



NHSN: Tracking Prevention, Protecting Patients

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Centers for Disease Control and Prevention

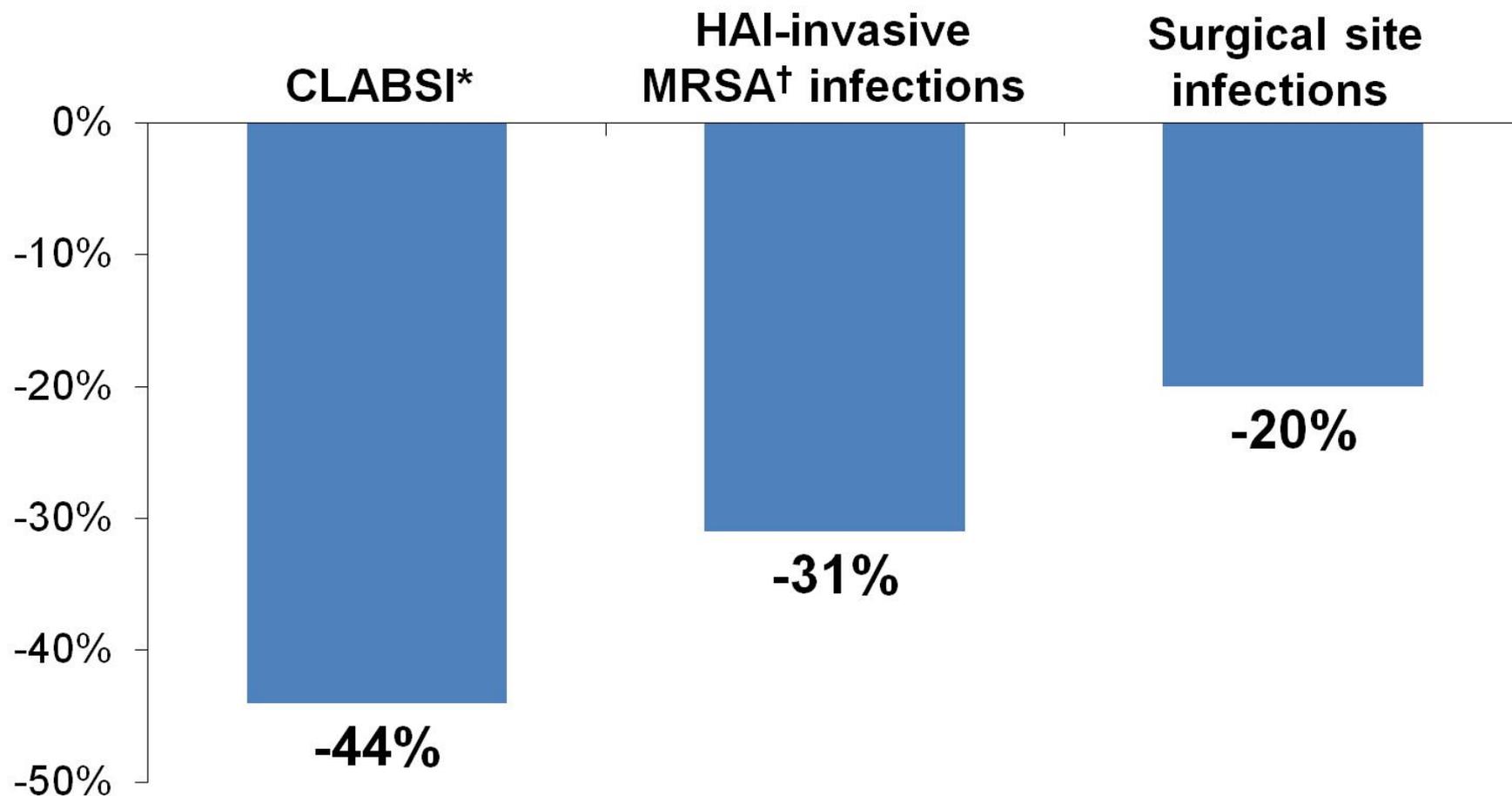
National Healthcare Safety Network

- Nation's leading system to track and prevent healthcare-associated infections (HAI)
- Provides a single integrated system
- Vital for local, state, and national HAI prevention
- Utilized by more than 12,600 healthcare facilities in all 50 states to better protect patients
- Mandated in 31 states and Washington, D.C. for public reporting

