



Health Care Quality Performance (HCQP) Program

HOSPITAL-ACQUIRED INFECTIONS AND PREVENTION ADVISORY SUBCOMMITTEE

8:00-9:30am, October 26, 2009

HEALTH, Beck Conference Room (HEALTH basement)

Goals/Objectives

- To discuss HAI work to date and make policy recommendations for pending and upcoming reports

Voting Members

- | | | |
|------------------------------------|---------------------------|--------------------------------|
| G Utpala Bandy, MD | G Andrew Komensky, RN | G Lee Ann Quinn, RN, BS, CIC |
| T Margaret Cornell, MS, RN | T Pat Mastors | T Janet Robinson, RN, Med, CIC |
| G Robert Crausman, MD | T Leonard Mermel, DO, ScM | G Nancy Vallande, MSM, MT, CIC |
| T Marlene Fishman, MPH, CIC | T Kathleen O’Connell, RN | T Cindy Vanner |
| T Julie Jefferson, RN, MPH, CIC | G Harold Picken, MD | T Sam Viner-Brown, MS |
| G Diane Kitson-Clark, RN, MSN, CIC | G Aurora Pop-Vicas, MD | G Gloria Williams, MS |

Time Topic/Notes

- 8:00am **Welcome & Meeting Objective**
Leonard Mermel, DO, ScM (Co-Chair)
Samara Viner-Brown, MS (Co-Chair)
- Len opened the meeting and reviewed the meeting objectives.
 - As a reminder, the Subcommittee now meets monthly for 90 minutes. The upcoming meeting schedule is:
 - November 23rd
 - December 21st
 - January 25th
 - Unless otherwise noted, the meetings will be in the Beck Conference Room in the basement at HEALTH.

- 8:05am **Data Updates**
Rosa Baier, MPH
Rachel Voss

- Rosa provided updates on the published and pending HAI Data Reports:

Report	Data Period	Last Updated
Surgical Care Infection Program (SCIP) Measures I, II, and III	Q4 08	Sept 09

Proposed Report	Status
Central line-related bloodstream infections (CLABSI)	Pending Subcommittee approval of revisions
Employee flu vaccination	Awaiting data
MRSA process/outcome measures	Finalizing strategy

– CLABSI Report (handout):

- Rosa reviewed the draft CLABSI Report, which was updated to incorporate feedback from Sam’s Center for Health Data and Analysis staff. The Data Report now includes only the diamonds; the remaining data elements (CLABSI count, population, and SIR) were moved to the Technical Information Page, and the CLABSI rate and 90% Confidence Intervals were added.
- The Subcommittee approved the report changes with several suggested edits, including adding the NHSN benchmarks to the Technical Information Page and correcting one word (“intensive” not “intermediate” ICU) in the Data Report.
- Rosa shared a CLABSI data submission schedule, which will help obtain the PICU and NICU data on the same schedule as the ICU Collaborative. It may also help the ICU Collaborative obtain data on deadline. Rosa will send reminders to the Hospital Subcommittee (not the HAI Subcommittee) four weeks and two weeks before each quarter’s deadline.
- **Action items:**
 - Incorporate edits and publish the report (Rosa)
 - Send Quarter 3, 2009 2-week data submission reminder (Rosa)

– Influenza Vaccination Data Report:

- Rosa and Sam have been working with John Fulton to: (1) send hospital reminders to submit 2008-2009 data, (2) disseminate the revised data collection forms, and (3) obtain data submitted to date. With the deadline extension come and gone, Dr. Gifford requested that the Program report the vaccination data and indicate “unable to report” for hospitals without data.
- The Subcommittee discussed the current seasonal flu vaccine shortage. Sam, Len, and Rosa will query the hospital Employee Health Directors about the feasibility of obtaining data that track requested vs. given vaccinations.
- The group also discussed if/how to report H1N1 vaccination. Subsequent research shows that CMS includes seasonal vaccination AND H1N1 vaccination in its vaccination core measure.
- **Action items:**
 - Obtain 2008-2009 flu season data (Sam)
 - Help with hospital follow-up (Gina)
 - Ask hospitals about requested vs. given vaccination data (Rosa)
 - Generate 2008-2009 Influenza Vaccination Report (Rosa)

8:25am **State HAI Plan Brainstorming**

Leonard Mermel, DO, ScM

Samara Viner-Brown, MS

- As a reminder, HEALTH was awarded a CDC HAI ARRA grant (stimulus funds) to conduct state HAI planning. The grant includes ~\$200,000 over 17 months and its first deadline is the State HAI Plan (handout), due 1/1/10, which builds on the Subcommittee's work and formalizes it.
- Maureen attended a CDC grant meeting in Atlanta, where she was seated with other Northeast states. The other states received funding for Parts A (planning), B (surveillance and reporting), and C (improvement), so Rhode Island is among a select few that are charged with planning, but not necessarily training/use of NHSN.
- The Subcommittee reviewed Tables 1 and 2 of the draft State HAI Plan, and provided input regarding its completion. The discussion will continue with Tables 3 and 4 at the November 23rd meeting.
- **Action items:**
 - Incorporate the Subcommittee's edits to Tables 1 and 2 (Rosa)
 - Review Tables 3 and 4 and come to the next meeting prepared to discuss (all)

9:20am **Action Items & Next Steps**

Leonard Mermel, DO, ScM

Samara Viner-Brown, MS

- Action items
- Next meeting: November 23, 2009, 8-9:30am



Health Care Quality Performance (HCQP) Program
CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI)

Data Report
 April-June 2009

Hospital-acquired CLABSIs for Intensive Care Units (ICUs) are [reported on the Department of Health's \(HEALTH's\) Web site](#) as part of the HCQP Program's hospital reporting work. Diamonds are assigned based on how different each ICU's performance is from similar ICUs' average performance:

- Better than expected
- About the same as expected
- Worse than expected

You can learn more about the measures—including their data source, how the rates and diamonds are calculated, and why this information is important—by reading the Technical Information. With questions about a hospital's performance, please contact the hospital directly by clicking on each hospital's name.

The diamonds show you how hospitals compare to one another

Table 1: CLABSI Ratings Among Adult Step-Down Units (Post-Critical Care)

Hospital ICU (<i>Alphabetical</i>)	Diamonds*
Miriam Hospital CVTI ^H	——
Rhode Island Hospital 5ISCU [']	——
Rhode Island Hospital ICCU ^{**}	——
Rhode Island Hospital ICTU ^{HH}	——

* Statistical methods are described in the Technical Information.

