Lessons from the Pioneers
Reporting Healthcare-Associated Infections

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The National Conference of State Legislatures is the bipartisan organization that serves the legislators and staffs of the states, commonwealths and territories.

NCSL provides research, technical assistance and opportunities for policymakers to exchange ideas on the most pressing state issues and is an effective and respected advocate for the interests of the states in the American federal system. Its objectives are:

- To improve the quality and effectiveness of state legislatures.
- To promote policy innovation and communication among state legislatures.
- To ensure state legislatures a strong, cohesive voice in the federal system.

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Foreword

Legislators are always considering how to enhance the quality of life for the state's citizens while efficiently, effectively and frugally using taxpayer dollars. The current economic environment has forced all legislatures to more closely examine both objectives.

In light of these objectives, federal and state legislators have focused on healthcare-associated infections (HAIs) that create pain and suffering for citizens and unnecessary use of public funds. As a practicing hospital bedside cancer nurse and a legislative fiscal committee member, I know from direct experience the effect of HAIs.

HAIs are among the leading causes of death in the United States, accounting for an estimated 1.7 million infections and 99,000 associated deaths annually, according to the Centers for Disease Control and Prevention. In addition to the substantial human suffering exacted by HAIs, the financial burden attributable to these infections is staggering; the implications for state Medicaid programs are enormous.

In an effort to improve patient care, increase transparency and reduce costs associated with HAIs, more than half the states require health care facilities to publicly report infections. This NCSL report offers an in-depth analysis of nine state HAI public reporting laws and discusses how they have been implemented. The report, which represents a snapshot in time, details the challenges and successes as providers and lawmakers have worked to put into practice their state's HAI reporting law. The report also offers some "lessons learned" for policymakers who may be considering HAI legislation.

The full implications of public reporting remain to be seen. Over the next few years, more data from states will become available. This HAI data will continue to improve policy decision making, with the goals of improving the health care experience for our citizens and reducing the excessive spending on preventable infections.

Peggy Welch, R.N.
State Representative, Indiana
Chair, NCSL Health Committee

Antibiotic resistance is a growing public health problem, threatening to render the miracle drugs we take for granted today ineffective when needed in the future. Hospitals and other health care facilities are on the front lines in the war against spreading resistance.

Because hospitals are full of vulnerable, immunocompromised patients who often are taking large doses of antibiotics, they are ideal breeding grounds for resistant bacteria. In an intensive care unit with bedridden patients, bacteria can travel from room to room on the skin or clothes of hospital workers. Already sick patients can become sicker from health care-associated infections (HAIs).

HAIs are a major cause of death in the United States, and at least one-third are preventable. There is now clear evidence that hospital-acquired sepsis and pneumonia result in nearly 48,000 deaths and $8.1 billion in health system costs each year. In response to the problem, states are looking to legislation that will effectively reduce the incidence of HAIs and improve health care quality. In spring 2007, when we released our inaugural report, *Extending the Cure: Policy Responses to the Growing Threat of Antibiotic Resistance*, only a few states had laws designed to curb HAIs by requiring hospitals to report information on the number of HAIs they observe, to take specific prevention measures, or do both. Now more than half the states have such laws.

Despite this flurry of state activity, the effect state laws have on the number of HAIs remains unclear. Do hospitals comply with the laws? Does reporting affect HAI rates? Are some laws more effective than others?

These are challenging questions, but this report by the National Conference of State Legislatures is a first step to finding answers. Most states that have passed laws are just beginning to receive the first round of data from hospitals. Legislation is still new and not enough data have been collected to fully determine the laws' effects. But as more states consider new or revised HAI-related laws, they still want guidance and information on the lessons learned by other states. This report, which is based on conversations with people involved with the formation and implementation of HAI laws in nine states, focuses on what states have learned while crafting and implementing HAI-related laws. We plan to investigate the outcome of these laws—do they affect HAI rates and, if so, how much?—in a few years when more states have several years of data. Until then, this report provides much-needed insight into the actions states can take to limit HAIs.

Ramanan Laxminarayan
Director, Extending the Cure Project
June 2010

Executive Summary

Healthcare-associated infections (HAIs)—also known as hospital-acquired infections or nosocomial infections—exact a significant toll on human life. They are among the leading causes of death in the United States, accounting for 99,000 deaths annually. HAIs affect patients, health care systems and society by increasing the cost of treating infections and causing greater disability and death.

Since 2005, the number of states with laws requiring health care facilities to report HAIs has grown from six to 27. At the heart of public reporting is the belief that promoting transparency will improve quality of care, expand and improve infection prevention measures, reduce the morbidity and mortality associated with HAIs and cut costs. In 2009, the American Recovery and Reinvestment Act (ARRA) authorized $50 million in funding for states to engage in HAI planning and other activities, including public reporting.

Research about outcomes from public reporting is in its infancy and more work will need to be done to assure that reporting meets its goals of higher quality, lower costs, and a more informed public. Setting up a reporting program is complex and time-consuming, and a successful program must have skilled staff and adequate, sustainable financing.

In this report, the National Conference of State Legislatures, with support from the Extending the Cure project, examined reporting laws from nine states and gathered information about the challenges, successes and "lessons learned" from states that have pioneered public reporting.

Challenges and Themes

Through interviews with legislators, providers and other key stakeholders, NCSL learned that developing meaningful reporting programs is particularly challenging. For example, some infections are easier to report objectively than others, and billing codes alone may not accurately detect HAI cases. States may overcome some of these challenges by requiring facilities to report HAI data through the National Healthcare Safety Network (NHSN), a surveillance tool administered by the Centers for Disease Control and Prevention, which enables facilities to report HAIs according to standard, scientifically robust methodologies.

The national surveillance system, however, is not obstacle free. First, enrollment in NHSN is a multi-step process that involves a learning curve for facility staff. In addition, reporting through NHSN can disproportionately strain infection prevention resources in some facilities, particularly in smaller and rural hospitals.

Common themes NCSL encountered through interviews included the difficulty of developing meaningful, effective reporting initiatives; the advantages of incrementally phasing in reporting requirements; the benefits of establishing a multi-disciplinary, multi-stakeholder advisory committee to help develop the reporting program (an approach that enables policymakers to build on their state's unique circumstances and existing quality improvement activities); the importance of providing enough funding to carry out reporting initiatives; and the significance of recent federal guidance and funding to ensure that stakeholder support and financial resources are available to implement reporting laws.

Since most states with reporting laws are just beginning to receive the first round of data from hospitals and other facilities, data collected so far are not sufficient to fully determine the laws' effects. As data accumulate, the incoming information will let researchers examine the effectiveness and consequences of different variations of healthcare-associated infection reporting laws.

Introduction

The Problem

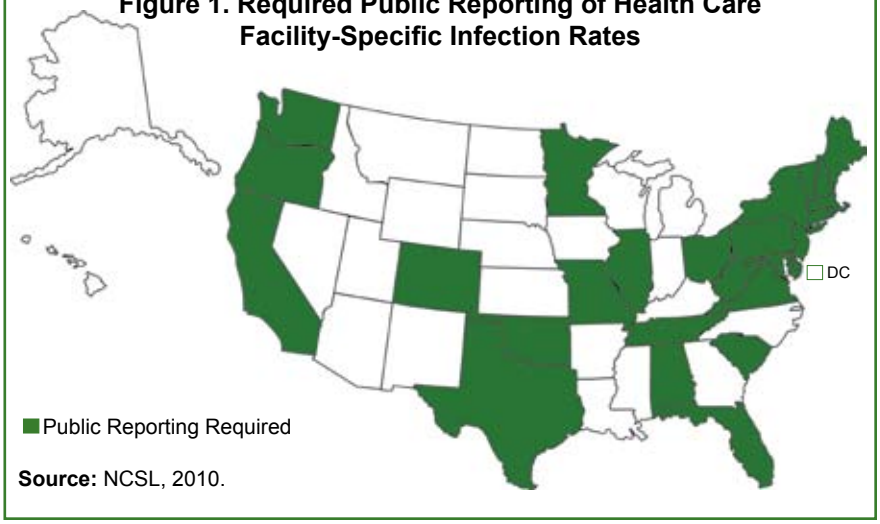
Deadly and expensive healthcare-associated infections (HAIs)—also known as hospital-acquired infections or nosocomial infections—exact a significant toll on human life. They are among the leading causes of death in the United States, accounting for an estimated 1.7 million infections and 99,000 deaths annually. Drug-resistant infections affect patients, health care systems and society by increasing the cost of treating infections and causing greater disability and death. Sepsis (bloodstream infection) and pneumonia (lung infection), two common types of healthcare-associated infection, impose substantial clinical and economic costs. According to hospital discharge data, nearly 48,000 individuals die from sepsis or pneumonia acquired in hospitals and cost $8.1 billion each year to treat.[1]

The problem of microbial resistance is growing rapidly. High-level penicillin resistance in *Streptococcus pneumoniae* in the United States increased a thousand-fold in the last 20 years, from 0.02 percent in 1987 to more than 20 percent in 2004.[2] From 1974 to 2004, the prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA)—a particularly troubling HAI—climbed from roughly 2 percent to more than 50 percent in many U.S. hospitals.[3]

State and Federal Activity

In recent years, a range of state and federal activity has aimed to reduce and prevent healthcare-acquired infections. As of May 2010, 27 states had laws explicitly requiring that health care facilities publicly report certain HAIs, up from six states at the end of 2005 (see figures 1 and 2). Although it varies by state, the kinds of facilities required to report infection rates include acute care hospitals, ambulatory surgical centers, birthing centers, nursing homes, long-term care centers, dialysis treatment centers and correctional facilities. While state legislation focuses primarily on collecting and reporting healthcare-associated infection data, some more recent laws require health care facilities to implement prevention standards.