NHSN: Ensures Targeted Prevention

- NHSN is utilized by:
 - **Healthcare facilities** to target prevention
 - **HHS** to track progress on national HAI priorities
 - **CMS** for quality initiatives and reporting on Hospital Compare
 - Quality-driven reimbursement
 - Targeted prevention in QIOs and HENs
 - **AHRQ** to accelerate prevention through hospital networks in CUSP initiative
 - **State health departments** to benchmark prevention success
 - **Consumers** to provide healthcare transparency and accountability (e.g., public reporting)

Progress reducing healthcare-associated infections



*CLABSI: Central line-associated bloodstream infection

†MRSA: Methicillin-resistant *Staphylococcus aureus*

Upcoming HAI Progress Report

2012

HEALTHCARE ASSOCIATED INFECTIONS PROGRESS



NATIONAL

Healthcare-associated infections (HAIs) are infections patients can get while receiving medical treatment in a healthcare facility. The standardized infection ratio (SIR) is a statistic used to track HAI prevention progress over time; lower SIRs indicate better progress. The infection data are collected through CDC's National Healthcare Safety Network (NHSN).



CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS

CLABSIs ↓ 44% DECREASE SINCE 2008

A central line is a tube that a doctor usually places in a large vein or chest to give important medical treatment. When not put in correctly or kept clean, central lines can become a freeway for germs to enter the body and cause deadly infections in the blood.

- X % of hospitals have an SIR significantly worse than the national SIR of 1.03.
- 3,516 hospitals across the nation reported CLABSIs between 2011 and 2012.
- US hospitals reported a significant decrease in CLABSIs between 2011 and 2012.

2012

HEALTHCARE ASSOCIATED INFECTIONS PROGRESS



State Name

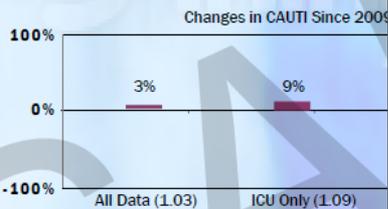
Healthcare-associated infections (HAIs) are infections patients can get while receiving medical treatment in a healthcare facility. The standardized infection ratio (SIR) is a statistic used to track HAI prevention progress over time; lower SIRs indicate better progress. The infection data are collected through CDC's National Healthcare Safety Network (NHSN). California requires hospitals to publicly report at least one HAI to NHSN, and HAI data for nearly all U.S. hospitals are published on the Hospital Compare website.



✓ CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS

CLABSIs ↓ 27% DECREASE SINCE 2008

CAUTIs ↑ 3% INCREASE SINCE 2009

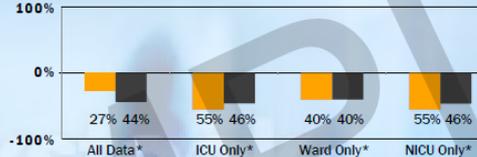


A central line is a tube that a doctor usually places in a large vein of a patient's neck or chest to give important medical treatment. When not put in correctly or kept clean, central lines can become a freeway for germs to enter the body and cause deadly infections in the blood.

California hospitals reported a significant decrease in CLABSIs between 2011 and 2012.

X% of California hospitals have an SIR significantly worse than the national SIR of 0.56.

Changes in CLABSI Since 2008



LEGEND

- State (orange square)
- National (black square)
- ✓ State reviews medical charts for this infection to confirm data accuracy
- Q State investigates data for this infection to assess completeness and quality
- * Statistically significant difference

SSIs: COLON SURGERY ↓ 20% DECREASE SINCE 2008

SURGICAL SITE INFECTIONS: COLON SURGERY AND ABDOMINAL HYSTERECTOMY SURGERY

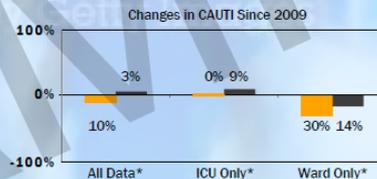
When germs get into an area where surgery is or was performed, patients can get a surgical site infection. Sometimes these infections involve the skin only. Other SSIs can involve tissues under the skin, organs, or implanted material.

