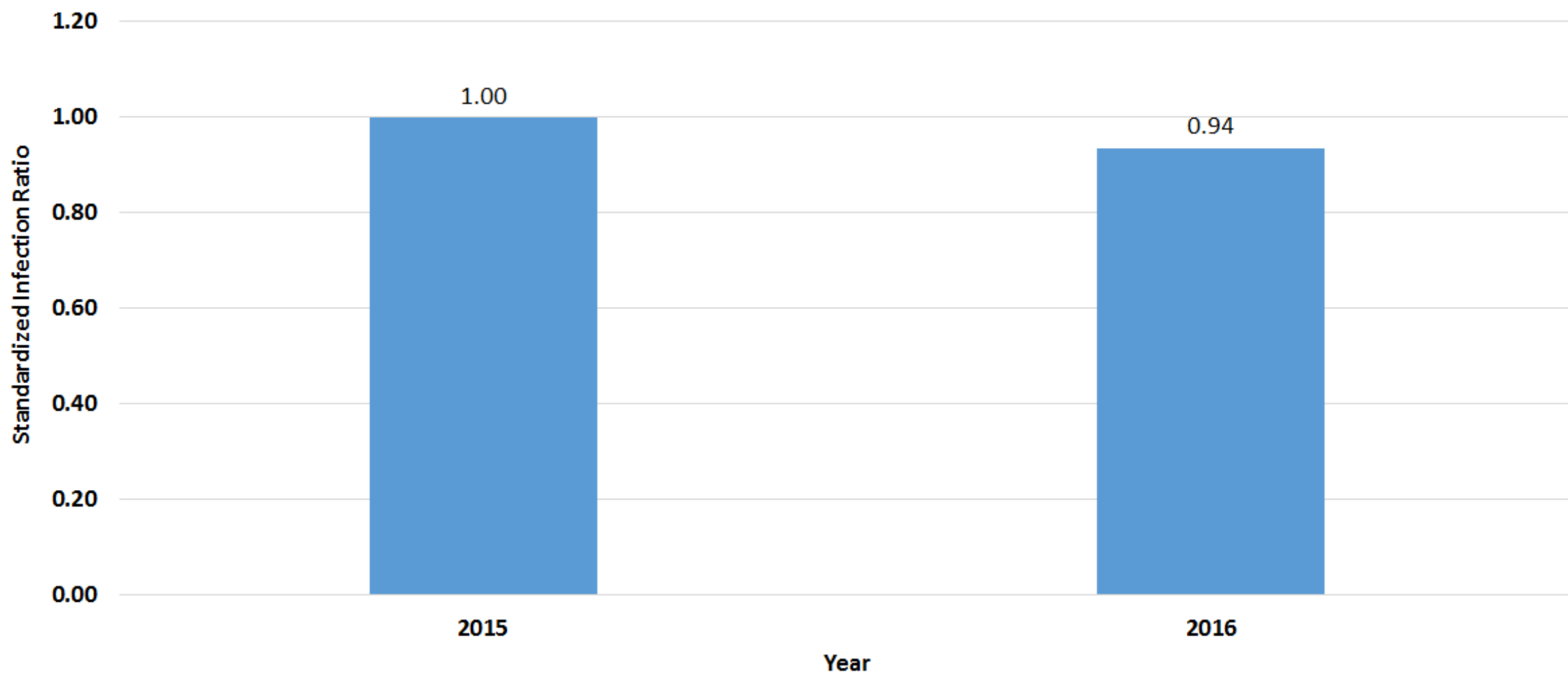