^H CVTI: Cardiovascular Thoracic Intermediate Care Unit

['] 5ISCU: Surgical Care Unit

^{**} ICCU: Intermediate Coronary Care Unit

^{HH} ICTU: Intermediate Cardiothoracic Unit

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Table 2: CLABSI Ratings Among Coronary Critical Care Units (CCUs)

Hospital ICU (Alphabetical)	Diamonds*
Miriam Hospital	---
Rhode Island Hospital	---

Table 3: CLABSI Ratings Among Medical Intensive Care Units (MICUs)

Hospital ICU	Diamonds*
Rhode Island Hospital	---

Table 4: CLABSI Ratings Among Medical/Surgical Critical Care Units (ICUs) at Major Teaching Hospitals

Hospital ICU (Alphabetical)	Diamonds*
Memorial Hospital	---
Miriam Hospital	---
Providence VA Medical Center	---
Roger Williams Medical Center	---

Table 5: CLABSI Ratings Among Medical/Surgical Critical Care Units (ICUs) at All Other (Non-Teaching) Hospitals

Hospital ICU (Alphabetical)	Diamonds*
Kent County Hospital	---
Landmark Medical Center	---
Newport Hospital	---
South County Hospital	---
St. Joseph's Hospital	---
Westerly Hospital	---

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Table 6: CLABSI Ratings at [Women & Infants Hospital's](#) Level III Neonatal Intensive Care Units (NICU), by Birthweight

Birthweight (Grams)	Diamonds*
<750 grams	-
751-1,000 grams	-
1,001-1,500 grams	-
1,501-2,500 grams	-
>2,500 grams	-

- Unable to report because the hospital has not submitted Q2 2009 data.

Table 7: Umbilical Catheter-Associated Infections at [Women & Infants Hospital's](#) Level III NICU, by Birthweight

Birthweight (Grams)	Diamonds*
<750 grams	-
751-1,000 grams	-
1,001-1,500 grams	-
1,501-2,500 grams	-
>2,500 grams	-

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Table 8: CLABSI Ratings Among Neurosurgical Intensive Care Units (INCs)

Hospital ICU	Diamonds*
Rhode Island Hospital	---

Table 9: CLABSI Ratings Among Pediatric Medical/Surgical Intensive Care Units (PICUs)

Hospital ICU	Diamonds*
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Table 10: CLABSI Ratings Among Surgical Intensive Care Units (SICUs)

Hospital ICU	Diamonds*
Rhode Island Hospital	---

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Table 11 CLABSI Ratings Among Surgical Cardiothoracic Critical Care Units

Hospital ICU (Alphabetical)	Diamonds*
Miriam Hospital CVTS**	---
Rhode Island Hospital CTIC ^{HH}	---

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Table 12: CLABSI Ratings Among Trauma Intensive Care Units (TICUs)

Hospital ICU	Diamonds*
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Health Care Quality Performance (HCQP) Program

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI) RATES

Technical Information

The CLABSI rates are [reported on the Department of Health's \(HEALTH's\) Web site](#) as part of the HCQP Program's hospital reporting work. The information on this page provides additional details about the results presented, including their data source, how they are calculated, and why the information is important.

Data Source

Rhode Island hospitals collect information about their CLABSI rates for each intensive care unit (ICU) and share it with the Department of Health for reporting. Many Rhode Island hospitals have been collecting this information for several years as part of Rhode Island's ICU Collaborative. The rates are based on bloodstream infections that occur in the intensive care unit (ICU). For CLABSI rates, *lower* numbers are better.

Measure Calculation

The information in this section is for people who want details about the data calculations. For each hospital, two numbers are calculated: (1) **CLABSI incidence**, and (2) a **Standardized Incidence Ratio (SIR)**. Incidence is needed to calculate each hospital's SIR, and the diamonds presented in the public report are based on the SIR.

1. **CLABSI incidence** is calculated as follows:

$$\text{Rate} = \frac{(\text{number of line infections})}{(\text{number of central line days})}$$

The number of line infections is the **numerator**. The number of central line days (the number of days when patients could have developed an infection) is the **denominator**. The **incidence rate** is the numerator divided by the denominator multiplied by 1,000. Each hospital's rate is compared to the rates of other ICUs nationally that provide similar care using SIRs (see below and "Diamond Calculation," p. 2).

2. If there is a national comparison for a hospital ICU type, incidence rates are used to calculate **SIRs**, which are:

$$\text{SIR} = \frac{(\text{observed cases})}{(\text{expected cases})}$$

The **observed cases** are the actual number of line infections (incidence rate numerator) and the **expected cases** are the number we expect to see if the average national CLABSI incidence rate for that ICU type were applied to each hospital ICU's patient population (the incidence rate's denominator). *Lower* scores are better. An SIR score less than 1.0 means the incidence is better than expected.

For hospitals with SIRs calculated, each hospital's SIR is included in the public report and helps to determine its diamond category (see "Diamond Categories").

Diamond Categories

The diamond categories help you understand how each hospital's incidence compares to its expected incidence (or "expected cases," determined based on the average performance of ICUs nationally that provide similar care):

- Worse than expected
- About the same as expected
- Better than expected

These categories are determined mathematically to ensure that the differences are meaningful. In detailed terms, this means that hospitals with either one diamond (—) or three diamonds (—) have CLABSI incidence rates that are “statistically significantly different” from their expected rates.

If there is no national comparison for a hospital ICU type, then neither an SIR nor diamonds are calculated.

Diamond Calculation

The information in this section is for people who want statistical details about the diamond calculations. The diamond categories are determined based on hospitals’ SIRs (see “Measure Calculation”). An SIR less than 1.0 means the hospital’s rate is lower (better) than expected; an SIR greater than 1.0 is higher (worse) than expected. The margin of error, or “90% confidence interval,” determines whether each SIR is meaningfully different from 1.0. Diamonds are assigned as follows:

- One diamond (—): If the SIR falls above 1.0 (is worse than expected) AND its margin of error, or “90% confidence interval,” does not include 1.0, then the hospital has one diamond.
- Two diamonds (—): If the 90% confidence interval for the score includes the Rhode Island average, then the hospital’s score is not accurate enough to categorize it as better or worse than other hospitals. The hospital has two diamonds.
- Three diamonds (—): If the SIR falls below 1.0 (is better than expected) AND its margin of error, or “90% confidence interval,” does not include 1.0, then the hospital has three diamonds. **Note:** The exception is when the hospital does not have any infections (where 0 is the best performance). When this occurs, a hospital is automatically given three diamonds.

Measure Information ([adapted from the National Healthcare Safety Network](#))

Measure	Why is this information important?
Central Line Associated Bloodstream Infection (CLABSI) Incidence and SIR score	This measures primary bloodstream infections in patients that had a central line in place within 48 hours before the development of the infection. Central line infections are important because they are the most common bloodstream infections and can harm patients. CLABSIs are also considered reasonably preventable with proper care of patients’ central lines. For the CLABSI SIR, which compares actual incidence to what is “expected,” <i>lower</i> scores are better. An SIR score less than 1.0 means the incidence is better than expected.