Figure 1. Required Public Reporting of Health Care Facility-Specific Infection Rates



Source: NCSL, 2010.

In October 2008, Medicare reduced reimbursement to facilities for services associated with treating certain hospital-acquired conditions, includ-

ing catheter-associated urinary tract infections, vascular catheter-associated infections and certain surgical site infections. The recently enacted federal Patient Protection and Affordable Care Act extended this provision to states by prohibiting federal payments for Medicaid services associated with some HAIs. The secretary of Health and Human Services (HHS) will establish the infections and facilities to which the provision applies before it becomes effective on July 1, 2011.

Finally, in 2009, the American Recovery and Reinvestment Act (ARRA) authorized $50 million in funding for states to engage in HAI planning and other activities in support of the HHS Action Plan to Prevent Healthcare-Associated Infections. Forty-nine states, the District of Columbia and Puerto Rico received grants to develop or expand their HAI surveillance, detection, and monitoring and response programs.

Table 1. Year of Initial Public Reporting Legislation

State	2003	2004	2005	2006	2007	2008	2009
Alabama							•
California						•	
Colorado					•		
Connecticut				•			
Delaware					•		
Florida		•					
Illinois	•						
Maine							•
Maryland				•			
Massachusetts				•			
Minnesota					•		
Missouri		•					
New Hampshire				•			
New Jersey					•		
New York			•				
Ohio				•			
Oklahoma				•			
Oregon					•		
Pennsylvania			•				
Rhode Island						•	
South Carolina				•			
Tennessee				•			
Texas					•		
Vermont				•			
Virginia			•				
Washington					•		
West Virginia						•	

Source: NCSL, 2010.

Public Reporting

Patient safety advocates argue that public disclosure of preventable infections encourages hospitals to take action to improve infection practices and reduce adverse events. In addition, hospital-specific information provides consumers with valuable information about the quality of care being delivered, thereby allowing them to make informed decisions about where they choose to seek care.

Proponents of public reporting argue that reducing the rate of HAIs not only improves patient outcomes but also can cut costs, adding to the reasons for collecting and publishing hospital infection data. A 2006 Pennsylvania report showed that patients with an HAI were hospitalized for 20.6 days, compared to 4.5 days for patients without infections. Insurers paid an average of $53,915 for hospital stays for patients with infections, compared to $8,311 for patients without infections.

Public reporting of HAIs is intended to encourage individual health care facilities to take steps to prevent the spread of infections by increasing accountability and providing information to help identify effective prevention policies and procedures. An example of public reporting that improved care was when New York began to

compare the mortality for coronary artery bypass grafts (CABG) by hospital. After early reports were issued, hospitals with substantially higher mortality rates responded by examining their surgical systems. They identified areas of improvement, including implementing new post-surgical protocols and hiring additional staff to monitor data. Deaths associated with CABG subsequently declined at a significantly faster rate for patients at New York hospitals than they did for all patients in the United States, according to a 2001 presentation delivered at the University of Iowa College of Medicine.

Research about outcomes from public reporting is in its infancy and more work will need to be done to assure that reporting meets its goals of higher quality, lower costs, and a more informed public. Setting up a reporting program is complex and time-consuming, and a successful program must have skilled staff and adequate, sustainable financing. In 2005, the Healthcare Infection Control Practices Advisory Committee (HICPAC), a panel of experts that guides the CDC's and the secretary of HHS' HAI activities, reviewed the HAI reporting literature to date and found no conclusive evidence that mandatory reporting either improves or worsens HAI results.[4]

Healthcare-Associated Infections: State Laws

In collaboration with Extending the Cure, the National Conference of State Legislatures (NCSL) is working to inform state policymakers about state experiences with healthcare-associated infection prevention and control laws, including public reporting initiatives. NCSL examined HAI legislation passed between 2005 and 2009 in nine selected states—Alabama, Delaware, Colorado, Illinois, Massachusetts, New Hampshire, Oregon, Pennsylvania and Washington. NCSL researchers spoke with state legislators, agency personnel and hospital associations about their experiences with implementing reporting requirements. Interviews generated an overview of reporting programs in each state. Information also was collected regarding the successes and challenges associated with various approaches to HAI prevention and control. This report offers some insights around "lessons-learned" to state lawmakers who may be considering new HAI legislation.

Findings

Ultimately, to gain the most benefit from public reporting, states legislatures will want to foster sound methods to capture accurate infection rates, as well as mechanisms for checking the accuracy of (or validity) the reported data to ensure that facilities are not over- or under-reporting HAIs.

From correspondence with states, NCSL identified several challenges and themes associated with creating reporting programs. In particular, states noted the difficulty of developing meaningful and effective reporting initiatives; the advantages of incrementally phasing in reporting requirements; the benefits of establishing a multi-disciplinary, multi-stakeholder advisory committee to help develop the reporting program (an approach that enables policymakers to build on their state's unique circumstances and existing quality improvement activities); the importance of providing enough funding to carry out reporting initiatives; and the significance of recent federal guidance and funding to ensure that stakeholder support and financial resources are available to implement reporting laws.

Since most states with reporting laws are just beginning to receive the first round of data from hospitals and other facilities, enough data have not yet been collected to fully determine the laws' effects. As more states consider new HAI-related laws or revise existing ones, new information will point to the effectiveness and implications of healthcare-associated infection reporting laws, as well as provide guidance to other states that many want to adopt mandates to require public reporting.

Challenges to Reporting

Challenge 1: Developing Meaningful, Effective Reporting Programs

Despite the potential benefits of public reporting, policymakers in states with reporting laws articulated several challenges associated with developing meaningful and effective programs. For instance, states will want to select reporting requirements for which standardized methodologies have been developed so facilities are not penalized for conducting careful surveillance. States also will want to rely on HAI surveillance systems that accurately capture HAI rates but do not overwhelm or drain hospital staff resources for prevention activities. Finally, funds for reporting programs should be adequate to train those responsible for surveillance, monitor data quality, and connect reporting with prevention and quality improvement initiatives.

To establish a meaningful reporting program, states will want to consider the following.

- **Some infections are easier to report accurately than others**. It is difficult to objectively report infections that appear after a patient is discharged, for example, or conditions that cannot be reported according to standard methods.

- **Some infections are more costly, dangerous, frequent or preventable than others**. Carefully prioritizing reporting requirements can ensure that the data collected benefits prevention, cost-containment and consumer health.

- **The hospital discharge dataset alone may not accurately detect HAIs**. In addition to billing codes, it is important to rely upon laboratory and other sources of data to detect all HAI cases. Illinois' experience with reporting MRSA illustrates the limitations of relying solely on administrative data for HAI reporting. During the first year that Illinois hospitals used "present on admission" (POA) coding for MRSA infections (as part of Medicare's initiative to deny payment for certain hospital-acquired conditions), 93 percent were marked POA, a much higher number than anticipated. Surveillance that draws on laboratory data could help ensure the validity of these numbers.

- **Targeting specific hospital units rather that requiring facility-wide reporting can make the best use of scarce resources and ensure that hospital comparisons are fair.** According to CDC and others, HAI rates in some hospital units might be too low to justify the resources required for surveillance. If reporting requirements are too labor-intensive, surveillance can limit other HAI prevention activities. In addition, because the risk of contracting an HAI varies among hospital units, comparing like units (e.g., intensive care unit to intensive care unit) more accurately depicts HAI rates than comparing entire hospitals.

- **The patient pool should be large enough to generate useful data**. Infection rates from facilities that perform only a few surgeries a year, for example, might not be statistically meaningful.

- **Independent verification and validation of reported HAI data are important components of public reporting initiatives**. Checking the accuracy of reported data can require state agencies to visit all hospitals

and compare laboratory and other data to that reported. It is important to note that validation is more labor-intensive for some infections than others, and standard validation methods have not been developed for certain types of infections (e.g., surgical site infections).