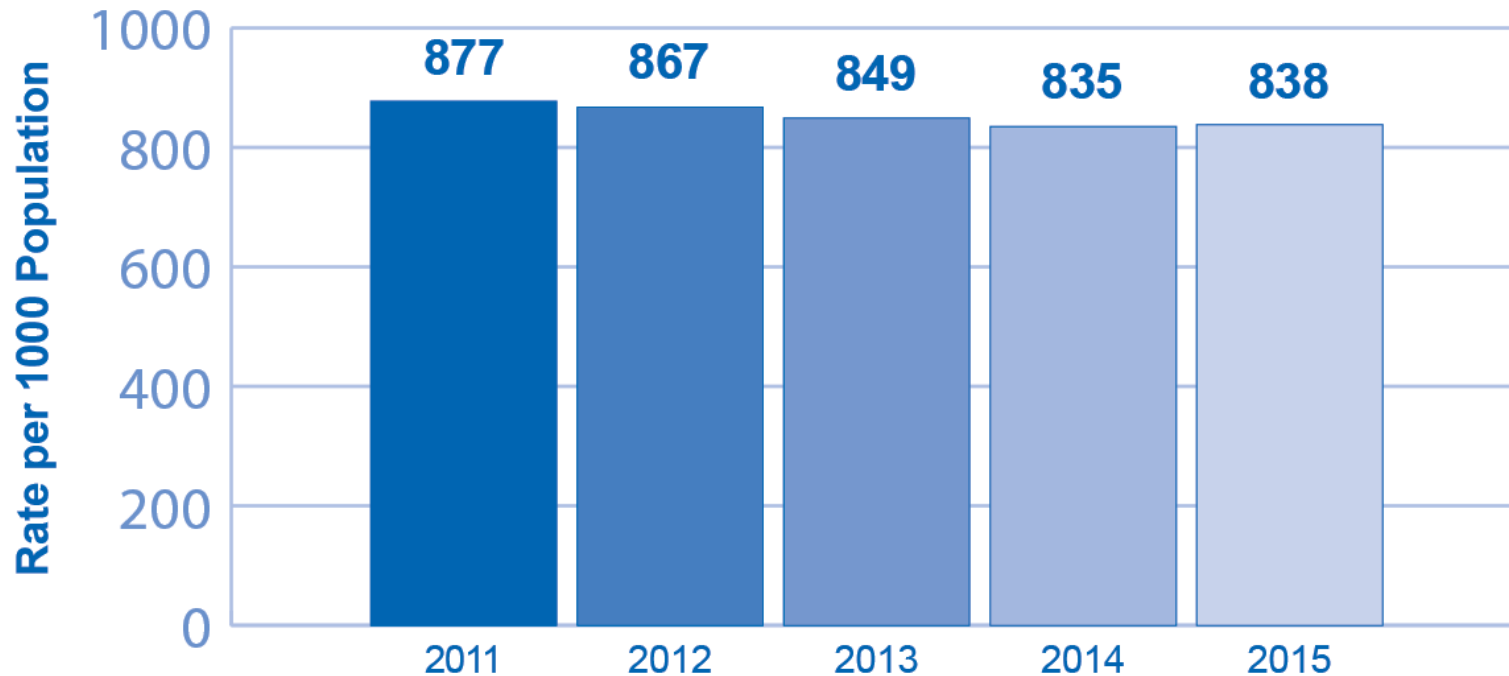