Definitions

Word or Phrase	What does this mean?
Bloodstream infection	A bloodstream infection occurs when bacteria enter patients’ blood, for example through their central line.
Central line	A “central line” is a special kind of IV or flexible tube that connects directly to a patient’s heart or a major blood vessel. It can be used to draw blood or give patients medication or nutrition.
Intensive Care Unit (ICU)	A hospital unit that cares for critically ill patients.
Rate	A score that reflects new (hospital-acquired) infections over a period of time; for the CLABSI infection rates, this timeframe is three months.

Data Table

The data table below provides additional details which are not presented in the Data Report, including:

- Number of CLABSI infections
- Number of central line days
- CLABSI rate per 1,000 central line days
- SIR
- 90% CI range

Hospital (Alphabetical by ICU Type)	Number of CLABSI Infections	Number of Central-Line Days	CLABSI Rate per 1,000 Central Line Days	SIR	90% CI		Diamonds
					Lower Limit	Upper Limit	
Adult Step-Down Units (Post-Critical Care)							
Miriam Hospital CVTI	0	88	0.00	0.00	-	-	----
Rhode Island Hospital 5ISCU	0	548	0.00	0.00	-	-	----
Rhode Island Hospital ICCU	0	31	0.00	0.00	-	-	----
Rhode Island Hospital ICTU	0	227	0.00	0.00	-	-	----
Coronary Critical Care Units (CCUs)							
Miriam Hospital	0	82	0.00	0.00	-	-	----
Rhode Island Hospital	0	356	0.00	0.00	-	-	----
Medical Intensive Care Units (MICUs)							
Rhode Island Hospital	0	1,078	0.00	0.00	-	-	----
Medical/Surgical Critical Care Units (ICUs) at Major Teaching Hospitals							
Memorial Hospital	2	578	3.46	1.73	0.299	5.437	---
Miriam Hospital	0	922	0.00	0.00	-	-	----
Providence VA Medical Center	0	220	0.00	0.00	-	-	----
Roger Williams Medical Center	2	513	3.90	1.95	0.336	6.125	---
Medical/Surgical Critical Care Units (ICUs) at All Other (Non-Teaching) Hospitals							
Kent County Hospital	2	633	3.16	2.11	0.363	6.619	---
Landmark Medical Center	0	567	0.00	0.00	-	-	----
Newport Hospital	0	190	0.00	0.00	-	-	----
South County Hospital	1	152	6.58	4.39	0.173	20.739	---

Hospital (Alphabetical by ICU Type)	Number of CLABSI Infections	Number of Central-Line Days	CLABSI Rate per 1,000 Central Line Days		90% CI		Diamonds
			SIR		Lower Limit	Upper Limit	
St. Joseph's Hospital	2	382	5.24	3.49	0.602	10.968	---
Westerly Hospital	1	200	5.00	3.33	0.132	15.761	---
<u>Women & Infants Hospital's</u> Level III Neonatal Intensive Care Units (NICU), by Birthweight							
<750 grams	-	-	-	-	-	-	-
751-1,000 grams	-	-	-	-	-	-	-
1,001-1,500 grams	-	-	-	-	-	-	-
1,501-2,500 grams	-	-	-	-	-	-	-
>2,500 grams	-	-	-	-	-	-	-
- Data not provided by hospital for Quarter 2, 2009							
Umbilical Catheter-Associated Infections at <u>Women & Infants Hospital's</u> Level III NICU, by Birthweight							
<750 grams	-	-	-	-	-	-	-
751-1,000 grams	-	-	-	-	-	-	-
1,001-1,500 grams	-	-	-	-	-	-	-
1,501-2,500 grams	-	-	-	-	-	-	-
>2,500 grams	-	-	-	-	-	-	-
- Data not provided by hospital for Quarter 2, 2009							
Neurosurgical Intensive Care Units (INCs)							
Rhode Island Hospital	0	427	0.00	0.00	-	-	----
Pediatric Medical/Surgical Intensive Care Units (PICUs)							
Rhode Island Hospital	0	297	0.00	0.00	-	-	----
Surgical Intensive Care Units (SICUs)							
Rhode Island Hospital	0	428	0.00	0.00	-	-	----
Surgical Cardiothoracic Critical Care Units							
Miriam Hospital CVTS	1	425	2.35	1.68	0.066	7.947	---
Rhode Island Hospital CTIC	1	420	2.38	1.70	0.067	8.041	---
Trauma Intensive Care Units (TICUs)							
Rhode Island Hospital	1	356	2.81	0.70	0.028	3.321	---



Health Care Quality Performance (HCQP) Program

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI)

Calendar Year 2009/2010 Reporting Calendar

The below calendar lists the dates that the CLABSI data will be pulled for aggregate reporting in the Department of Health's quarterly CLABSI reports. All adult ICUs should submit their data directly to the ICU Collaborative; NICU and PICU data should be submitted directly to Blake at bmorphis@riqio.sdps.org.

Please note that two reminder emails will be sent to the Hospital Subcommittee in advance of the reporting deadline. ICU Collaborative members also receive monthly reminders directly from Margaret Cornell. Data submitted past these deadlines will not be included in the public report; instead a notation will indicate that the hospital was unable to report data for that quarter.

Quarter	Quarter End Date	Email Reminder 1 (4 weeks before deadline)	Email Reminder 2 (2 weeks before deadline)	Reporting Deadline (6 weeks after Quarter's end)
Q3 2009	Sep 30, 2009	-	Oct 25, 2009	Nov 10, 2009
Q4 2009	Dec 31, 2009	Jan 10, 2010	Jan 31, 2010	Feb 11, 2011
Q1 2010	Mar 31, 2010	Apr 12, 2010	Apr 26, 2010	May 12, 2010
Q2 2010	June 30, 2010	Jul 12, 2010	Jul 26, 2010	Aug 11, 2010
Q3 2010	Sep 30, 2010	Oct 12, 2010	Oct 25, 2010	Nov 10, 2010
Q4 2010	Dec 31, 2010	Jan 10, 2011	Jan 31, 2011	Feb 11, 2011

Template for State Healthcare-Associated Infections Plans

In response to the increasing concerns about the public health impact of healthcare-associated infections (HAIs), the US Department of Health and Human Services (HHS) has developed an Action Plan to Prevent Healthcare-Associated Infections (HHS Action Plan). The HHS Action Plan includes recommendations for surveillance, research, communication and metrics for measuring progress towards national goals. Three overarching priorities have been identified:

- Progress towards 5-year national prevention targets (e.g., 50-70% reduction in bloodstream infections);
- Improve use and quality of the metrics and supporting systems needed to assess progress towards meeting the targets; and
- Prioritization and broad implementation of current evidence-based prevention recommendations.

In a concurrent development, the 2009 Omnibus bill requires states receiving Preventive Health and Health Services (PHHS) Block Grant funds to certify that they will submit a plan to reduce HAIs to the Secretary of Health and Human Services not later than January 1, 2010. In order to assist states in responding within the short timeline required by that language and to facilitate coordination with national HAI prevention efforts, the Centers for Disease Control and Prevention (CDC) has drafted a template to assist state planning efforts in the prevention of HAIs.