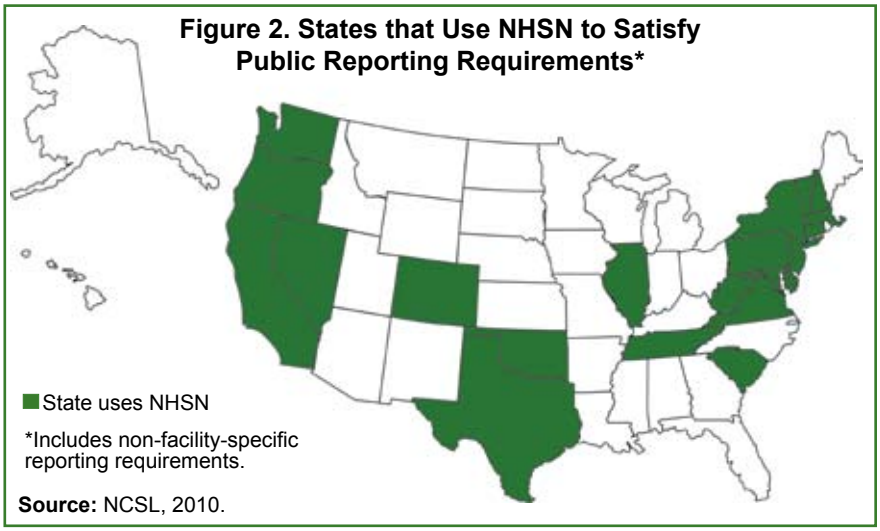
- **Risk adjustment is necessary for a fair comparison of facilities' HAI rates.** Some facilities or hospital units are more likely to report higher infection rates than others due to several factors beyond their control. A hospital that performs many surgeries annually, for example, might report more surgical site infections than one where very few procedures are performed. Risk adjustment, however, requires collecting additional data about risk factors, which can substantially increase the reporting burden.

Challenge 2: National Standard: Using the National Healthcare Safety Network

The National Healthcare Safety Network, a national surveillance tool administered by the Centers for Disease Control and Prevention (CDC), collects healthcare-associated infection data from hospitals and, more recently, from other facilities. These include outpatient dialysis centers, ambulatory surgery centers, and long-term care facilities. Data are collected according to nationally developed methodologies and definitions, and the database is available for use by all states and facilities that meet certain user requirements.[5]

Initially, NHSN was set up as a voluntary reporting tool. Today, however, most states with reporting requirements take advantage of the existing infrastructure. They require facilities to enroll in and report data through NHSN and to agree to release the data to the state agency administering the reporting program. According to the CDC, 21 states are using the NHSN to fulfill public reporting requirements (Figure 2).

Figure 2. States that Use NHSN to Satisfy Public Reporting Requirements*



Source: NCSL, 2010.

Benefits of Using NHSN

- **Standardization**. Establishing NHSN as the reporting mechanism ensures that hospitals will not have to use two different systems and methods to report HAI data to the state and the federal government. Because the system uses standard scientific methods, training materials and automatic benchmarking, state agencies need not develop this infrastructure.

- **Familiarity**. Some hospitals already reported HAI data voluntarily to NHSN, and many others were familiar with the system before state reporting laws were enacted.

- **Data quality**. NHSN includes a certain level of built-in risk adjustment that enables agencies to identify outlier infection rates—infection rates that are considerably higher or lower than expected—for targeted validation efforts. Although most states cannot yet compare HAI rates at facilities within their states, NHSN enables agencies to compare individual hospital rates to similar facilities nationwide, revealing where infection rates are statistically higher or lower than the national average.

Challenges and Other Considerations

Despite these benefits, NHSN reporting can be labor-intensive—often requiring manual data entry—and a there may be a steep learning curve for both reporting facilities and state agencies.

- **Enrolling in NHSN is a multiple-step process**. Facility IT systems must allow secure data transmission and staff must receive training on how to report infections according to standard definitions. According to the Illinois Department of Public Health, the state's hospitals needed at least six months to make budgetary adjustments for NHSN reporting. The state agency also must be able to receive and analyze NHSN data.

- **NHSN reporting may disproportionately strain infection prevention resources in some hospitals, particularly small or rural ones**. Because NHSN requires an understanding of complex epidemiological and statistical concepts, infection control professionals (ICPs), or experts in the transfer of communicable diseases within health care settings, often conduct data collection and reporting. According to the Illinois Hospital Association, of Illinois' 200 hospitals, 52 critical access hospitals do not have full-time infection ICPs, and facilities with 25 beds or less sometimes share ICP staff. Requiring ICPs to oversee or perform NHSN data entry may not be feasible in some facilities or may detract from other prevention activities. States also note that smaller hospitals may not have IT systems that can electronically compile infection data, which can substantially increase the burden of data collection and reporting.

State Implementation Themes

Despite the challenges of reporting accurate infection rates, adopting reliable surveillance systems and, for some states, gaining familiarity with using the NHSN, many states successfully and completely implemented their public reporting systems. A number of recurring themes among states point both to areas of difficulty and achievement.

1: Phase in Reporting

The most common theme that arose during interviews with state legislators, administrators and hospital association representatives is that healthcare-associated infection reporting is more complex than decision makers initially realized and that it can require a tremendous amount of hospital and agency staff time and resources. Several states shortened the initial list of statutorily established reporting obligations or delayed implementation for some measures in order to establish a solid foundation for the reporting program. Consistent with Health Care Infection Control Practices Committee (HICPAC) recommendations—the federal advisory committee who provide guidance to the CDC and the Secretary of the Department of Health and Human Services regarding the practice of health care infection control, strategies for surveillance and prevention and control of HAIs—states reiterated the importance of strategically selecting public reporting requirements and methods to ensure that reported data are accurate and useful.

State Rollout Considerations

Many states noted the importance of carefully prioritizing and phasing in reporting requirements, beginning with a set that is manageable for both reporting facilities and state administrators. When establishing requirements, policymakers will want to consider the existing valid, standardized reporting methodologies, as well as the frequency, severity and preventability of particular HAIs. States that choose to report through NHSN can assess hospitals' resources and level of familiarity with NHSN, and then require reporting infections that can be easily reported and validated. This approach allows staff and facilities to become comfortable with the system and enables the state to build on initial requirements. Hospital associations in several states interviewed supported public reporting, provided there was assurance they would not be overwhelmed.

Given the range of considerations associated with selecting reporting requirements and establishing a timeline for a reporting program, legislatures in many states profiled in this report allowed the program's administrative agency, in consultation with an advisory group, to determine deadlines or specific reporting requirements. The degree of flexibility given to the agency is discussed further in the next section.

Prioritizing Reporting Measures

Process measures. In addition to infection rates, some legislatures have required reporting of process measures, which indicate the extent to which hospitals take steps proven to improve patient care. Examples of process measures include adherence rates for prophylactic antibiotic administration before surgery or health care worker influenza vaccination rates. In FY 2009, 96 percent of hospitals reported certain surgical care process measures

to the Centers for Medicare and Medicaid Services through the Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) program,[6] which provides financial incentives for participation. Rather than establishing a separate set of measures for hospitals to report, many states have chosen to receive the same data already reported through RHQDAPU (much of this information is already available to the public at www.hospitalcompare.hhs.gov).

Process measures often are the most easily implemented. Many hospitals already report them to CMS and, unlike outcome measures, they require no adjustment for risk factors that increase a patient's chance of acquiring HAIs. States might coordinate the required process and outcome measures. If a state is reporting central line-related bloodstream infections, for example, it might select adherence to central-line insertion practices as a process measure.

Outcome measures. Based on an analysis of the frequency, severity and preventability of various HAIs, HICPAC found that central line-associated, laboratory-confirmed primary bloodstream infections (CLA-LCBI) in intensive care units and surgical site infections generally are most appropriate for reporting laws because they are relatively costly and are associated with higher risk of illness and death.[7] Because the distribution of infection types varies by location, however, states also may want to consider other infections. In 2009, HHS created a National Action Plan to Prevent HAIs, which established prevention targets for catheter-associated urinary tract (CAUTIs), *Clostridium difficile* (CDIs), methicillin-resistant *Staphylococcus aureus* (MRSA), and bloodstream and surgical wound infections. Table 2 illustrates the cases, costs and deaths per year associated with various types of HAIs.

Table 2. Estimated Annual Hospital Cost of Healthcare-Associated Infections by Site of Infection[8]

Major Site of Infection	Total Infections	Hospital Cost per Infection	Total Annual Hospital Cost ($ in millions)	Deaths per Year
Surgical Site Infection	290,485	$25,546	$7,421	13,088
Central Line-Associated Bloodstream Infection	248,678	$36,441	$9,062	30,665
Ventilator-Associated Pneumonia	250,205	$9,969	$2,494	35,967
Catheter-Associated Urinary Tract Infection	561,667	$1,006	$565	8,205

- **Central-line related bloodstream infections (CLABSIs).** Most states in this report first phased in implementation of bloodstream infections in intensive care units. Reporting methodologies for CLABSI are relatively straightforward and are more easily implemented and validated compared to other types of infections.