Figure 14. Changes over time in hospital-onset MRSA bacteremia SIR in US hospitals using 2015 baseline, NHSN 2015-2016



Are We Reducing Inappropriate Antibiotic Use?

Antibiotics Dispensed in U.S. Outpatient Pharmacies



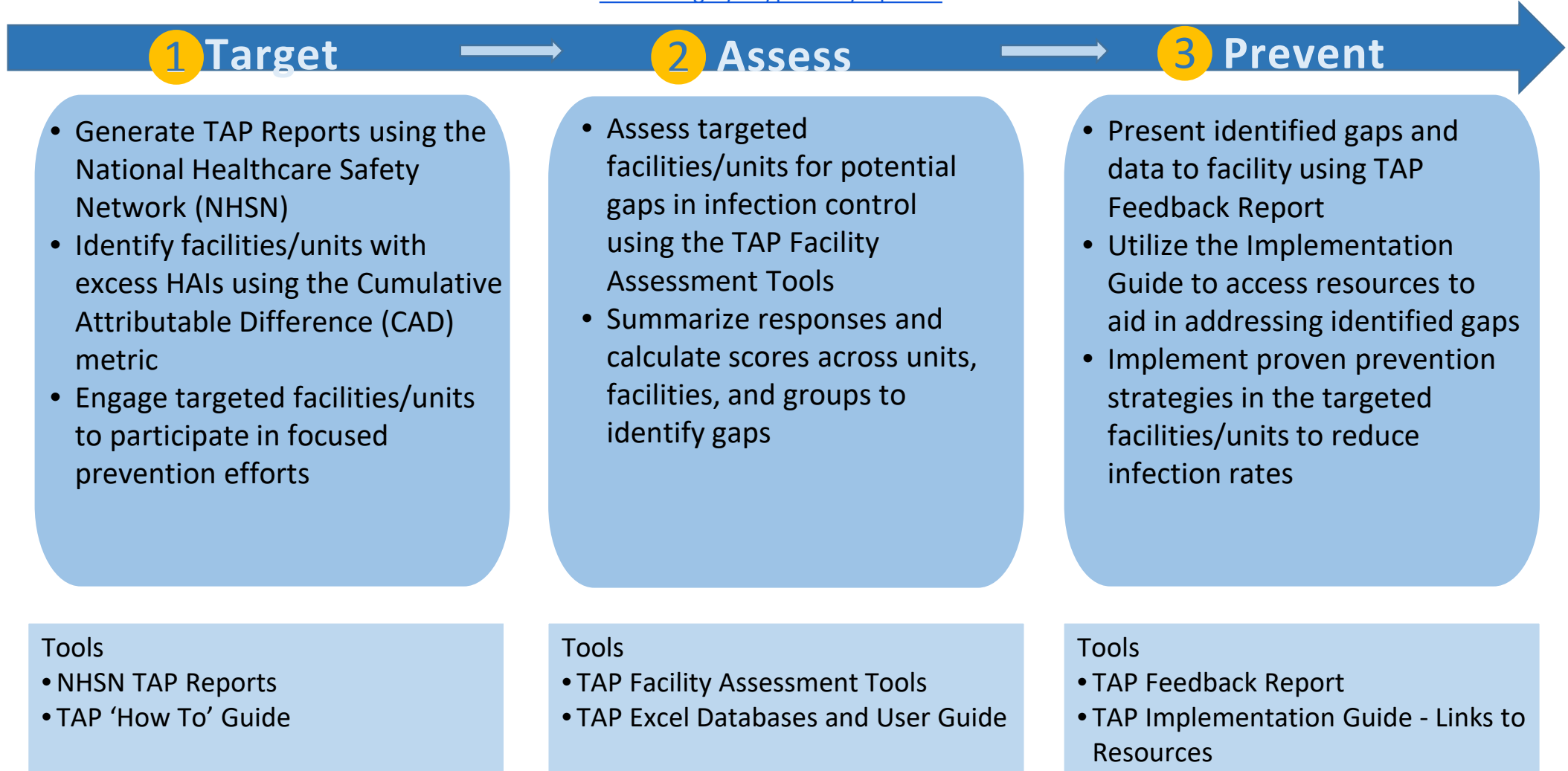
- Outpatient antibiotic prescribing rates have decreased by 4% 2011–2015
- National goal: Reduce outpatient antibiotic use by 15% by 2020

Tools for Prevention

TAP Strategy

Targeted Assessment for Prevention: *Using Data for Action*

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



Purpose of CDI Prevention Framework

- Provides major principles and interventions recommended for the prevention of CDI in an acute-care facility
 - Could be modified for other healthcare settings
- Goals
 - To reduce facility CDI rates in either the outbreak or endemic setting
 - To assist state and local health departments, hospital associations, and facility personnel who are leading or participating in CDI prevention efforts
- This framework is intended to be used as is, or modified to address the needs of individual facilities
- Implementation tools will be designed to support the prevention framework
 - “Root cause analysis” tool

Framework Components

- Isolate and initiate contact precautions for suspected or confirmed CDI patients
- Confirm CDI in patients
- Perform environmental cleaning to prevent CDI
- Develop infrastructure to support CDI Prevention
- Develop a facility-based antibiotic stewardship program that includes addressing high-risk CDI antibiotics
- Consider use of supplemental strategies to reduce CDI rates

Urine Culture Stewardship

Approach to diagnostic testing for CAUTIs to ensure that urine cultures are

- Performed only when appropriate indications are present to help determine if treatment with antimicrobials is indicated
- Collected, stored, and processed appropriately

Survey current practices and outcomes including

- Urine culture rates
- CAUTI rates
- Documentation of indications for urine culture
- Urine sample collection and storage