- X % of hospitals have a colon surgery SIR significantly worse than the national SIR of 0.80.
- US hospitals did not see a significant change in the number of SSIs following colon surgery between 2011 and 2012.
- 3,318 hospitals across the nation reported SSI colon surgery data in 2012.
- 288,362 colon surgeries were reported to NHSN in 2012.

CAUTIs ↓ 10% DECREASE SINCE 2009

When a urinary catheter is not inserted correctly, not kept clean, or left in a patient for too long, germs can travel through the catheter and cause a catheter-associated urinary tract infection in the urinary system, which includes the bladder and kidneys.

CATHETER-ASSOCIATED URINARY TRACT INFECTIONS



X% of California hospitals have an SIR significantly worse than the national SIR of 1.03.

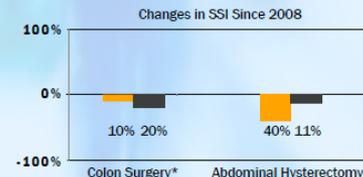
SSIs: COLON SURGERY ↓ 10% DECREASE SINCE 2008

SURGICAL SITE INFECTIONS: COLON SURGERY AND ABDOMINAL HYSTERECTOMY SURGERY

When germs get into an area where surgery is or was performed, patients can get a surgical site infection. Sometimes these infections involve the skin only. Other SSIs can involve tissues under the skin, organs, or implanted material.

X% of California hospitals have a colon surgery SIR significantly worse than the national SIR of 0.80.

SSIs: ABDOMINAL HYSTERECTOMY ↓ 40% DECREASE SINCE 2008



X% of California hospitals have an abdominal hysterectomy SIR significantly worse than the national SIR of 0.89.



NHSN Data for Action

NHSN Data

Over 4,700 hospitals
currently reporting
CAUTI data

Targeted assessment for
prevention (TAP) strategy

Target 1,000
hospitals with
highest rate of
infections

Technical Assistance

- QIOs
- HENs
- CUSP
- Health Departments
- Other partners

Antibiotic Resistance Threat

Estimated minimum number of illnesses and deaths caused by antibiotic resistance*:

At least  **2,049,442** illnesses,
 **23,000** deaths

**bacteria and fungus included in this report*

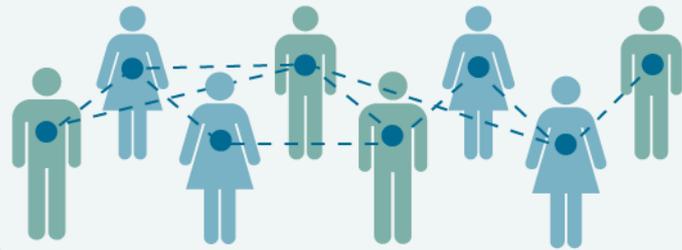
The strategy

In 2013, CDC identified four core actions to help fight antibiotic resistance:

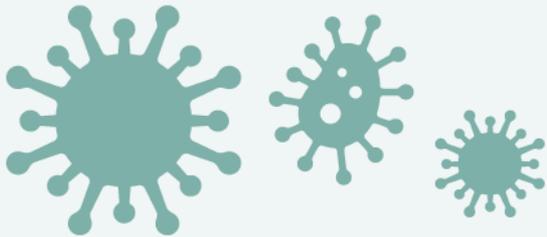
1 Detect and track patterns of antibiotic resistance