- **Surgical site infections (SSIs).** Most states in this report chose to implement the surgical site infection reporting requirement after the bloodstream infections requirement. Surgical site infection data are more difficult to report and validate. Because symptoms frequently occur after hospital discharge, SSI reporting is more complicated. While Delaware's law includes a provision requiring physicians who diagnose infections after discharge to report them to the hospital for inclusion in the HAI dataset, an administrator noted that it will be difficult to enforce.

- **Catheter-associated urinary tract infections (CAUTIs).** CDC has developed reporting methods for catheter-associated urinary tract infections (CAUTI), which occur more frequently than CLABSI and SSI.

Because these infections are less likely to cause morbidity and death, however, the costs of reporting may be greater than the benefits.[9]

- **Multi-drug-resistant organisms (MDROs)**. NHSN recently created a module for tracking multi-drug-resistant organisms, such as MRSA and CDI. Most states see this as among the system's more user-friendly modules.

- **Ventilator-associated pneumonias (VAPs).** According to HHS, no valid outcome or process measures have been established for VAPs. Some (though not all) states have either changed their reporting requirements or declined to release VAP rates as required by statute.

Targeting Facilities for Reporting

As noted above, targeting specific hospital units rather than applying reporting laws uniformly across a facility can improve data validity, ease implementation and lead to cost-effective use of resources. For example, states typically target one or more intensive care units—such as adult, neonatal or pediatric units—for reporting bloodstream infections. Some states have exempted small facilities (such as those with 50 beds or less) from public reporting.

Establishing a Pilot Phase

Some states chose to implement the initial period of data collection as a pilot or voluntary reporting phase, during which hospitals and agencies learn the NHSN system or assess data quality before publicly reporting hospital-specific HAI rates. New Hampshire's reporting law set the first six months of data submission as a voluntary pilot phase during which hospital data remained anonymous for quality assessment purposes. Delaware did not establish a pilot phase, but anticipated many of its hospitals would enroll in and learn NHSN before the reporting deadline. Massachusetts created a tiered reporting system under which some measures were reported to the public while others were sent to an independent organization for validation studies before they were released.

Reducing the Reporting Burden

Legislatures in some states have minimized the reporting burden on health care facilities.

- Colorado's reporting policy initially required that those collecting data be certified infection control practitioners, except in hospitals of 50 beds or less. Later, recognizing that the certification requirement was not feasible for other small non-hospital facilities, the state extended the exemption to certified ambulatory surgical centers and dialysis treatment centers (House Bill 1025).[10] In lieu of certification, the law required the Colorado Department of Public Health and Environment to set training and continuing education alternatives for compliance.[11]

- Hospitals in Washington found that complying with the state's requirement to report sternal wound infections through NHSN involved entering information on almost 80 codes, while other infections required data entry for only five to seven codes. In response to their concerns, which also were expressed by legislators, the Washington Hospital Association and the Washington Department of Health, CDC will reconfigure the surgical site infections reporting mechanism so hospitals can submit aggregate data for some codes. In the meantime, the Legislature passed House Bill 2828,[12] which allows hospitals to submit SSI infection rates to the Washington State Hospital Association's quality benchmarking system until the NHSN update is complete.

2: Importance of Flexibility

A second theme that emerged was the need for flexibility within healthcare-acquired infection reporting laws. Given the complex array of state-specific factors that must be considered in selecting reporting requirements, many legislatures have enabled the agency responsible for executing the law to develop and modify the program, in consultation with a multidisciplinary advisory committee that includes experts in infection prevention and control.

Degree of Flexibility

The degree to which the responsible agency can develop or modify the program varies by state. Some states set specific reporting requirements and deadlines, while others leave program development entirely to the administrative agency and advisory committee.

Washington's 2007 law, for example, established specific deadlines by which hospitals were to report bloodstream infections, ventilator-associated pneumonia and surgical site infections. New Hampshire's 2006 legislation also named specific infections, but allowed the Department of Health and Human Services to delay reporting certain measures or phase in additional requirements once sound methodologies were established. Legislatures in Alabama, Delaware and Oregon have been more flexible, mentioning infection requirements for consideration but allowing the administrative agency to substitute or add to the list as appropriate in consultation with the advisory committee. In Alabama, for example, the advisory council replaced the initial requirement to report ventilator-associated pneumonias with one to report catheter-associated urinary tract infections, which are more widespread and easier to report objectively.

A challenge associated with setting specific requirements is that, while clinical practices evolve continually, statutes are less easily changed. In some states where reporting requirements have been specified by the legislature, administrators have had to delay implementation. Other state agencies or hospitals have asked the legislature to change the initial law.

In January 2006, the Association for Professionals in Infection Control and Epidemiology (APIC), the Infectious Diseases Society of America (IDSA) and the Society for Healthcare Epidemiology of America (SHEA) published model legislation[13] that allows more flexibility. Legislatures can set the minimum size of the advisory committee and a due date for rulemaking. It can provide some guidelines, but allows the agency to determine all other public reporting requirements, deadlines for reporting, and risk adjustment and validation methodologies.

Many states also considered the Consumer's Union model legislation,[14] published in 2004, when crafting their bills. Unlike the APIC-IDSA-SHEA model, the Consumer Union model required consumer representation on the advisory committee and suggested outlining specific implementation deadlines in the law. Since 2004, the model was revised to enable the administrative agency, in consultation with the advisory committee, to expand the reporting program to include new types of infections without returning to the legislature.

Advisory Committee

In all states contacted by NCSL, the legislature established a multidisciplinary advisory group to guide implementation. In many states, the advisory committee must be meaningfully involved in all aspects of program development. Committees typically include representatives from health care facilities, providers, payers and consumers, academic institutions and health insurers and may provide guidance on reporting requirements, deadlines, data validation strategies, risk adjustment and public reports.

Interviewees cited three main benefits of an advisory committee: 1) To adapt the program to local needs and available resources; 2) To convey technical information to the state agency, which may not have expertise in healthcare-acquired infection reporting; and 3) To engender a spirit of cooperation among stakeholders.

In some states, the structure of the advisory committee played a critical role in helping members reach agreement on rules.

- In Delaware, which has only eight hospitals, the advisory committee included an infection control professional from each facility and was chaired by the ICP from the state hospital that was already voluntarily reporting through NHSN. Delaware's program administrator notes that the state's small size enabled spontaneous conference calls during which all ICPs could reach consensus.

- The Alabama Hospital Association attributes the unanimous approval of rules by the state's HAI Advisory Council to "a spirit of cooperation" among diverse stakeholders. The state health officer adds that the council's structure played an important role in consensus. Although all parties with a vested interest in the data (i.e., hospitals, providers, payers and consumers) were represented on the council, no one voice controlled it.

3: Leverage Existing Resources to Support HAI Reporting and Prevention

Interviews revealed that several states, like Alabama, Massachusetts, New Hampshire, Oregon, and Pennsylvania, had existing health care quality improvement initiatives or HAI reduction programs before the reporting law was enacted. Health care facilities in some states already were voluntarily reporting hospital-acquired infections. Building on existing initiatives or embedding programs within them can lead to strong partnerships, prevent duplication of efforts and ensure that reporting initiatives connect with prevention activities. Actively establishing relationships and seeking partnerships with the full range of stakeholders early in the process helps states use existing resources to successfully implement HAI reporting and prevention initiatives.

Quality Improvement Initiatives Predating Reporting Laws

In nearly all states examined, hospital associations and agencies pointed to successful HAI prevention and quality improvement initiatives that predated the state's reporting law. The Washington Hospital Association, for example, set a goal of eliminating HAIs between 2005 and 2012 and created the "Eliminating Hospital Acquired Infections Safe Table."[15] This offered an opportunity for facilities to learn about the latest hospital-acquired infection prevention research and strategies and to share data with their peers in a confidential setting. The association has helped hospitals implement the World Health Organization's Safe Surgery Checklist,[16] which is used by more than 80 percent of the state's hospitals and is being adopted by most of the rest. Since the safe table process began, hospitals have lowered overall CLABSI rates to less than 1 percent, according to the association.

The New Hampshire Healthcare Quality Assurance Commission, established by the legislature before the HAI reporting law was enacted, offers various patient safety programs for hospitals and sets measurable HAI prevention targets. Programs include "High Five for a Healthy New Hampshire," which monitors and promotes hand hygiene among health care staff, a World Health Organization Universal Protocol Safety Checklist for Surgical Care, and a two-year program to reduce bloodstream infections developed by Johns Hopkins University researchers.