Survey

Ensure **infrastructure** to support the program is in place including

- Personnel
- Processes

Structure

Strategize

Employ multidisciplinary **strategies** including

- Staff education/training
- Electronic medical record supports such as stops and order sets
- Urine culture collection kits
- Lab protocols

Sustain

Sustain your program with monitoring, audit, and feedback including

- Urine culture and CAUTI rates
- Time from culture collection to lab arrival
- Case-based audits of urine cultures

State Examples

Coordinated, Regional AR Prevention Collaboratives in Practice

Examples and Lessons Learned

Kyle Rizzo, MPH
Healthcare-Associated Infections Program
Center for Health Care Quality
California Department of Public Health

Morbidity and Mortality

[MMWR](#)



Vital Signs: Estimating the Burden of Health Care-Associated Infections in Health Care Facilities

Weekly
August 7, 2015 / 64(30)

On August 4, 2015, this report

Rachel B. Slayton, PhD¹; James A. M. Brown, PhD²; James A. M. MPH⁷; Lacey Avery, MA¹; Jernigan, MD¹

Abstract

Background: Treatments for health care–associated infections (HAIs) caused by antibiotic-resistant bacteria and *Clostridium difficile* are limited, and some patients have developed untreatable infections. Evidence-supported interventions are available, but coordinated approaches to interrupt the spread of HAIs could have a greater impact on reversing the increasing incidence of these infections than independent facility-based program efforts.

Facilities work together to protect patients.

Common Approach (Not enough)

- Patients can be transferred back and forth from facilities for treatment without all the communication and necessary infection control actions in place.

Independent Efforts (Still not enough)

- Some facilities work independently to enhance infection control but are not often alerted to antibiotic-resistant or *C. difficile* germs coming from other facilities or outbreaks in the area.
- Lack of shared information from other facilities means that necessary infection control actions are not always taken and germs are spread to other patients.

Coordinated Approach (Needed)

- Public health departments track and alert health care facilities to antibiotic-resistant or *C. difficile* germs coming from other facilities and outbreaks in the area.
- Facilities and public health authorities share information and implement shared infection control actions to stop spread of germs from facility to facility.



SEARCH



Antibiotic-Resistant

Kim Wong, PhD⁴; Kevin Brown, PhD⁵; Chenghua Cao, PhD⁶; John A. Jernigan, MD¹

CDPH HAI Program Collaboratives

Collaborative	Dates	Region	# HCF	# LHD
Statewide Abx Stewardship	12/2014 – 02/2016	Webinar based	>100 hospitals	N/A
Orange County CDI	06/2015 – 06/2016	Southern CA	19 hospitals; 20 SNF	1
Sacramento Metro CDI	04/2016 – 04/2017	Northern CA	18 hospitals; 22 SNF	6
SF Bay Area CRE	04/2016 – 06/2017	Northern CA	20 hospitals; 26 SNF	5
Coachella Valley CDI / AR	In progress	Southern CA	4 hospitals; 7 SNF	1
Long Beach CRE	In progress	Southern CA	4 hospitals; 13 SNF	2
Imperial County Abx Stewardship	In progress	Southern CA	2 hospitals; 4 SNF; >10 outpatient	1