This template will help to ensure progress towards national prevention targets as described in the HHS Action Plan, wherein CDC is leading the implementation of recommendations on National Prevention Targets and Metrics and the implementation of priority prevention recommendations, while allowing flexibility to tailor the plan to each state's specific needs.

Initial emphasis for HAI prevention may focus on acute care, inpatient settings, yet the need for prevention activities for outpatient settings is recognized. State health departments are increasingly challenged by the needs to identify, respond to, and prevent HAI across the continuum of settings where healthcare is currently delivered. The public health model's population based perspective places health departments in a unique and important role in this area, particularly given shifts in healthcare delivery from acute care settings to ambulatory and long term care settings. In the non-hospital setting, infection control and oversight have been lacking and outbreaks – which can have a wide-ranging and substantial impact on affected communities – are increasingly reported. At the same time, trends toward mandatory reporting of HAIs from hospitals reflect increased demand for accountability from the public.

The current template targets the following areas:

1. Develop or Enhance HAI Program Infrastructure
2. Surveillance, Detection, Reporting, and Response
3. Prevention
4. Evaluation, Oversight and Communication

Framework and Funding for Prevention of HAIs

CDC's framework for the prevention of HAIs builds on a coordinated effort of federal, state and partner organizations. The framework is based on a collaborative public health approach that includes surveillance, outbreak response, research, training and education, and systematic implementation of prevention practices. Recent legislation in support of HAI prevention provides a unique opportunity to strengthen existing and expand state capacity for prevention efforts.

Support for HAI prevention has been enhanced through the American Recovery and Reinvestment Act (ARRA). Congress allocated \$40 million through CDC to support state health department efforts to prevent HAIs by enhancing state capacity for HAI prevention, leverage CDC's National Health Care Safety Network to assess progress and support the dissemination of HHS evidence-based practices within healthcare facilities, and pursue state-based collaborative implementation strategies. In addition, the Center for Medicaid Services (CMS) will support expansion of State Survey Agency inspection capability of Ambulatory Surgery Centers nationwide through \$10 million of ARRA funds. This template is intended to support the high level of reporting and accountability required of ARRA recipients.

Template for developing HAI plan

The following template provides choices for developing or enhancing state HAI prevention activities in the four areas identified above. States can choose to target different levels of HAI prevention efforts indicated by checking appropriate boxes. (Level I indicates basic elements to begin HAI prevention efforts, Level II for intermediate and Level III more mature efforts). This can serve as the state's HAI plan for submission. If your state has an existing plan, you may choose to incorporate that plan into the template below or submit the existing plan in place of the template provided.

For each section, please choose elements which best support current activities or planned activities. Current activities are those in which the state is presently engaged and includes activities that are scheduled to begin using currently available resources. Planned activities represent future directions the state would like to move in to meet currently unmet needs, contingent on available resources and competing priorities. A section for additional activities is included to accommodate plans beyond the principal categories.

1. Develop or Enhance HAI program infrastructure

Successful HAI prevention requires close integration and collaboration with state and local infection prevention activities and systems. Consistency and compatibility of HAI data collected across facilities will allow for greater success in reaching state and national goals. Please select areas for development or enhancement of state HAI surveillance, prevention and control efforts.

Table 1: State infrastructure planning for HAI surveillance, prevention and control.

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
Level I	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Establish statewide HAI prevention leadership through the formation of multidisciplinary group or state HAI advisory council.	Complete
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Collaborate with local and regional partners (e.g., state hospital associations, professional societies for infection control and healthcare epidemiology, academic organizations, laboratorians and networks of acute care hospitals and long-term care facilities). ii. Identify specific HAI prevention targets consistent with HHS priorities.	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> Rhode Island's existing public reporting program has an established HAI Subcommittee, comprised of the above stakeholder and provider groups. The HAI Subcommittee will meet monthly between October and December to finalize the HAI Plan and prioritize ongoing work based on the HHS priorities. 	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Establish an HAI surveillance prevention and control program. <ul style="list-style-type: none"> i. Designate a State HAI Prevention Coordinator. 	12/21/09

Comment [SDPS1]: Date of last monthly HAI Subcommittee meeting prior to 1/1/10 deadline to submit the State HAI Plan.

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	iii. Develop dedicated, trained HAI staff with at least one FTE (or contracted equivalent) to oversee the four major HAI activity areas (Integration, Collaboration, and Capacity Building; Reporting, Detection, Response and Surveillance; Prevention; Evaluation, Oversight and Communication).	12/21/09
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> The Department of Health will identify both internal and external HAI subject matter experts, to ensure a range of clinical and epidemiological skill sets, comprising at least 1.0 FTE. Rhode Island's contractor for the HAI Plan is Quality Partners of Rhode Island, the state's Quality Improvement Organization (QIO). This enables the State to align the HAI Plan work with the QIOs' HAI and NSHN expertise/focus. The Department of Health has applied for a CDC Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) grant to implement a MDRO Collaborative. If awarded, these funds would further increase the FTE allocated to Rhode Island HAI efforts. 	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>3. Integrate laboratory activities with HAI surveillance, prevention and control efforts.</p> <p>i. Improve laboratory capacity to confirm emerging resistance in HAI pathogens and perform typing where appropriate (e.g., outbreak investigation support, HL7 messaging of laboratory results).</p>	XX

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> • At this point, we propose to accomplish this capacity building by standardizing and overseeing hospital laboratory activities through the State Laboratory. • The Department of Health has applied for a CDC Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) grant to implement a HAI Collaborative. If awarded, this project would involve training and support for hospitals to measure and improve HAIs such as c-diff and MRSA, increasing the reach of the state's HAI plan. 	
Level II	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>4. Improve coordination among government agencies or organizations that share responsibility for assuring or overseeing HAI surveillance, prevention and control (e.g., State Survey agencies, Communicable Disease Control, state licensing boards).</p>	12/21
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> • The HAI Subcommittee includes Department of Health representatives who are involved in epidemiology, physician licensing, and other activities that help to ensure shared responsibility for HAI surveillance, prevention, and control. 	