Pennsylvania has a long history of collaboration among entities that collect data related to health care cost and patient safety. Since 1986, the Pennsylvania Healthcare Cost Containment Council (PHC4) has collected data on health care costs in order to promote transparency and control costs. When the reporting law passed the General Assembly in 2007, strong working relationships already existed among the Department of Health,

PHC4 and the Patient Safety Authority. All were working, though with different mandates, to improve patient results and reduce health care costs.

Examples of Partnerships and Coordination

Nearly all interviewees noted the importance of actively seeking and establishing dialogue with potential partners as early as possible. Frequently cited partnerships included those among the administrative agency and the state's local Association for Professionals in Infection Control and Epidemiology (APIC) chapters, the state hospital association, and other agencies or entities working on patient safety and quality. Hospital associations have enhanced state reporting and prevention activities by encouraging hospital participation in prevention activities and pilot projects or writing letters of support for grants.

Sharing Data

Hospital associations and agencies in several states communicate with facilities regarding the reported data or offer an opportunity to work with peers on HAI prevention. One emerging practice is to establish evidence-based prevention collaboratives that 1) enable peer-to-peer learning among hospital staff and 2) measure progress in HAI prevention based on collected data. In Illinois, for example, more than 50 hospitals participate in prevention programs to reduce bloodstream infections and MRSA. The Department of Public Health also is developing a CDI-based collaborative. It not only will facilitate peer-to-peer learning, but also will allow hospitals to report CDI cases through NHSN's MDRO module. HHS suggests forming multi-state or regional collaboratives in sparsely populated areas.

Training

Partnerships have enabled state agencies to provide facilities with basic training in the National Healthcare Safety Network where gaps in state funding exist. In New Hampshire, the Foundation for Healthy Communities—a partnership among hospitals, providers, insurers and other organizations with a mission to improve health and health care delivery through data analysis, education and training—supported some instruction for hospitals. In Illinois, the Association for Professionals in Infection Control and Epidemiology (APIC) chapter is training hospitals in surgical site infection reporting.

Enforcement/Validation

HAI reporting laws either establish legal penalties for noncompliance or require state agencies to develop them. A common approach has been to enforce the law through state licensure requirements. The Washington Department of Health plans to conduct random spot checks alternately with the Joint Commission to see if HAI cases are reported and measured accurately.

In addition to integrating enforcement with licensure laws, some states established monetary policies for noncompliance, either by statute or by rule. Most enabled the agency to fine facilities between $500 and $1,000 per violation per day. Draft rules in Alabama reiterated that the goal of reporting is not to punish facilities or collect fines, but to provide incentives for reporting. The draft rules established fines for facilities that deliberately falsified data or willfully and intentionally failed to comply (i.e., failed to submit data on time and within 60 days of notification of noncompliance by the Alabama Department of Public Health).

Data and Program Evaluation

In many states, reporting facilities can provide ongoing feedback through the state HAI advisory committee. Delaware's law enables the administrative agency, in consultation with the advisory committee and other experts in infection prevention and control, to revise infection categories one year after the first public report. The New Hampshire Department of Health and Human Services hosts an annual meeting during which hospitals and administrators review reporting requirements and surveillance definitions.

4: The Importance of Funding

Insufficient funding was cited as the primary barrier to timely implementation of mandatory reporting laws. Funding especially is needed for administrative support, hospital training, site visits, databases and software, public reports, and data analysis and validation. In assessing the financial needs of the state reporting program, legislators will want to work closely with stakeholders. Also to be considered are such issues as the extent of reporting requirements, the number of health care facilities in the state and the potential for partnerships.

State Examples

Training

Funding for staff time enables administrators to provide training and site visits for hospitals. One concern is that, if ICPs do not receive the necessary training and technical assistance, they might spend more time on data entry and less on prevention activities. Training also is critical to accurate reporting. A Connecticut validation study[17] found that hospitals reported only 48 percent of all bloodstream infections acquired over a three-month period, primarily because they misinterpreted CDC's standard CLABSI definition. Finally, agency staff also may need training in infection control and prevention and use of the National Healthcare Safety Network.

Data Validation

Dedicated staff time is required to monitor and check the reported data for accuracy. In New Hampshire, the Department of Health and Human Services (DHHS) omitted HAI outcome data from its first public report[18] because the agency had not received funding to validate infection rates or analyze trends. In August 2009, grant funding enabled DHHS to establish hire an HAI coordinator to conduct validation studies and publish infection rates in June 2010.

Based on interviews with states, validation studies varied in terms of thoroughness, often depending on the amount of funding received. In Washington, the Department of Health has no funding to visit hospitals to check reported data against laboratory records. Instead, the agency monitors HAI data for outliers and inconsistencies over time. Recovery Act funding also enables the state to pay hospitals $10,000 to perform a simple accuracy check and maintain hospital infection control programs during the economic downturn. Oregon, which hired three full-time HAI staff under the Recovery Act, authorized visits to four hospitals to conduct a bloodstream infection validation study that eventually will include more than 30 facilities.

It is important to note that it is more difficult to validate some infection rates than others. Checking surgical site infection data, for example, would require tracking people over time and searching for data in many places. Based on discussions with other states, Oregon's HAI epidemiologist found no standard protocol for validating SSIs but hopes to develop such methodologies in collaboration with infection control personnel nationwide. In cases where it is not feasible to directly validate the data, some states are using alternatives such as testing hospital staff on surveillance methods and offering retraining if needed.

General Administrative Support

Although Delaware's HAI program has met the deadlines set in The Hospital Infections Disclosure Act, there have been delays in publishing the quarterly reports because the program has not been able to recruit a full-time staff person. In recent years, states have established full-time HAI coordinator positions to administer reporting programs and facilitate communication and partnership among stakeholders.

Some states have more than one coordinator. In Alabama, for example, program staff identified the need for a nurse coordinator to "talk [hospitals'] language" and help the state epidemiologist with clinical aspects of the

program. The state-funded nurse coordinator will help hospitals with NHSN reporting, work with infection prevention specialists, attend local APIC meetings, and disseminate education and awareness campaign materials at facilities. The Colorado Department of Public Health and Environment also hired a nurse consultant as a liaison between the CDC, the CDPHE and infection control practitioners in reporting facilities.

Funding also is used for advisory committee member travel (they typically are volunteer), and for hardware and software to receive or display HAI data.

Funding Mechanisms

In most states, appropriated funds or grant money is provided for one to three full-time program staff. Some legislatures provided supplemental or alternative funding:

Contingency Provision

In several states, the legislature set the reporting law's effective date to coincide with a line-item in the budget. The Alabama Legislature set reporting to begin one year after the state health officer certified to the governor that the Department of Public Health had the necessary funding for implementation.

Hospital Fees

A New Hampshire law established that hospitals would provide the funding required to sustain the reporting initiative and required the Department of Health to develop a fee schedule. The funds will help support the initiative once ARRA money expires.

5: Federal Guidance and Support

In 2008, the Government Accountability Office (GAO) released a report, *Healthcare-Associated Infections in Hospitals: Leadership Needed from HHS to Prioritize Prevention Practices and Improve Data on These Infections.*[19] It examined HAI-related standards and programs among national agencies and organizations. Finding the need for a coordinated, comprehensive approach to HAI reduction and prevention, GAO recommended that the Department of Health and Human Services set national HAI priorities, synchronize activities and integrate the various systems that collect HAI-related. In 2009, HHS created a comprehensive Action Plan to Prevent Healthcare-Associated Infections,[20] which prioritized six infection categories for surveillance and prevention, developed standard reporting metrics and established five-year HAI prevention targets (Figure 3).[21]

Figure 3. HHS Action Plan to Prevent Healthcare-Associated Infections

Priority Infection Categories

- Central Line-Associated Bloodstream Infections (CLABSIs)
- *Clostridium difficile* Infections (CDIs)
- Catheter-Associated Urinary Tract Infections (CAUTIs)
- Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections
- Surgical Site Infections (SSIs)
- Ventilator-associated Pneumonias (VAPs)*

CLABSIs, CAUTIs, SSIs and VAPs account for 80 percent of infections in acute care settings; multi-drug-resistant organisms such as MRSA and *Clostridium difficile* contribute significantly to the HAI problem.

The plan identified no valid outcome or process metrics for VAPs.

In 2009, the American Reinvestment and Recovery Act provided $50 million to states in support of the HHS action plan; this dovetailed nicely with many state reporting laws. States received the ARRA funding through an existing Epidemiology and Laboratory Capacity (ELC) Agreement with CDC, and grants have provided staffing, tools and professional development to help agencies develop a plan to coordinate state resources in support of HAI prevention. An important goal of the ELC funding is to enhance states' ability to report on progress toward the five-year prevention targets set forth in HHS' Action Plan to Prevent HAIs. Forty-nine states,[22] the District of Columbia and Puerto Rico received funding for one or more of the following.