Collaborative Process – Start to Finish

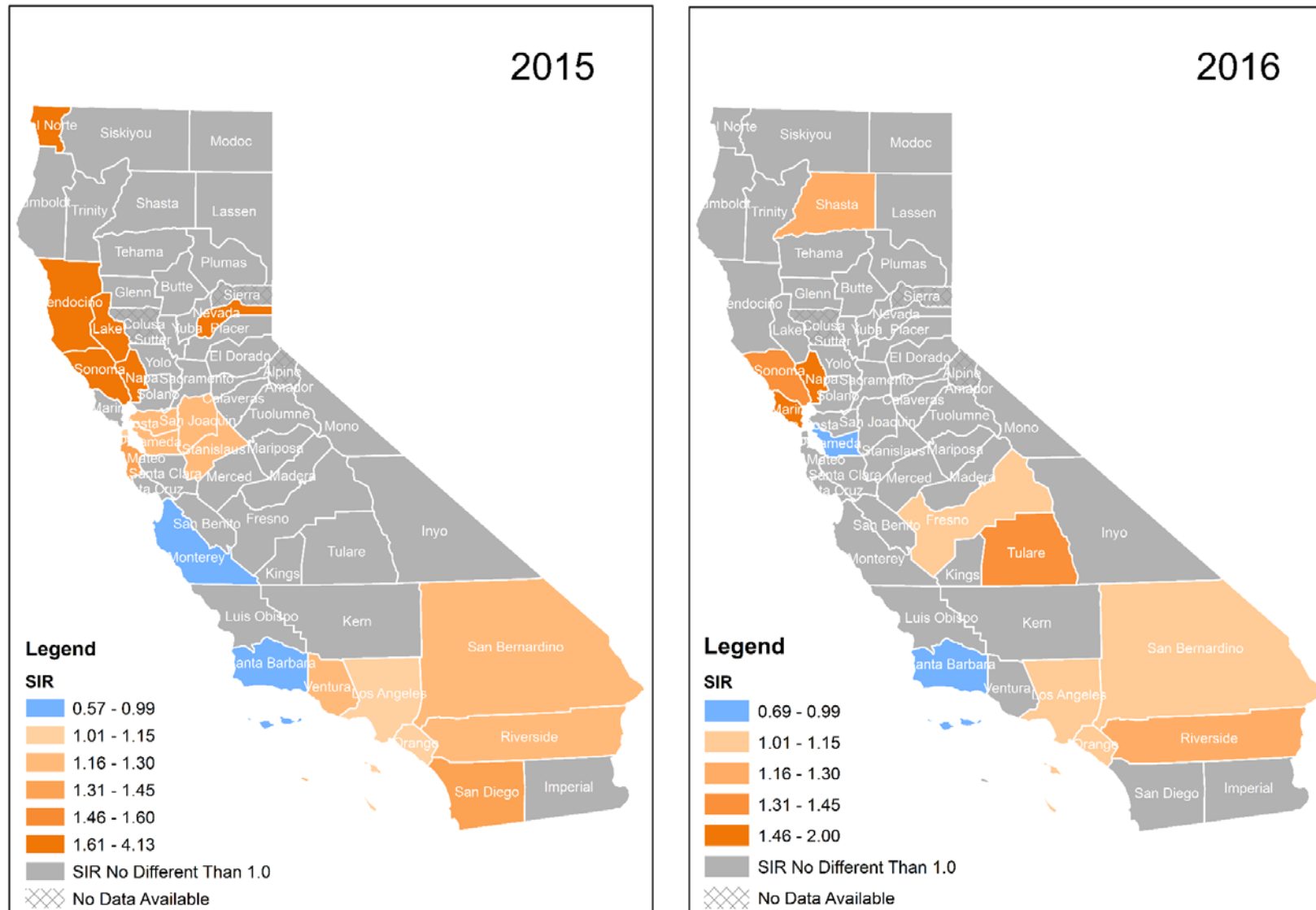
1. Identify target region for collaborative
2. Engage local health departments (LHD) and recruit healthcare facilities
3. Plan, coordinate and convene collaborative
 - a. Learning and discussion sessions
 - b. Infection control onsite assessments
 - c. Interfacility patient transfer communication
4. Evaluation