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input type="checkbox"/>	<input type="checkbox"/>	<p>5. Facilitate use of standards-based formats (e.g., Clinical Document Architecture, electronic messages) by healthcare facilities for purposes of electronic reporting of HAI data.</p> <p>i. Provide technical assistance or other incentives for implementations of standards-based reporting can help develop capacity for HAI surveillance and other types of public health surveillance, such as for conditions deemed reportable to state and local health agencies using electronic laboratory reporting (ELR).</p> <p>ii. Facilitate use of standards-based solutions for external reporting also can strengthen relationships between healthcare facilities and regional nodes of healthcare information, such as Regional Health Information Organizations (RHIOs) and Health Information Exchanges (HIEs).</p>	
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> • Although there is a state HIE and the Department of Health encourages the use of standards-based formats to ensure inter-operability and consistency of HAI and other reporting efforts, this is not part of the scope of work proposed by the Department for this grant. 	
<p>Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.</p> <ul style="list-style-type: none"> • XX 				

2. Surveillance, Detection, Reporting, and Response

Timely and accurate monitoring remains necessary to gauge progress towards HAI elimination. Public health surveillance has been defined as the ongoing, systematic collection, analysis, and interpretation of data essential to the planning, implementation, and evaluation of public health practice, and timely dissemination to those responsible for prevention and control.¹ Increased participation in systems such as the National Healthcare Safety Network (NHSN) has been demonstrated to promote HAI reduction. This, combined with improvements to simplify and enhance data collection, and improve dissemination of results to healthcare providers and the public are essential steps toward increasing HAI prevention capacity.

The HHS Action Plan identifies targets and metrics for five categories of HAIs and identified Ventilator-associated Pneumonia as an HAI under development for metrics and targets (Appendix 1):

- Central Line-Associated Blood Stream Infections (CLABSI)
- *Clostridium difficile* Infections (CDI)
- Catheter-associated Urinary Tract Infections (CAUTI)
- Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections
- Surgical Site Infections (SSI)
- Ventilator-associated Pneumonia (VAP)

Work is ongoing to identify optimal metrics and targets for VAP infection. However, detection and measurement with existing tools and methods can be combined with recognized prevention practices in states where an opportunity exists to pursue prevention activities on that topic.

State capacity for investigating and responding to outbreaks and emerging infections among patients and healthcare providers is central to HAI prevention. Investigation of outbreaks helps identify preventable causes of infections including issues with the improper use or handling of medical devices; contamination of medical products; and unsafe clinical practices. Please choose items to include in your plan at the planning levels desired.

¹ Thacker SB, Berkelman RL. Public health surveillance in the United States. *Epidemiol Rev* 1988;10:164-90.
Last Updated 10/15/09

Table 2: State planning for surveillance, detection, reporting, and response for HAIs

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
Level I	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Improve HAI outbreak detection and investigation. i. Work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments.	XX
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Establish protocols and provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs.	XX
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	iii. Develop mechanisms to protect facility/provider/ patient identity when investigating incidents and potential outbreaks during the initial evaluation phase where possible to promote reporting of outbreaks.	XX
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	iv. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAIs).	XX
			<i>Other activities or descriptions (not required):</i> • XX	
	<input type="checkbox"/>	<input type="checkbox"/>	2. Enhance laboratory capacity for state and local detection and response to new and emerging HAI issues.	XX
			<i>Other activities or descriptions (not required):</i> • XX	
Level II	<input type="checkbox"/>	<input type="checkbox"/>	3. Improve communication of HAI outbreaks and infection control breaches. i. Develop standard reporting criteria including, number, size and type of HAI outbreak for health departments and CDC.	XX

Comment [SDPS2]: Does this exist?

Comment [SDPS3]: Does this exist?

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input type="checkbox"/>	<input type="checkbox"/>	ii. Establish mechanisms or protocols for exchanging information about outbreaks or breaches among state and local governmental partners (e.g., State Survey agencies, Communicable Disease Control, state licensing boards).	XX
			<i>Other activities or descriptions (not required):</i> • XX	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Identify at least 2 priority prevention targets for surveillance in support of the HHS HAI Action Plan.	12/21/09 to prioritize among all topics below
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Central Line-Associated Bloodstream Infections (CLABSI)	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ii. <i>Clostridium difficile</i> Infections (CDI)	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	iii. Catheter-associated Urinary Tract Infections (CAUTI)	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	iv. Methicillin-resistant Staphylococcus aureus (MRSA) Infections	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	v. Surgical Site Infections (SSI)	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	vi. Ventilator-associated Pneumonia (VAP)	
			<i>Other activities or descriptions (not required):</i> • Rhode Island's existing public reporting program has an established HAI Subcommittee that has begun prioritizing HAI reporting topics and will expand its existing work to identify at least two HHS priority topics from the above list. • The HAI Subcommittee will meet monthly between October and December to finalize the HAI Plan and prioritize ongoing work based on the HHS priorities.	

Comment [SDPS4]: Does this exist?

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Adopt national standards for data and technology to track HAIs (e.g., NHSN).	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Develop metrics to measure progress towards national goals (align with targeted state goals). (See Appendix 1.)	XX
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Establish baseline measurements for prevention targets.	XX
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> Rhode Island's contractor for the HAI Plan is Quality Partners, the state's QIO, which is currently working with select hospitals on NHSN reporting. This enables the State to leverage existing NSHN training/ expertise. 	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Develop state surveillance training competencies.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Conduct local training for appropriate use of surveillance systems (e.g., NHSN) including facility and group enrollment, data collection, management, and analysis.	XX
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> Rhode Island's contractor for the HAI Plan is Quality Partners, the state's QIO, which is currently working with select hospitals on NHSN reporting. This enables the State to leverage existing NSHN training/ expertise. 	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Develop tailored reports of data analyses for state or region prepared by state personnel.	XX

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> • Rhode Island has an 11-year-old public reporting mandate that uses a stakeholder-guided consensus process to develop and disseminate public reporting formats. The Department of Health will use the HAI Subcommittee to fulfill the above objective. • HAI reporting is already underway, with SCIP, CLABSI, and employee influenza vaccination measures published regularly. 	
Level III	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Validate data entered into HAI surveillance (e.g., through healthcare records review, parallel database comparison) to measure accuracy and reliability of HAI data collection.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Develop a validation plan.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Pilot test validation methods in a sample of healthcare facilities.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	iii. Modify validation plan and methods in accordance with findings from pilot project.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	iv. Implement validation plan and methods in all healthcare facilities participating in HAI surveillance.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	v. Analyze and report validation findings.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	vi. Use validation findings to provide operational guidance for healthcare facilities that targets any data shortcomings detected.	
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> • XX 	
			9. Develop preparedness plans for improved response to HAI	

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. Define processes and tiered response criteria to handle increased reports of serious infection control breaches (e.g., syringe reuse), suspect cases/clusters, and outbreaks.	XX
			<i>Other activities or descriptions (not required):</i> • XX	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Collaborate with professional licensing organizations to identify and investigate complaints related to provider infection control practice in non-hospital settings, and to set standards for continuing education and training.	XX
			<i>Other activities or descriptions (not required):</i> • XX	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Adopt integration and interoperability standards for HAI information systems and data sources.	XX
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAIs) across the spectrum of inpatient and outpatient healthcare settings.	XX
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Promote definitional alignment and data element standardization needed to link HAI data across the nation.	XX
			<i>Other activities or descriptions (not required):</i> • XX	
			12. Enhance electronic reporting and information technology for healthcare facilities to reduce reporting burden and increase timeliness, efficiency, comprehensiveness, and reliability of the data	

Comment [SDPS5]: Does this exist?