- Staff for agencies to draft a Healthcare-Associated Infections (HAI) Prevention Plan in conjunction with a multi-disciplinary advisory group and to establish prevention programs. (Under the 2009 Omnibus bill, states receiving certain block grant funds certified that they would submit an HAI prevention plan to HHS by Jan. 1, 2010.)
- Outreach, training and technical support for hospital enrollment in NHSN and collection of baseline HAI data
- Hospital prevention collaboratives involving HAI program staff and facilities to monitor and respond to HAI data

For states that are just beginning HAI prevention activities, the grant supports preliminary planning. States that already have developed HAI programs—such as those with mandatory reporting laws—use the funding to expand existing programs or to fill resource gaps that prevented them from fully implementing such initiatives. With the financial support of the CDC, states are developing new practices to validate HAI data, integrating reporting initiatives with public health surveillance systems, and facilitating the transfer of electronic data into NHSN. Each state's Healthcare-Associated Infections Prevention plan is now available on CDC's website.[23]

Conclusion

States that pioneered reporting requirements at the turn of the century navigated uncharted territory as they set program timelines and public reporting methodologies. Today, however, nearly all states have received federal guidance and funding and have an opportunity to build on and learn from the experiences of other states. According to the Alabama Hospital Association, the recent federal leadership on HAIs provided the perfect backdrop for hospitals to begin public reporting. In prior years, while hospitals supported the underlying concept, many were concerned about the lack of clear federal direction and methodologies. Hospitals wanted to ensure that they could compare their HAI rates to a national standard and that providers could report infections in one format to one group using standard definitions.

Although ARRA grants provided vital infrastructure for state HAI reporting programs, officials cite program sustainability as a primary concern once ARRA money expires and states continue to face fiscal challenges. State lawmakers could work closely with their administrative agencies and HAI advisory committees to assess financial and other program needs for the near future. Legislators who contemplate new HAI legislation also will want to stay abreast of federal guidance, existing activity within their states and emerging practices. The information from states with new or revised HAI-related laws will offer a clearer picture of the best strategies for implementing such laws. It also will provide information about how effective public reporting is in eliminating healthcare-associated infections and reducing the human and financial costs associated with preventable infections.

State Summaries

Alabama

The Law

In March 2009, the Alabama Legislature enacted Senate Bill 89, establishing a system for collection and dissemination of health care facility-acquired infection data. Under the law, all general, critical access and specialized hospitals will report surgical site infections, ventilator-associated pneumonia, central line-related bloodstream infections or other types of infections, as determined by rule, to the Alabama Department of Public Health (ADPH). Reporting will begin one year after the state health officer certifies to the governor that the Department of Public Health has the funding necessary to finance implementation.

The law creates an 18-member Health Care Data Advisory Council, to be chaired by the state health officer. Members include hospital infection control practitioners, providers and members from health care business and consumer groups. For further guidance, the council may appoint a technical advisory committee that may or may not include its own members.

By August 2010, the State Board of Health will craft rules determining the frequency of reporting; the applicable surgical infection sites; and add to or replace the above-mentioned infection categories for reporting. ADPH must use NHSN reporting methodologies in developing the reporting program, but need not require hospitals to report through NHSN *per se*. The first public report, which will allow for comparison of HAI rates across hospitals, is due one year after the State Health Officer certifies sufficient funding. Data prepared for public view must be risk-adjusted for variations in patient morbidity and diagnoses across hospitals. Hospitals will have an opportunity to provide comment for inclusion in the reports. Finally, the ADPH can enforce the law through civil action or monetary penalties.

Progress

The Advisory Council convened for the first time in November 2009 and continues to meet monthly to develop the state's HAI reporting program. The State Board of Health proposed draft rules for the committee to work through. According to the State Health Officer, this helped move the rulemaking process along.

The proposed rules do not change the law substantially, but clarify reporting requirements, start date and frequency of reporting, data validation and risk adjustment, penalties for noncompliance, and reports.

Reporting Requirements

Proposed rules require pediatric hospitals to comply with the act, but exempt psychiatric, rehabilitation, long-term care and eye hospitals. The council also replaced the initial requirement to report VAPs with a requirement to report CAUTIs, which are more widespread and easier to report objectively. Finally, the council required re-

porting of CLABSIs in medical, surgical, medical/surgical and pediatric care units; SSIs that are associated with colon surgeries and abdominal hysterectomies; and CAUTIs from general medical and surgical wards.

Start Date and Frequency of Reporting

Facilities must begin reporting data to ADPH through NHSN beginning Jan. 1, 2011 (ADPH received ARRA funding for implementation in September 2009); however, ADPH expects most hospitals to submit data voluntarily before the deadline. ADPH will treat early submissions as test data; these may be analyzed but will not be reported publicly.

Data Validation and Risk Adjustment

ADPH will monitor HAI data reported through NHSN and will work with hospitals to resolve any data quality issues. ADPH, in consultation with the advisory council, will use a pilot project to develop additional validation methodologies for testing.

Penalties for Noncompliance

ADPH can fine noncompliant facilities up to $5,000 per occurrence; fines will be deposited into the state's general fund. The goal of Alabama's HAI reporting program is not to punish facilities or collect fines, but to create incentives for reporting. Thus, facilities will be fined only in cases of willful and intentional failure to comply (i.e., failure to submit data on time and within 60 days of notification of noncompliance by ADPH) or a deliberate falsification of submitted data. Hospitals can appeal according to procedures set forth under existing law.

Reports

ADPH will issue an annual public report and will likely prepare quarterly reports for health care facilities. ADPH plans to use comparative data, narrative and longitudinal studies, and best practice stories from hospitals to further HAI prevention activities across the state.

ARRA Funding

The ADPH attributes the timely implementation of the law, in part, to a $487,133 grant it received through the ARRA in 2009. The grant supports development of a statewide HAI prevention plan, which was submitted to HHS in January, and partially funds the detection, reporting and evaluation of HAI data.

Personnel

ARRA funding supports two positions: 1) a state HAI coordinator to direct program activities, collaborate across agencies, develop training materials for hospitals, and conduct project evaluations; and 2) an HAI epidemiologist who conducts data validation, risk adjustment and statistical analyses. ARRA funding also allows ADPH staff and advisory council members to conduct hospital site visits and attend regional meetings. As a condition of the ARRA grant, ADPH needed to convene a multidisciplinary group to formulate the statewide hospital-acquired infection prevention plan and was able to use the statutorily appointed council for this purpose. According to Alabama's HAI coordinator, it may have been difficult for ADPH to convene such a diverse group without the requirements set forth in SB 89.

Program staff also identified the need for an HAI nurse coordinator or clinical liaison to "talk [hospitals'] language" and assist the epidemiologist with the program's clinical. The nurse coordinator, funded by the state, will help hospitals with NHSN reporting, work with professionals to prevent infection, attend local APIC meetings, and disseminate education and awareness campaign materials at facilities.

Alabama Health Care Quality Initiative

A representative of the Alabama Hospital Association (AlaHA) reported that the HAI reporting program is progressing smoothly and on schedule, in large part because hospitals have been engaged in prevention activities for several years through the Alabama Healthcare Quality Initiative (AHQI).[24] The AHQI, a collaborative among Alabama hospitals, AlaHa, and Blue Cross/Blue Shield of Alabama, helps hospital staff prevent infection. AHQI uses its MedMined[25] automated system to apply an algorithm to hospital data and generate nosocomial infection markers that indicate areas where the potential for infections exists and surveillance might be targeted. Blue Cross/Blue Shield provides some funding for hospitals to adopt MedMined, and hospitals cover the remainder of the costs. Sixty-one hospitals currently use MedMined for real-time infection surveillance, and the system covers more than 80 percent of hospital discharges in the state. Participating facilities have reported reduced HAI rates of up to 40 percent as a direct result of MedMined use. AHQI also convenes hospitals regularly, regardless of their MedMined enrollment status, to confidentially share data and discuss HAI prevention.

Successes and Challenges

Federal Leadership

According to representatives of AlaHA, the timing was right for passing a reporting law. In previous years, although hospitals supported the underlying concept of reporting, many had concerns regarding 1) legislation that may have been too broad or vague to be achievable, and 2) the absence of clear federal direction and methodologies for HAI reporting. Hospitals wanted to ensure that they could compare their rates to a national standard, while providers wanted assurance they would not have to report infections in several formats to different groups according to different definitions. In 2009, the federal leadership on HAIs that accompanied the American Recovery and Reinvestment Act provided the perfect backdrop for hospitals to embrace reporting.

Advisory Council

AlaHA attributes success to "a spirit of cooperation" among diverse stakeholders that began before the law was passed. According to AlaHA, all stakeholders genuinely support the initiative and are listening to providers who have practical knowledge to "get it right." Before the law passed, AlaHA met with Senator Bobby Denton—the main sponsor of SB 89 whose son died from a surgical site infection—to refine the proposed list of reporting requirements.