Planning and Engagement

Identify region / engage LHD

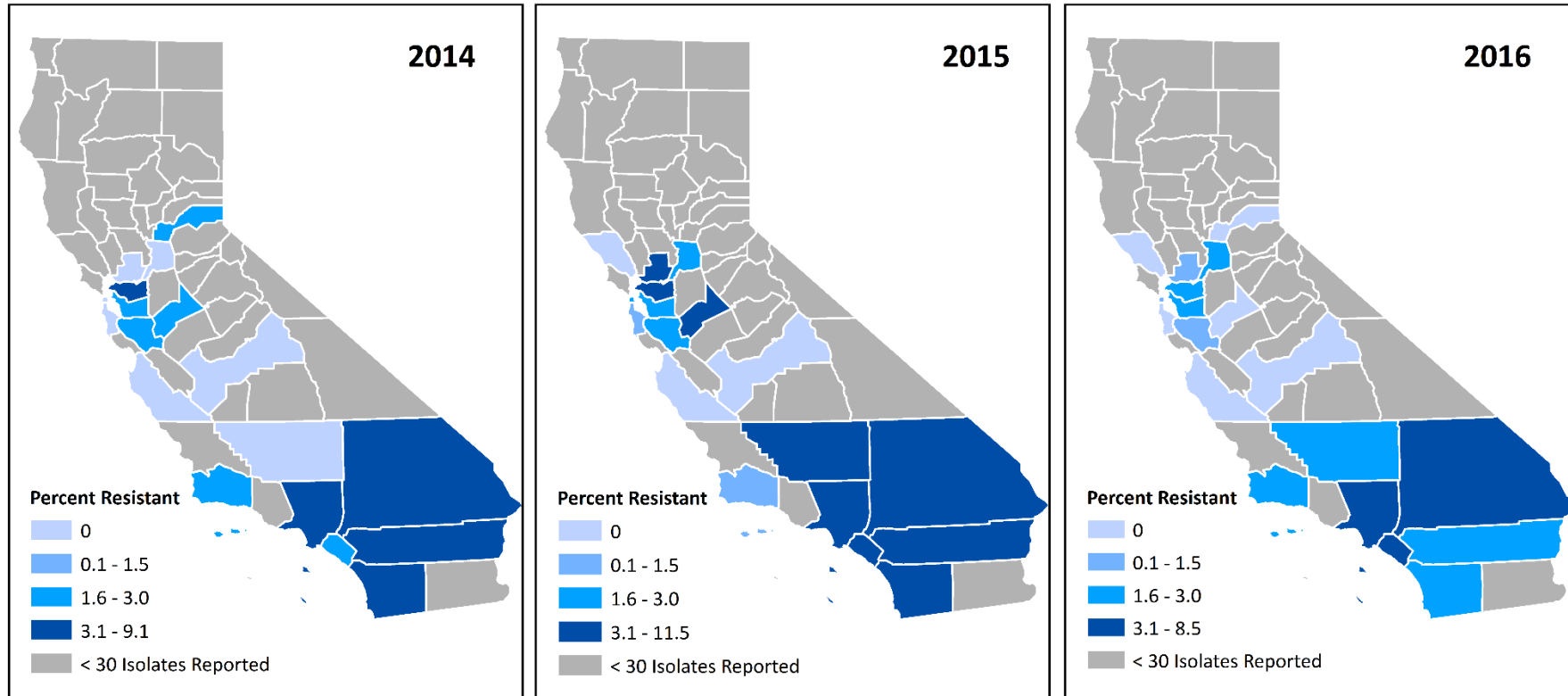
- We use National Healthcare Safety Network (NHSN) data and other data sources to identify regions with high CDI, AR and/or patient sharing
- This information can also help engage LHD

Analysis Examples – CDI SIR by County



Analysis Examples – CRE by County

Percentage of Enterobacteriaceae Isolates Resistant to Carbapenems
Reported Among Healthcare-Associated Infections, 2014-2016



Planning and Recruitment

Facility recruitment

- Share same county-level analyses with facilities
- Emphasize CDPH and LHD partnership
- Encourage facilities to engage their leadership
- Leverage existing partnerships
 - HAI Program infection preventionists (IP)
 - APIC chapters
 - Healthcare facility associations
 - QIN / QIO

Collaborative Sessions

Quarterly, interactive, in-person learning and discussion sessions

- Address prevention strategies – antimicrobial stewardship, environmental cleaning
 - Highlight / utilize local experts
- Enable facilities to collaborate and share tools
 - Build relationships
 - Infection control protocols
 - Strategies to address prevention barriers

Facility Assessments

Infection control assessments performed by HAI Program IP at each participating facility

- Assessments evaluate:
 - Prevention program infrastructure, capacity
 - Detection and testing procedures
 - Contact precautions, hand hygiene, cleaning
 - Antimicrobial stewardship practices
- Each facility receives custom action plan following assessment

Patient Transfer Communication

- Develop interfacility transfer communication enhancement process with LHD and participants
- Communicate AR and CDI status, ensure timely implementation of infection control measures