2 Respond to outbreaks involving antibiotic-resistant bacteria



3 Prevent infections from occurring and resistant bacteria from spreading



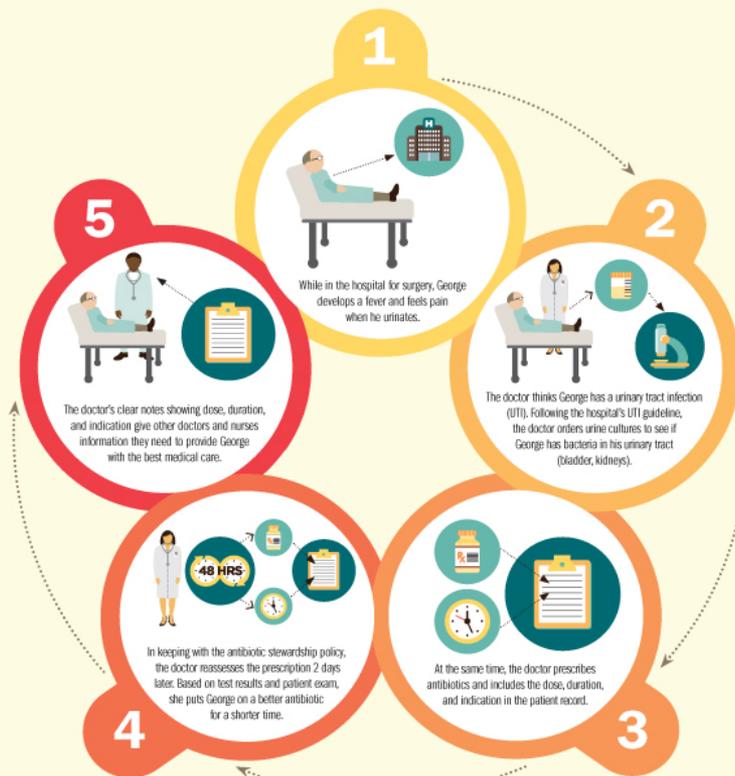
4 Discover new antibiotics and new diagnostic tests for resistant bacteria



CDC Recommends All Hospitals Implement Antibiotic Stewardship Programs

Improving antibiotic prescribing in hospitals

Key moments for improving the cycle of antibiotic prescribing practices



SOURCE: CDC Vital Signs, 2014

3

- ❑ Leadership commitment
- ❑ Accountability
- ❑ Drug expertise
- ❑ Action
- ❑ Tracking
- ❑ Reporting
- ❑ Education

Detect and Protect Against Antibiotic Resistance Initiative

The FY 2015 President's Budget requests \$30 million for 5 years to:

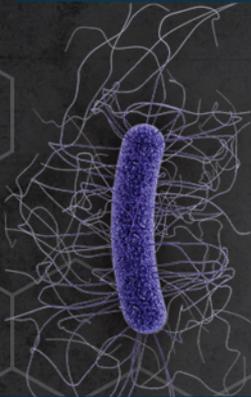


Speed-up outbreak detection through regional labs and support development of new antibiotics and diagnostics



Improve infection prevention and antibiotic prescribing

Taking aim: 7 antibiotic-resistant threats



C. difficile



CRE



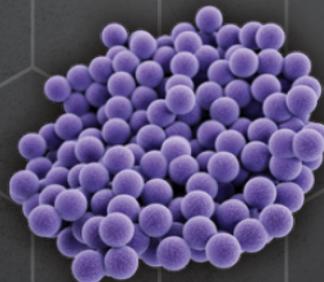
MDR *N. gonorrhoeae*



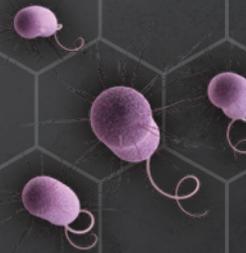
ESBL



MDR *Salmonella*



MRSA



MDR *Pseudomonas*

NHSN Proposed Budget Increase

The FY 2015 President's Budget requests an additional \$14 million for NHSN to:

- Implement the Antibiotic Use and Resistance (AUR) modules to rapidly detect AR threats
 - Extend participation through electronic reporting in the AU module
 - Support implementation of AR module through electronic reporting
 - Refine AUR measures for National Quality Forum review
- Initiate HAI prevention efforts in ambulatory surgery centers
- Drive innovation and applied research through CDC's Prevention EpiCenters program

NHSN Users: Critical to our Success

- Local data for local action
- Targeted prevention at the local, state, and national levels
- Tracking emerging threats
- Progress in prevention



For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: www.atsdr.cdc.gov



U.S. Department of Health and Human Services

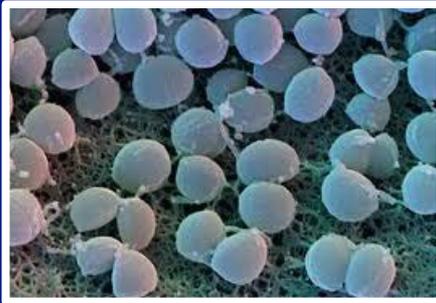
Centers for Disease Control and Prevention