Comment [SDPS6]: Does this exist?

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. Report HAI data to the public.	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> Rhode Island has a long-standing public reporting mandate. HAI reporting is already underway, with SCIP, CLABSI, and employee influenza vaccination measures published regularly. 	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Make available risk-adjusted HAI data that enables state agencies to make comparisons between hospitals.	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> Rhode Island has a long-standing public reporting mandate. The program uses risk adjusted measures, where appropriate, to enable healthcare consumers, providers, and other stakeholders to make between-facility comparisons. HAI reporting is already underway, with SCIP, CLABSI, and employee influenza vaccination measures published regularly. 	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. Enhance surveillance and detection of HAIs in nonhospital settings.	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> XX 	
Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities. <ul style="list-style-type: none"> XX 				

3. Prevention

State implementation of HHS Healthcare Infection Control Practices Advisory Committee (HICPAC) recommendations is a critical step towards the elimination of HAIs. CDC with HICPAC has developed evidence-based HAI prevention guidelines cited in the HHS Action Plan for implementation. These guidelines are translated into practice and implemented by multiple groups in hospital settings for the prevention of HAIs. CDC guidelines have also served as the basis the Centers for Medicare and Medicaid Services (CMS) Surgical Care Improvement Project. These evidence-based recommendations have also been incorporated into Joint Commission standards for accreditation of U.S. hospitals and have been endorsed by the National Quality Forum. Please select areas for development or enhancement of state HAI prevention efforts.

Table 3: State planning for HAI prevention activities

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
Level I	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Implement HICPAC recommendations. i. Develop strategies for implementation of HICPAC recommendations for at least 2 prevention targets specified by the state multidisciplinary group.	
			<i>Other activities or descriptions (not required):</i> • XX	
	<input type="checkbox"/>	<input type="checkbox"/>	2. Establish prevention working group under the state HAI advisory council to coordinate the state HAI collaborative. i. Assemble expertise to consult, advise, and coach inpatient healthcare facilities involved in HAI prevention collaborative.	
			<i>Other activities or descriptions (not required):</i> • The Department of Health did not propose a HAI prevention collaborative as part of the grant application. This work not funded. • Rhode Island's existing public reporting program has an established HAI Subcommittee, comprised of the above stakeholder and provider groups.	

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
			3. Establish HAI collaboratives with at least 10 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions).	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. Identify staff trained in project coordination, infection control, and collaborative coordination.	
	<input type="checkbox"/>	<input type="checkbox"/>	ii. Develop a communication strategy to facilitate peer-to-peer learning and sharing of best practices.	
	<input type="checkbox"/>	<input type="checkbox"/>	iii. Establish and adhere to feedback of a clear and standardized outcome data to track progress.	
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> The Department of Health did not propose a HAI prevention collaborative as part of the grant application. This work not funded. The Department of Health will identify both internal and external HAI subject matter experts, to ensure a range of clinical and epidemiological skill sets, comprising at least 1.0 FTE. 	
	<input type="checkbox"/>	<input type="checkbox"/>	4. Develop state HAI prevention training competencies. <ul style="list-style-type: none"> Consider establishing requirements for education and training of healthcare professionals in HAI prevention (e.g., certification requirements, public education campaigns and targeted provider education) or work with healthcare partners to establish best practices for training and certification. 	
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> XX 	
Level II			5. Implement strategies for compliance to promote adherence to HICPAC recommendations.	

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
	<input type="checkbox"/>	<input type="checkbox"/>	i. Consider developing statutory or regulatory standards for healthcare infection control and prevention or work with healthcare partners to establish best practices to ensure adherence.	
	<input type="checkbox"/>	<input type="checkbox"/>	ii. Coordinate/liaise with regulation and oversight activities such as inpatient or outpatient facility licensing/accrediting bodies and professional licensing organizations to prevent HAIs.	
	<input type="checkbox"/>	<input type="checkbox"/>	iii. Improve regulatory oversight of hospitals, enhancing surveyor training and tools, and adding sources and uses of infection control data.	
	<input type="checkbox"/>	<input type="checkbox"/>	iv. Consider expanding regulation and oversight activities to currently unregulated settings where healthcare is delivered or work with healthcare partners to establish best practices to ensure adherence.	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> XX 	
	<input type="checkbox"/>	<input type="checkbox"/>	6. Enhance prevention infrastructure by increasing joint collaboratives with at least 20 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions)	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> The Department of Health did not propose a HAI prevention collaborative as part of the grant application. This work not funded. 	
	<input type="checkbox"/>	<input type="checkbox"/>	7. Establish collaborative to prevent HAIs in nonhospital settings (e.g., long term care, dialysis)	
			<i>Other activities or descriptions (not required):</i> <ul style="list-style-type: none"> The Department of Health did not propose a HAI prevention collaborative as part of the grant application. This work not funded. 	

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
<p>Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.</p> <ul style="list-style-type: none">• The Department of Health applied for a CDC Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) grant to implement a 12-month MDRO Collaborative. If funded, this project will align with the existing state HAI Plan and ongoing public reporting work, and will provide a mechanism for the Department to expand the Plan to include the activities listed in Table 3.				

4. Evaluation and Communications

Program evaluation is an essential organizational practice in public health. Continuous evaluation and communication of practice findings integrates science as a basis for decision-making and action for the prevention of HAIs. Evaluation and communication allows for learning and ongoing improvement to occur. Routine, practical evaluations can inform strategies for the prevention and control of HAIs. Please select areas for development or enhancement of state HAI prevention efforts.

Table 4: State HAI communication and evaluation planning

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
Level I	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact.	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	i. Establish evaluation activity to measure progress towards targets, and	XX
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Establish systems for refining approaches based on data gathered.	XX
			<i>Other activities or descriptions (not required):</i> • XX	
	<input type="checkbox"/>	<input type="checkbox"/>	2. Develop and implement a communication plan about the state's HAI program and progress to meet public and private stakeholders' needs.	
	<input type="checkbox"/>	<input type="checkbox"/>	i. Disseminate state priorities for HAI prevention to healthcare organizations, professional provider organizations, governmental agencies, non-profit public health organizations, and the public.	XX

Planning Level	Underway	Planned	Items Planned for Implementation	Target Dates
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> Rhode Island's established HAI Subcommittee is comprised of the above stakeholder and provider groups, and often outreaches to infection control practitioners (ICPs) and others in the state with an interest in HAI surveillance and prevention. The communication plan will enable more formal dissemination of information. 	
Level II	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Provide consumers access to useful healthcare quality measures.	XX
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> Rhode Island's public reporting program publishes information on healthcare quality, including clinical outcomes and patient satisfaction, on the Department of Health's website. The HAI Subcommittee's work to date is included there. 	
Level III	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Identify priorities and provide input to partners to help guide patient safety initiatives and research aimed at reducing HAIs.	XX
			<p><i>Other activities or descriptions (not required):</i></p> <ul style="list-style-type: none"> Rhode Island's contractor for the HAI Plan is Quality Partners of Rhode Island, the state's Quality Improvement Organization (QIO), which is implementing Medicare's National Patient Safety Initiative (NPSI) with local nursing homes and hospitals. The NPSI work in the hospital setting involves improving MRSA rates. 	
<p>Please also describe any additional activities, not listed above, that your state plans to undertake. Please include target dates for any new activities.</p> <ul style="list-style-type: none"> XX 				

Appendix 1.