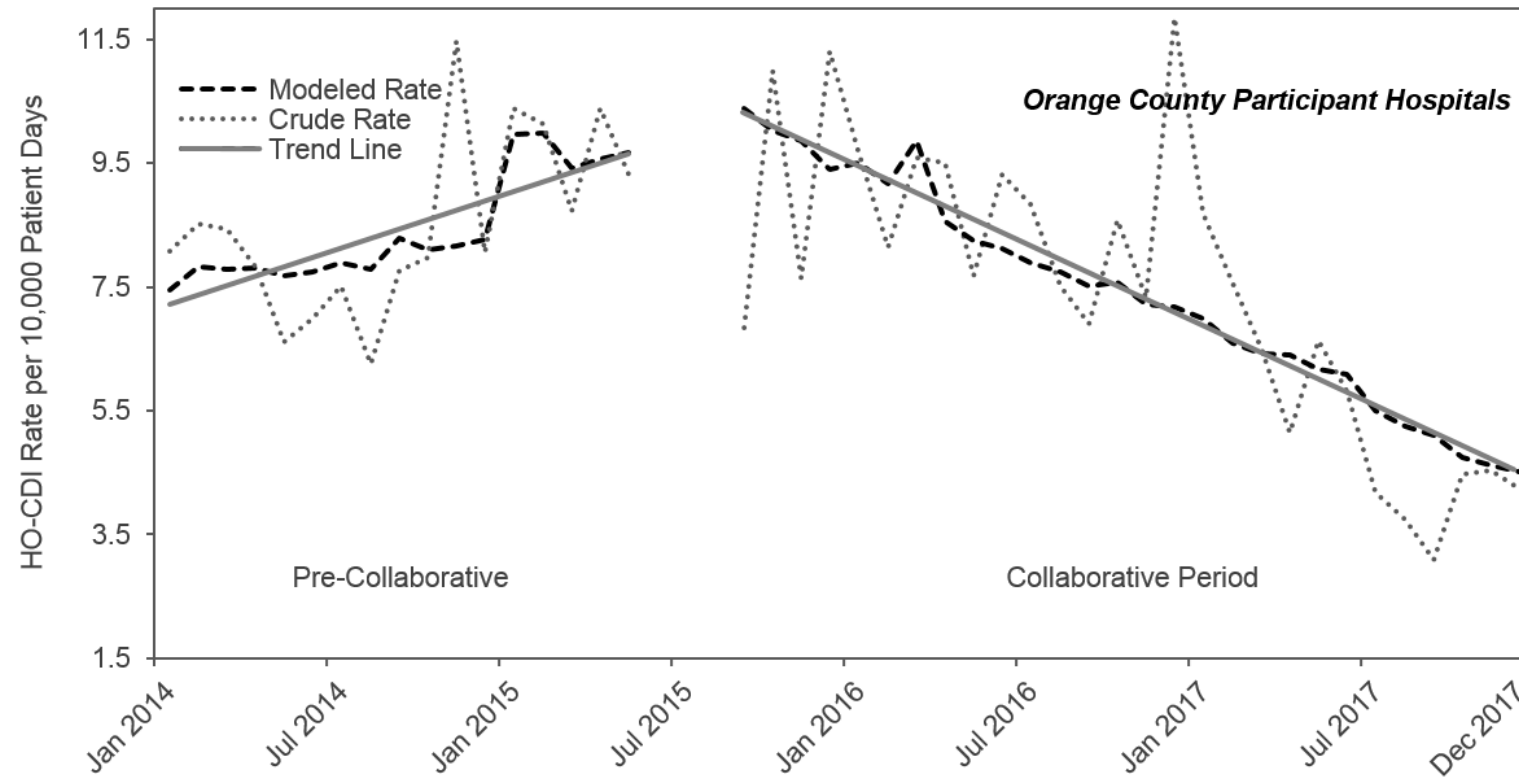
INFECTION CONTROL TRANSFER FORM						
This form should be sent with the patient/resident upon transfer. It is NOT meant to be used as criteria for admission, only to foster the continuum of care once admission has been accepted.						
Affix any patient labels here.						
Demographics	Patient/Resident (Last Name, First Name): _____					
	Date of Birth: ____/____/____	MRN: _____	Transfer Date: ____/____/____			
	Sending Facility Name: _____					
	Contact Name: _____	Contact Phone: () - _____				
Receiving Facility Name: _____						
⚠ Currently in Isolation Precautions? ☐ Yes If Yes, check: ☐ Contact ☐ Droplet ☐ Airborne ☐ Other: _____				☐ No isolation precautions		
Organisms	Did or does have (send documentation, e.g. culture and antimicrobial susceptibility test results with applicable dates):		Current (or previous) infection or colonization, or ruling out *	☐ No known MDRO or communicable diseases		
	MRSA		☐			
	VRE		☐			
	Acinetobacter resistant to carbapenem antibiotics		☐			
	E. coli, Klebsiella or Enterobacter resistant to carbapenem antibiotics (CRE)		☐			
	E. coli or Klebsiella resistant to expanded-spectrum cephalosporins (ESBL)		☐			
C. difficile		☐				
Other^: _____		☐ (current or ruling out*)				
^e.g. lice, scabies, disseminated shingles, norovirus, flu, TB, etc						
*Additional information if known: _____						
Symptoms	Check yes to any that currently apply**: ☐ Cough/uncontrolled respiratory secretions ☐ Acute diarrhea or incontinent of stool ☐ Incontinent of urine ☐ Draining wounds ☐ Vomiting ☐ Other uncontained body fluid/drainage ☐ Concerning rash (e.g.: vesicular)			☐ No symptoms / PPE not required as "contained"		
	**NOTE: Appropriate PPE required ONLY if incontinent/drainage/rash NOT contained.					
PPE	PERSONAL PROTECTIVE EQUIPMENT CONSIDERATIONS ☐ ☐ ☐ CHECK ALL PPE TO BE CONSIDERED AT RECEIVING FACILITY				Answers to sections above ANY YES → [Left Arrow] ALL NO → [Right Arrow]	
					Person completing form: _____ Role: _____ Date: ____/____/____	
Other MDRO Risk Factors	Is the patient currently on antibiotics? ☐ Yes ☐ No					
	Antibiotic	Dose, Frequency	Treatment for:	Start date:	Stop date:	
Does the patient currently have any of the following devices? ☐ Yes ☐ No						
☐ Central Line/ PICC, Date inserted: ____/____/____ ☐ Hemodialysis Catheter ☐ Urinary Catheter, Date inserted: ____/____/____			☐ Subrapubic catheter ☐ Percutaneous gastrostomy tube ☐ Tracheostomy ☐ Fecal management system			
IZ	Were immunizations received at sending facility? ☐ Yes ☐ No					
	If yes, specify: _____ Date(s): _____					