The state health officer adds that the advisory council's structure played an important role in consensus. While all parties with a vested interest in the data (i.e., hospitals, providers, payers and consumers) were represented on the council, no one voice controlled it. Furthermore, hospitals, which are responsible for collecting and reporting the data, had the largest single voice. The second-largest voice belonged to the Medical Association, because providers, while not the source of reported data, will respond to and be judged by it. Through this arrangement, participants learned that reporting is a complex task that may be particularly burdensome for the state's small hospitals, many of which do not have data streaming technology or cannot designate a staff person solely to data collection and reporting.

Alabama HAI Law and Policy	
Reporting Law(s)	Senate Bill 89 Effective Aug. 1, 2009 Rules and regulations due Aug. 1, 2010
Entities Required to Collect Data/Report	Licensed general, critical access and specialized hospitals
Advisory Committee	• Helps develop regulations and standards and consult on public reporting • State health officer is chair • Eighteen members specified in law, including hospital infection control professionals, members of the health care business community, and a consumer representative, among others • Council may appoint a technical advisory committee if desired
Infections for Reporting	• SSIs –sites TBD by rule • VAPs • CLABSIs Board may change or revise requirements. CAUTIs may replace VAPs.
Process Measures for Reporting	N/A
Report to which Agency	ADPH
Frequency of Reports	• Frequency TBD by rule • Reports and studies shall be public information • Risk-adjusted using generally accepted formula to account for variations in morbidity and diagnoses
National Database	NHSN or another system that employs NHSN methodologies
Appropriations	• None specified in law, but reporting not required to begin until 12 months after the state health officer certifies that the department has sufficient funds to finance program development, implementation and operation • Department also can write rules and regulations pursuant to the administrative procedure act providing for dissemination and costs of reports and publications to any party deemed appropriate by the department
Penalties for Noncompliance	• Authorizes ADPH to bring civil actions in any court of competent jurisdiction, collect civil monetary penalties, and enforce compliance • The board shall develop monetary penalties for facilities that fail to comply
Published Reports and Planning Documents	• Healthcare-Associated Infections Prevention Plan (ARRA)[26]

Colorado

The Law

In May 2006, the Colorado General Assembly approved the Hospital-Acquired Infections Disclosure Act, which required hospitals, ambulatory surgical centers and dialysis treatment centers to collect and submit data on hospital-acquired infections to NHSN as a requirement for state licensure. Health facilities in violation of the statute risk loss of licensure or fines of up to $1,000 per violation per day.

Implementation

In accordance with the law, an 11-member volunteer advisory group, the Colorado Health Facility Acquired Infection Advisory Committee, was established to provide general oversight of implementation and to help the Colorado Department of Public Health and Environment (CDPHE) select reporting metrics and ensure data quality and accuracy. The committee first convened in April 2007 and has since, with a few exceptions, met monthly, although required by law to meet only quarterly.

In August, 2007, facilities began reporting infections associated with heart bypass surgery, hip and knee replacement surgeries, and CLABSIs in select intensive care units. Long-term acute care hospitals and ambulatory surgical centers were incorporated into the reporting program in July and October 2008, respectively. The law also required the advisory committee to phase in reporting requirements for surgical site infections associated with hernia repairs and abdominal and vaginal hysterectomies; the latter two were included among reporting requirements in October 2008 and August 2009, respectively.

Under the original Hospital-Acquired Infections Disclosure Act, those who collect hospital-acquired infection data must be certified infection control practitioners, except at hospitals with 50 beds or less. In late 2008, the Colorado Ambulatory Surgery Center Association (CASCA) suggested extending certification exemption to ambulatory surgical centers and certified dialysis treatment centers. Given that maintaining certification requires approximately 800 hours of ongoing training and experience in infection control, CASCA asserted that it is burdensome for small facilities to employ certified staff. In response, the Colorado Health Facility Acquired Infection Advisory Committee endorsed HB 1025, which enabled the CDPHE to develop alternatives for compliance,[27] including required training and continuing education for staff who collect HAI data at ambulatory surgical centers and dialysis treatment centers.

Reporting Data

The Hospital-Acquired Infections Disclosure Act required CDPHE to submit an annual report to the health and human services committees of both the Colorado House of Representatives and Senate on or before Jan. 15, 2008, and each January 15 thereafter. In its Jan. 15, 2010, report, CDPHE notes that, although 262 licensed health facilities were required by law to report hospital-acquired infections (i.e., 87 hospitals, three hospital units, 111 ambulatory surgical centers and 61 dialysis treatment centers), 79 of the 90 hospitals and hospital units and 44 of the 111 ambulatory surgery centers do not perform applicable procedures.

The latest annual report contains SSI data for cardiac, orthopedic and abdominal operations and CLABSI data for adult and neonatal critical care units and long-term acute care hospitals. Data from each hospital are compared to the NHSN average for similar facilities nationwide, identifying where rates are statistically lower (better), the same or higher (worse). The annual report notes that, for all reported items, the data support that infection reporting may lead to better adherence to preventive practices and decrease medical complications.

In large part, reported infection rates have been the same or better than national rates. Between August 2008 and July 2009, for example, hospitals reporting SSI rates in excess of the national average included only three

of 55 hospitals performing knee replacement surgeries, one of 61 hospitals reporting abdominal operative procedures and one of 65 hospitals reporting hernia repair outpatient procedures. Furthermore, between January and July 2009, ambulatory surgical centers' SSI rates for orthopedic operative procedures and hernia repairs were the same as the national rate.

Overcoming Challenges

Building the Reporting Program around Existing Infrastructure

The most recent annual report addresses some of the challenges CDPHE confronts as it works to implement the law. One involves building reporting requirements around the NHSN infrastructure. CDPHE notes that, since NHSN is a federally managed and funded system, adding any new reporting requirement at the state level relies solely on availability of federal funds. In Colorado, ambulatory surgical centers were not able to immediately report hospital-acquired infections because NHSN was not capable of receiving information from them until 2008.

Funding

In August 2009, CDPHE received nearly $1 million in funding from the American Recovery and Reinvestment Act (ARRA) to increase facility participation in NHSN and to support collaboratives, that facilitate peer-to-peer learning among facilities about preventing and reducing HAIs, (two of the three ELC activities funded through ARRA). CDPHE will use the funding to extend NHSN reporting requirements to dialysis centers beginning in March 2010 and has hired a nurse consultant to act as liaison between the CDC, the CDPHE and infection control practitioners in participating Colorado health facilities.

Data validation is another funding-related hurdle, according to the report. While some states with mandatory HAI reporting laws have received ongoing appropriations to monitor and validate the collection process, Colorado has not. Until recently, the CDPHE had only one project manager to oversee reporting. The ARRA grant allowed CDPHE to hire an epidemiologist, a statistician and a quality improvement specialist to help with data validation. Validation efforts will rely on a combination of medical record review and interviews with infection prevention staff at facilities.

Finally, CDPHE is using ARRA funding to develop a prevention collaborative among interested health facilities in Colorado. In December 2009, CDPHE contracted with the Colorado Hospital Association to lead a collaborative that will provide technical assistance, education and resources to hospitals and other health care facilities. It also will focus on preventing surgical site infections and CDIs.

Colorado HAI Law and Policy	
Reporting Law(s)	• House Bill 1045[28] Approved June 2, 2006 Effective immediately • House Bill 1025[29] Approved March 20, 2009 Effective Aug. 4, 2009
Entities Required to Collect Data/Report	Licensed hospitals, hospital units, ambulatory surgical centers and dialysis treatment centers
Advisory Committee	Colorado Health Facility Acquired Infection Advisory Committee[30] Eleven-member committee appointed by the director of the Colorado Department of Public Health and Environment to help with oversight and implementation of the law and with evaluating the quality and accuracy of collected and reported data
Required Categories for Reporting	• CLABSIs • Cardiac SSIs • Orthopedic SSIs • Abdominal SSIs
Clinical Metrics Selected	• CLABSIs in hospitals and select hospital units • Partial and total hip and knee prosthesis • Heart bypass surgeries • Hernia repairs • Abdominal and vaginal hysterectomies
Report to which Agency	Colorado Department of Public Health and Environment
Frequency of Reports	• Annual report to legislature on or before January 15 • Semi-annual informational bulletins
National Database	NHSN
Appropriations	Initial appropriation of $52,625
Penalties for Noncompliance	Termination of licensure or civil penalty of up to $1,000 per violation per day
Published Reports and Planning Documents	• Annual reports and semi-annual informational bulletins (2008-2010)[31] • Healthcare-Associated Infections Prevention Plan (ARRA)[32]

Delaware

The Law

The Hospital Infections Disclosure Act, enacted in Delaware in July 2007, requires the Department of Health and Social Services (DHSS) to develop a nosocomial infection reporting program for hospitals and correctional health care facilities. As reporting requirements, the law suggests surgical site and central line-related bloodstream infections and influenza vaccination rates among health care providers. The law leaves the final decision to DHSS rule. Unique to Delaware's law is a provision obligating physicians to report hospital-acquired infections discovered during follow-up visits for inclusion in the state's hospital-acquired infection dataset. The act designates the NHSN as the reporting mechanism for hospital infection rates. DHSS may develop a separate set of reporting categories and requirements for correctional facilities.