The HHS Action plan identifies metrics and 5-year national prevention targets. These metrics and prevention targets were developed by representatives from various federal agencies, the Healthcare Infection Control Practices Advisory Committee (HICPAC), professional and scientific organizations, researchers, and other stakeholders. The group of experts was charged with identifying potential targets and metrics for six categories of healthcare-associated infections:

- Central Line-associated Bloodstream Infections (CLABSI)
- Clostridium difficile Infections (CDI)
- Catheter-associated Urinary Tract Infections (CAUTI)
- Methicillin-resistant Staphylococcus aureus (MRSA) Infections
- Surgical Site Infections (SSI)
- Ventilator-associated Pneumonia (VAP)

Following the development of draft metrics as part of the HHS Action Plan in January 2009, HHS solicited comments from stakeholders for review.

Stakeholder feedback and revisions to the original draft Metrics

Comments on the initial draft metrics published as part of the HHS Action Plan in January 2009 were reviewed and incorporated into revised metrics. While comments ranged from high level strategic observations to technical measurement details, commenters encouraged established baselines, both at the national and local level, use of standardized definitions and methods, engagement with the National Quality Forum, raised concerns regarding the use of a national targets for payment or accreditation purposes and of the validity of proposed measures, and would like to have both a target rate and a percent reduction for all metrics. Furthermore, commenters emphasized the need for flexibility in the metrics, to accommodate advances in electronic reporting and information technology and for advances in prevention of HAIs, in particular ventilator-associated pneumonia.

To address comments received on the Action Plan Metrics and Targets, proposed metrics have been updated to include source of metric data, baselines, and which agency would coordinate the measure. To respond to the requests for percentage reduction in HAIs in addition to HAI rates, a new type of metric, the standardized infection ratio (SIR), is being proposed. Below is a detailed technical description of the SIR.

To address concerns regarding validity, HHS is providing funding, utilizing Recovery Act of 2009 funds, to CDC to support states in validating NHSN-related measures and to support reporting on HHS metrics through NHSN. Also, most of the reporting metrics outlined here have already been endorsed by NQF and for population-based national measures on MRSA and *C. difficile*, work to

Comment [SDPS7]: Per #1, the Subcommittee will identify HAI prevention targets consistent with HHS priorities.

develop hospital level measures will be conducted in the next year utilizing HHS support to CDC through funds available in the Recovery Act.

Finally, to address concerns regarding flexibility in accommodating new measures, reviewing progress on current measures, and incorporating new sources of measure data (e.g., electronic data, administrative data) or new measures, HHS and its constituent agencies will commit to an annual review and update of the HHS Action Plan Targets and Metrics.

Below is a table of the revised metrics described in the HHS Action plan. Please select items or add additional items for state planning efforts.

Metric Number and Label	Original HAI Elimination Metric	HAI Comparison Metric	Measurement System	National Baseline Established (State Baselines Established)	National 5-Year Prevention Target	Coordinator of Measurement System	Is the metric NQF endorsed?
1. CLABSI 1	CLABSIs per 1000 device days by ICU and other locations	CLABSI SIR	CDC NHSN Device-Associated Module	2006-2008 (proposed 2009, in consultation with states)	Reduce the CLABSI SIR by at least 50% from baseline or to zero in ICU and other locations	CDC	Yes [†]
2. CLIP 1 (formerly CLABSI 4)	Central line bundle compliance	CLIP Adherence percentage	CDC NHSN CLIP in Device-Associated Module	2009 (proposed 2009, in consultation with states)	100% adherence with central line bundle	CDC	Yes [†]
3a. C diff 1	Case rate per patient days; administrative/discharge data for ICD-9 CM coded <i>Clostridium difficile</i> Infections	Hospitalizations with <i>C. difficile</i> per 1000 patient discharges	Hospital discharge data	2008 (proposed 2008, in consultation with states)	At least 30% reduction in hospitalizations with <i>C. difficile</i> per 1000 patient discharges	AHRQ	No
3b. C diff 2 (new)		<i>C. difficile</i> SIR	CDC NHSN MDRO/CDAD Module LabID [‡]	2009-2010	Reduce the facility-wide healthcare facility-onset <i>C. difficile</i> LabID event SIR by at least 30% from baseline or to zero	CDC	No

Metric Number and Label	Original HAI Elimination Metric	HAI Comparison Metric	Measurement System	National Baseline Established (State Baselines Established)	National 5-Year Prevention Target	Coordinator of Measurement System	Is the metric NQF endorsed?
4. CAUTI 2	# of symptomatic UTI per 1,000 urinary catheter days	CAUTI SIR	CDC NHSN Device-Associated Module	2009 for ICUs and other locations 2009 for other hospital units (proposed 2009, in consultation with states)	Reduce the CAUTI SIR by at least 25% from baseline or to zero in ICU and other locations	CDC	Yes*
5a. MRSA 1	Incidence rate (number per 100,000 persons) of invasive MRSA infections	MRSA Incidence rate	CDC EIP/ABCs	2007-2008 (for non-EIP states, MRSA metric to be developed in collaboration with EIP states)	At least a 50% reduction in incidence of healthcare-associated invasive MRSA infections	CDC	No
5b. MRSA 2 (new)		MRSA bacteremia SIR	CDC NHSN MDRO/CDAD Module LabID†	2009-2010	Reduce the facility-wide healthcare facility-onset MRSA bacteremia LabID event SIR by at least 25% from baseline or to zero	CDC	No
6. SSI 1	Deep incision and organ space infection rates using NHSN definitions (SCIP procedures)	SSI SIR	CDC NHSN Procedure-Associated Module	2006-2008 (proposed 2009, in consultation with states)	Reduce the admission and readmission SSI§ SIR by at least 25% from baseline or to zero	CDC	Yes‡
7. SCIP 1 (formerly SSI 2)	Adherence to SCIP/NQF infection process measures	SCIP Adherence percentage	CMS SCIP	To be determined by CMS	At least 95% adherence to process measures to prevent surgical site infections	CMS	Yes

* NHSN SIR metric is derived from NQF-endorsed metric data

† NHSN does not collect information on daily review of line necessity, which is part of the NQF

‡ LabID, events reported through laboratory detection methods that produce proxy measures for infection surveillance

§ Inclusion of SSI events detected on admission and readmission reduces potential bias introduced by variability in post-discharge surveillance efforts

¶ The NQF-endorsed metric includes deep wound and organ space SSIs only which are included the target.