Evaluation

Multiple options

- Surveys – pre, mid and post assessments
- Descriptive statistics of process measures
- Infection control assessment data
- Quasi-experimental methods
 - Interrupted time-series (ITS) for CDI outcomes

Evaluation Examples (ITS)



Lessons Learned

- In California, collaborative model has worked well for us
- Start small—present at existing meetings and initiatives
- Importance of healthcare facility personnel meeting each other, forming connections
- Next steps: LHD and facilities lead with CDPH support

CDPH HAI Program Resources

- Interfacility transfer communication form
 - https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/CDI_PREVENTION_STRATEGIES.aspx
- Prevention collaborative toolkit

Our Collaborative Team

- Erin Epton, MD
- Erin Garcia, MPH, CPH
- Sam Horwich-Scholefield, MPH, CIC
- Kyle Rizzo, MPH

Thank you!

Questions: Kyle.Rizzo@cdph.ca.gov

Questions for Discussion

Questions

- What has worked for your health department in prevention of HAIs, CDI and MRSA?
- What has not worked for your health department in prevention of HAIs, CDI and MRSA
- What should prevention look like moving forward?
 - Should health departments lead these efforts at all?
 - If so, what should their purpose be?

Building Effective and Collaborative Relationships

Elizabeth Mothershed and Joe Perz, DHQP, and Erica Runningdeer, IL
Department of Health

Building Effective and Collaborative Relationships

- State-City-Local Health Departments: Go to Table #s
- State Survey Agencies: Go to Table #s
- Lab / Epi: Go to Table #14-15

NHSN Demo / Novice Users Session

Lindsey Weiner and Matt Sapiano, DHQP