NHSN: Changing Purposes

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Surveillance Branch Chief
Division of Healthcare Quality Promotion
National Center for Emerging and Zoonotic Infectious Diseases

Using NHSN to Accurately Report HAIs
March 12, 2014
Centers for Disease Control and Prevention
Atlanta, Georgia

HAI Surveillance: The Global Environment



“Significant changes have been occurring in the field of HAIs, which have now become a public issue. Infections are better known and understood by the medical community. Countries have developed various policies to prevent HAIs, relying on a wide array of tools and procedures. Among these, the publication of HAI rates is important, both to increase awareness on the part of decision-makers and to measure the efficacy of recommendations”

*Marcel J-P, et al. Healthcare-associated infections: Think globally, act locally. *Clin Microbiol Infect* 2008;14:895-907

Healthcare -Associated Infection (HAI) Surveillance: The U.S. Environment

Current Landscape - The advent of public reporting and the adoption of data-driven performance incentives as tools for influencing healthcare quality have transformed the question of whether HAIs will be added to pay-for-performance to when and how many HAIs will be included

On the Horizon - Pay-for-performance will include an increasing number of HAI events, adding to expectations that HAI surveillance is complete, reliable, and valid and can be used to compare healthcare facilities across multiple event types

What is At Stake - Assuring that (1) individuals responsible for HAI surveillance are fully trained and supported, (2) methods and systems for HAI surveillance are well developed and maintained, and (3) HAI data quality is assessed systematically and actively improved as needed

Defining Terms

Public reporting - Public disclosure of practitioner or healthcare facility performance measurements with the intention of improving transparency and accountability in healthcare or motivating improvements in quality

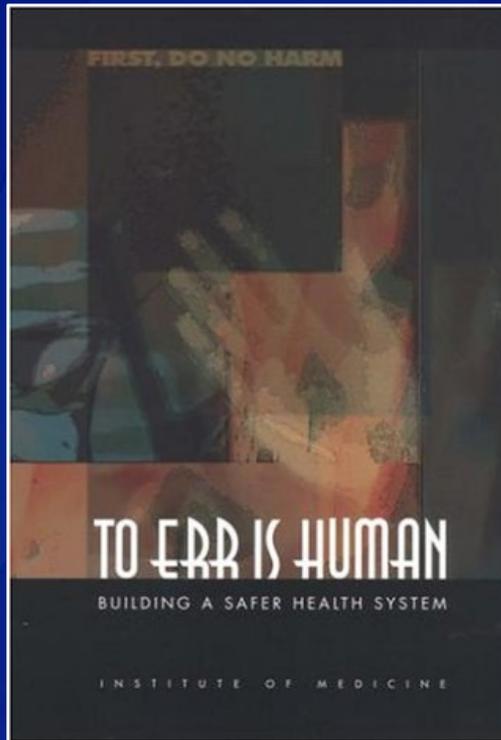
Pay for reporting – Financially rewarding practitioners or healthcare facilities for collecting and submitting performance data to a quality measurement program

Pay for Performance – Financially rewarding practitioners or healthcare facilities for scoring well on performance measurements

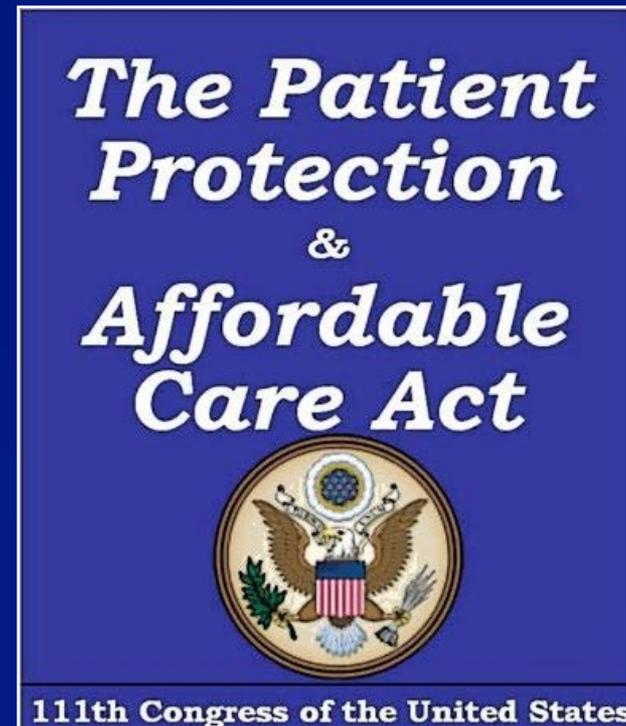
A Short History of Public Reporting, Pay for Reporting, and Pay for Performance in the U.S.