Understanding the Relationship between HAI Rate and SIR Comparison Metrics

The Original HAI Elimination Metrics listed above are very useful for performing evaluations. Several of these metrics are based on the science employed in the NHSN. For example, metric #1 (CLABSI 1) for CLABSI events measures the number of CLABSI events per 1000 device (central line) days by ICU and other locations. While national aggregate CLABSI data are published in the annual NHSN Reports these rates must be stratified by types of locations to be risk-adjusted. This scientifically sound risk-adjustment strategy creates a practical challenge to summarizing this information nationally, regionally or even for an individual healthcare facility. For instance, when comparing CLABSI rates, there may be quite a number of different types of locations for which a CLABSI rate could be reported. Given CLABSI rates among 15 different types of locations, one may observe many different combinations of patterns of temporal changes. This raises the need for a way to combine CLABSI rate data across location types.

A standardized infection ratio (SIR) is identical in concept to a standardized mortality ratio and can be used as an indirect standardization method for summarizing HAI experience across any number of stratified groups of data. To illustrate the method for calculating an SIR and understand how it could be used as an HAI comparison metric, the following example data are displayed below:

Risk Group Stratifier	Observed CLABSI Rates			NHSN CLABSI Rates for 2008 (Standard Population)		
	Location Type	#CLABSI	#Central line-days	CLABSI rate*	#CLABSI	#Central line-days
ICU	170	100,000	1.7	1200	600,000	2.0
WARD	58	58,000	1.0	600	400,000	1.5
$\text{SIR} = \frac{\text{observed}}{\text{expected}} = \frac{170 + 58}{100000 \times \left(\frac{2}{1000}\right) + 58,000 \times \left(\frac{1.5}{1000}\right)} = \frac{228}{200 + 87} = \frac{228}{287} = 0.79 \quad 95\% \text{CI} = (0.628, 0.989)$						

*defined as the number of CLABSIs per 1000 central line-days

In the table above, there are two strata to illustrate risk-adjustment by location type for which national data exist from NHSN. The SIR calculation is based on dividing the total number of observed CLABSI events by an “expected” number using the CLABSI rates from the standard population. This “expected” number is calculated by multiplying the national CLABSI rate from the standard population by the observed number of central line-days for each stratum which can also be understood as a prediction or projection. If the observed data represented a follow-up period such as 2009 one would state that an SIR of 0.79 implies that there was a 21% reduction in CLABSIs overall for the nation, region or facility.

The SIR concept and calculation is completely based on the underlying CLABSI rate data that exist across a potentially large group of strata. Thus, the SIR provides a single metric for performing comparisons rather than attempting to perform multiple comparisons across many strata which makes the task cumbersome. Given the underlying CLABSI rate data, one retains the option to perform comparisons within a particular set of strata where observed rates may differ significantly from the standard populations. These types of more detailed comparisons could be very useful and necessary for identifying areas for more focused prevention efforts.

Last Updated 10/15/09

The National 5-year prevention target for metric #1 could be implemented using the concept of an SIR equal to 0.25 as the goal. That is, an SIR value based on the observed CLABSI rate data at the 5-year mark could be calculated using NHSN CLABSI rate data stratified by location type as the baseline to assess whether the 75% reduction goal was met. There are statistical methods that allow for calculation of confidence intervals, hypothesis testing and graphical presentation using this HAI summary comparison metric called the SIR.

The SIR concept and calculation can be applied equitably to other HAI metrics list above. This is especially true for HAI metrics for which national data are available and reasonably precise using a measurement system such as the NHSN. The SIR calculation methods differ in the risk group stratification only. To better understand metric #6 (SSI 1) see the following example data and SIR calculation:

Risk Group Stratifiers		Observed SSI Rates			NHSN SSI Rates for 2008 (Standard Population)		
Procedure Code	Risk Index Category	#SSI [†]	#procedures	SSI rate [*]	#SSI [†]	#procedures	SSI rate [*]
CBGB	1	315	12,600	2.5	2100	70,000	3.0
CBGB	2,3	210	7000	3.0	1000	20,000	5.0
HPRO	1	111	7400	1.5	1020	60,000	1.7
$\text{SIR} = \frac{\text{observed}}{\text{expected}} = \frac{315 + 210 + 111}{12600 \times \left(\frac{3.0}{100}\right) + 7000 \times \left(\frac{5.0}{100}\right) + 7400 \left(\frac{1.7}{100}\right)} = \frac{636}{378 + 350 + 125.8} = \frac{636}{853.8} = 0.74 \quad 95\% \text{CI} = (0.649, 0.851)$							

[†] SSI, surgical site infection

^{*} defined as the number of deep incision or organ space SSIs per 100 procedures

This example uses SSI rate data stratified by procedure and risk index category. Nevertheless, an SIR can be calculated using the same calculation process as for CLABSI data except using different risk group stratifiers for these example data. The SIR for this set of observed data is 0.74 which indicates there's a 26% reduction in the number of SSI events based on the baseline NHSN SSI rates as representing the standard population. Once again, these data can reflect the national picture at the 5-year mark and the SIR can serve as metric that summarizes the SSI experience into a single comparison.

There are clear advantages to reporting and comparing a single number for prevention assessment. However, since the SIR calculations are based on standard HAI rates among individual risk groups there is the ability to perform more detailed comparisons within any individual risk group should the need arise. Furthermore, the process for determining the best risk-adjustment for any HAI rate data is flexible and always based on more detailed risk factor analyses that provide ample scientific rigor supporting any SIR calculations. The extent to which any HAI rate data can be risk-adjusted is obviously related to the detail and volume of data that exist in a given measurement system.

In addition to the simplicity of the SIR concept and the advantages listed above, it's important to note another benefit of using an SIR comparison metric for HAI data. If there was need at any level of aggregation (national, regional, facility-wide, etc.) to combine the SIR values across mutually-exclusive data one could do so. The below table demonstrates how the example data from the previous two metric settings could be summarized.

HAI Metric	Observed HAIs			Expected HAIs		
	#CLABSI	#SSI [†]	#Combined HAI	#CLABSI	#SSI [†]	#Combined HAI
CLABSI 1	228			287		
SSI 1		636			853.8	
Combined HAI			228 + 636 = 864			287+853.8 = 1140.8
$\text{SIR} = \frac{\text{observed}}{\text{expected}} = \frac{228 + 636}{287 + 853.8} = \frac{864}{1140.8} = 0.76 \quad 95\% \text{CI} = (0.673, 0.849)$						

[†] SSI, surgical site infection