- 1986** – Health Care Financing Administration (HCFA), publicly reports Medicare inpatient mortality rates
- 1987** – U.S. Healthcare, now known as Aetna, initiates large-scale use of pay-for-performance for primary care physicians
- Early 1990s** – Several states publicly report mortality rates for hospitals performing cardiac surgery
- 2002** – National Quality Forum (NQF) issues quality measure specifications for use in public reporting programs
- 2003** – CMS launches pay-for-performance demonstration project
- 2005** – CMS initiates pay for reporting and publicly reports hospital process-based measures at the Hospital Compare website
- 2005** – Pennsylvania publicly reports hospital HAI data
- 2010** – Affordable Care Act includes pay-for-performance
- 2012** – CMS posts HAI data reported to NHSN on Hospital Compare
- 2013** – CMS includes CLABSIs in Hospital Value Based Purchasing

Policy Shift in Patient Safety and Quality of Care: From Publicly Reporting Serious Adverse Events to Broad Use of Report Cards for Payment Purposes



November 1999



March 2010



CDC's Surveillance System for Healthcare-Associated Infections (HAIs)

- State and federal requirements account for growth from ~ 300 hospitals in 2005 to > 5000 hospitals in 2014
- HAI data includes numerators and denominators; outcomes are risk adjusted; and HAI measures are endorsed by the National Quality Forum (NQF)
- Data are used for internal quality improvement, required external reporting, and national surveillance
- System is used by 32 states and Washington, D.C. for HAI reporting mandates and by CMS for pay-for-reporting programs and value based purchasing
- Technical design enables manual data entry or electronic reporting via an industry-standard file format

NHSN Quality Measures for Hospitals – Status of National Quality Forum (NQF) Endorsement

	Measure	NQF Status
1	Central line-associated bloodstream infections (CLABSIs)*	Endorsed
2	Catheter-associated urinary tract infections (CAUTIs)*	Endorsed
3	Surgical site infections (SSIs) – Colon surgeries, Abdominal hysterectomies	Endorsed
4	Healthcare worker influenza vaccination coverage	Endorsed
5	<i>Clostridium difficile</i> laboratory identified events	Endorsed
6	MRSA Bacteremia laboratory identified events	Endorsed

* NQF measure maintenance in 2014

Use of NHSN is Mandated in 32 States and the District of Columbia

CO CT DE OK VA CA OR WV DC AL UT HI NC AK
 VT NY SC TN PA MA WA MD IL NH NJ NV TX AR ME IN NM GA MS

2006 2007 2008 2009 2010 2011 2012 2013 2014

Central line-associated bloodstream infections (CLABSIs)	AK, AL, AR, CA, CO, CT, DC, DE, GA, HI, IL, IN, MA, MD, MS, NC, NH, NJ, NM, NV, NY, OK, OR, PA, SC, TN, TX, UT, VA, VT, WA, WV
Surgical site infections (SSIs)	AK, AL, AR, CA, CO, CT, DE, GA, HI, IL, IN, MA, MD, MS, NC, NH, NJ, NV, NY, OR, PA, SC, TN, TX, UT, VT, WA, WV
Catheter-associated urinary tract infections (CAUTIs)	AK, AL, AR, CT, DE, GA, HI, IN, MS, NC*, NH, NJ, PA, TN, UT, WV
Multidrug-resistant organisms and <i>Clostridium difficile</i> infections	AK, AR, CA, CT, DC, DE, GA, HI, IL, ME, MS, NC, NJ, NM, NV, NY, OR, PA, SC, TN, UT, WV
Dialysis events	AR, CO, CT, GA, HI, MS, TN, UT
Healthcare Personnel Influenza Vaccination	AR, CT, GA, HI, MS, NV, OR, PA, SC, TN, UT, WV
Ventilator-associated Events	PA
Central line insertion practices (CLIP)	CA, NH

Hospital Reporting to CMS via NHSN – Current and To Be Determined Requirements

Event	Facility Type	Reporting Start Date
CLABSI	Acute Care Hospitals Adult, Pediatric, and Neonatal ICUs	January 2011
CAUTI	Acute Care Hospitals Adult and Pediatric ICUs	January 2012
SSI	Acute Care Hospitals Colon surgery and abdominal hysterectomy	January 2012
CLABSI	Long Term Care Hospitals *	October 2012
CAUTI	Long Term Care Hospitals *	October 2012
CAUTI	Inpatient Rehabilitation Facilities	October 2012
MRSA Bacteremia LabID Event	Acute Care Hospitals	January 2013
<i>C. difficile</i> LabID Event	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	Acute Care Hospitals Ambulatory Surgery Centers	January 2013 October 2014
SSI and other outcomes	Ambulatory Surgery Centers and Hospital Outpatient Departments	TBD

* Long Term Care Hospitals are called **Long Term Acute Care Hospitals** in NHSN

HAI Surveillance in the Current U.S. Environment and the Implications for NHSN

NHSN at Launch - 2005 ~ 300 hospitals

1. Purely voluntary and confidential system
2. Healthcare facilities initially enrolled had all participated in legacy CDC system(s)
3. Primary motivation for facilities is internal quality of care improvement
4. Expectation that facilities are motivated to submit data to CDC that are high quality and complete

Environment

- Public reporting
- Pay for reporting
- Pay for performance



Implications

- Changes in NHSN's purposes, infrastructure, and operations
- New scrutiny of HAI case criteria
- Increasing attention to data quality
- Pressure to simplify HAI definitions and move to electronic HAI detection and reporting

NHSN at Age 9 - 2014 > 5000 hospitals

1. Predominantly mandatory and public reporting system
2. Vast majority of healthcare facilities enrolled had not participated in legacy CDC system(s)
3. Primary motivation for facilities is compliance with reporting requirements
4. Uncertainties about quality and completeness of data submitted to CDC

Implications of Public Reporting, Pay for Reporting, and Pay for Performance for NHSN

Changes in NHSN's purposes, infrastructure, and operations

- > Revision of NHSN Agreement to Participate and Consent Form
- > Enhanced infrastructure to improve system performance
- > New operational capabilities for reporting to states and CMS

New scrutiny of HAI case criteria

- > Updates of case criteria in response to concerns that some events are misclassified as HAIs when NHSN criteria are used

Increasing emphasis on data quality

- > Assistance to states and CMS for data quality assessments

Pressure to simplify HAI definitions and data requirements and move to electronic HAI detection and reporting

- > Revise definitions in ways that reduce complexity, maintain clinical relevance, and avoid potential case misclassification
- > Accelerate use of computer-based detection algorithms and use of electronic healthcare data for HAI surveillance purposes

Healthcare Report Cards and New Payment Policies: Catalyst for Change or Cause for Concern?

Positive change in clinical performance is most likely to occur if quality measurement data is:

- Actionable
- Complete, reliable, and valid
- Robust to criticism from hospitals and care teams being assessed
- Understood in broad terms by the public and policymakers

Concerns are most likely to be allayed by safeguards against:

- Unacceptably burdensome reporting requirements
- Gaming the data by providers
- Inappropriate focus on what is measured and incentivized at the expense of other important aspects of healthcare
- Distortions of clinical priorities or practices

Summing Up

- HAI public reporting, pay for reporting, and pay for performance programs are part of a larger trend toward more transparency and accountability in healthcare
- CDC's NHSN has emerged as the primary surveillance system used for HAI reporting mandates at the state and federal levels
- For NHSN, the main opportunities and challenges are to meet the rising expectations for HAI reporting in ways that maximize benefits for patient care and public health while mitigating risks of unintended, adverse consequences

Thank You!

Please contact me at dpollock@cdc.gov

For More Information about NHSN:
<http://www.cdc.gov/nhsn/>



National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