Under the law, the secretary of DHSS must appoint an advisory committee; members are to include infection control professionals, physicians, public health officials and nursing staff from across the state and other academic researchers, consumer advocates and health insurers. The advisory committee is to help the agency choose reporting categories and methodologies. The law also establishes a hospital infection specialist position within DHSS to help with implementation.

The law specified that the first public report was to be released June 30, 2009. Subsequent quarterly reports are required; they must be summarized annually in a report to the legislature. Reports and an explanation of reporting methodologies will be available on the DHSS website in an easy-to-understand format. Data must be risk-adjusted to account for variation in patient mix, and hospitals have seven days to review and comment on reported data before it is release. Comments are not subject to public disclosure.

Under the law, the advisory committee must convene periodically to evaluate reporting categories and methodologies. DHSS is responsible for enforcing the law through sanctions related to hospital licensure or fines up to $500 per day per facility.

The Hospital Infections Disclosure Act becomes effective once it is included as a line-item in the annual budget, although no minimum amount is specified.

Progress

In 2007, the secretary of DHSS appointed the Healthcare-acquired Infection Advisory Committee, which has convened quarterly beginning in early 2008. The committee selected central line-associated bloodstream infections (CLABSIs) in one intensive care unit of each hospital and health care worker influenza vaccination rates as reporting requirements. Delaware prioritized CLABSIs because they represent a sizeable share of hospital-acquired infections, increase health care costs substantially and raise a patient's risk of death. The committee decided that the requirement to report influenza vaccination rates would apply to "paid and unpaid persons working in a health care setting who have the potential for exposure to patients and/or infectious materials, including body substances, contaminated environmental surfaces, or contaminated air."The definition applied to 16 worker categories, including health care, housekeeping and volunteer staff (see annual report[33] for the full list). DHSS and the advisory committee will phase in additional reporting requirements, including surgical site infections, once hospitals gain a level of experience and comfort with the NHSN system. The reporting requirements were established as rules[34] in the fall of 2008.

Facilities enrolled in NHSN by Dec. 31, 2007, and began reporting hospital-acquired infection data for procedures performed on or after Jan. 1, 2008. DHSS released its first public report in July 2009, which allows evaluation of individual hospitals' 2008 CLABSI rates against NHSN averages for similarly situated facilities nationwide. The report also includes influenza vaccination rates ranging from 53 percent to 74 percent for

seven Delaware hospitals during the 2008/2009 influenza season. Correctional facilities reported no instances of preventable infections for 2008. As required by law, quarterly reports from 2009 are published on the web; and the second annual report was released in April 2010.

DHSS offers hospitals an opportunity to comment confidentially on annual reports. Although the state may not release comments for public view, it can publish the names of hospitals that take advantage of the opportunity to engage in an open dialogue with DHSS. DHSS anticipates that the comment section will become useful once the program matures. As trends in HAI data emerge, DHSS will use the opportunity to work with individual hospitals on prevention strategies.

Although the state HAI program has met the deadlines set forth in The Hospital Infections Disclosure Act, delays in publishing the quarterly reports have occurred, in large part because the program has no dedicated full-time staff. The state funded a full-time infection specialist position, but DHSS has not yet been able to fill it; the post was eventually frozen due to a tight fiscal environment. In August 2009, however, an ELC grant of $201,830 awarded through the ARRA enabled DHSS to reopen the position.

DHSS has not yet begun to validate the data reported by hospitals and correctional facilities. Due to the program's limited staff and because the state's hospital facilities are relatively small, DHSS' primary focus has been to accustom hospitals to NHSN. DHSS anticipates that validation will become a priority as the program develops.

Additional Reflection

The state's HAI administrator attributes the program's successful launch primarily to NHSN, which provided training, reporting methodologies and automatic benchmarking. It would have been difficult for DHHS to develop these on its own. Before the HAI law passed, the state's largest hospital, Christiana Care, already was reporting hospital-acquired infections voluntarily through NHSN, and other hospitals were familiar with the system. As chair of the advisory committee, Christiana's infection control professional provided guidance on the national surveillance system. In addition, due to the state's small size, DHSS could regularly convene all Delaware's ICPs through conference calls to gain consensus on implementation issues.

DHSS also identified challenges facing the HAI program. Under the Hospital Infections Disclosure Act, physicians must report hospital-acquired infections diagnosed at follow-up appointments to the hospital where they occurred. While DHSS notifies providers of the obligation, the provision is difficult to enforce. In addition, CLABSIs do not belong to the class of infections that typically might appear after discharge. DHSS anticipates the need to develop enforcement mechanisms once the reporting program covers additional hospital-acquired infections.

DHSS also notes that including correctional facilities in the HAI program has been problematic. Because prisons neither perform hip and knee replacement surgeries nor insert bloodstream catheters, DHSS requests that facilities report any infections they believe are associated with the health care inmates receive. Though correctional facilities have cooperated with DHSS in reporting any infections believed to be associated with health care, they are unable to report through NHSN according to a national methodological standard.

Delaware HAI Law and Policy	
Reporting Law(s)	HS 1 FOR HB 47 w/HA 1, HA 2[35] Enacted July 12, 2007 Effective upon the specific appropriation of funds for such purposes in the Annual Appropriations Act
Entities Required to Collect Data/Report	• Hospitals • Correctional facilities (requirements may differ from those of hospitals)
Advisory Committee	• Secretary of Department of Health and Social Services (DHSS) to appoint committee representing infection control personnel; physicians with infection control expertise; state public health officials; nursing staff; academic researchers; consumer organizations, health insurers and purchasers; and organized labor • Committee will guide all aspects of program development
Infections for Reporting	Developed by DHSS: • CLABSIs in intensive care units (monthly) • Other hospital-acquired infection rates shall be updated by DHHS in consultation with the Hospital-Acquired Infection Advisory Committee
Process Measures for Reporting	• Health care worker influenza vaccination rates
Report to which Agency	DHHS
Frequency of Reports	• Data reported quarterly (hospitals have seven days to review and comment) • First public report covers entire calendar year (due June 30, 2009); quarterly public reports thereafter
National Database	Infection rates submitted to the NHSN (Hospitals required to enroll by Dec. 31, 2007).
Appropriations	Funding for a hospital infection specialist position was rescinded due to tight fiscal conditions; he post was reopened through ARRA funding
Penalties for Noncompliance	Violations may result in • Sanction or termination of licensure • Fine of up to $500 per day per facility
Published Reports and Planning Documents	• Annual and quarterly reports (2008-2010)[36] • Healthcare-Associated Infections Prevention Plan (ARRA)[37]

Illinois

The Law

Between 2003 and 2009, Illinois passed several pieces of legislation related to hospital-acquired infection reporting and prevention. The initial law, The Hospital Report Card Act of 2003, provided the framework for public reporting. It requires hospitals to track SSIs, VAPs, and CLABSIs, according to methodologies established by the Illinois Department of Public Health (IDPH) in consultation with an advisory committee.

In 2004, Public Act 094-0275 narrowed infection reporting requirements, allowing IDPH to choose a minimum of two of the following: SSIs, surgical procedure infection control process measures, outcome or process measures for VAPs, and CLABSI infection rates in critical care units. The Hospital Report Card Act requires development of reporting methodologies in accordance with national guidelines from the CDC, C MS and the Joint Commission. Hospital compliance is enforced through the state's Hospital Licensing Act; hospital permits or licenses may be denied, suspended or revoked if facilities do not comply with state law.

The Hospital Report Card Act directs hospitals to report infection rates quarterly and requires the IDPH to provide annual reports to the General Assembly and the public on the IDPH website. IDPH must allow hospitals 30 days to make corrections or provide comments before the report is released. In addition, IDPH must ensure that the data meet accepted standards of validity and reliability and, if appropriate, adjust for differences in risk among hospitals. As part of the report, IDPH must publish an explanation of the data limitations and the implications for its use. Finally, the Hospital Report Card Act of 2003 directs IDPH to regularly evaluate hospital data and the overall reporting program.

In 2004, the legislature further expanded the Hospital Report Card Act to include requirements for multi-drug-resistant organisms (MDROs). Public Act 95-282 obligated the Department of Public Health to write rules requiring health care facilities to perform an annual infection control risk assessment as the basis for multi-drug-resistant organism infection prevention activities. Under the law, IDPH must publish guidelines for health care facilities, including prisons, jails and the general public on how to prevent MDRO infections. It must prepare annual reports on trends in hospital-acquired MRSA infections and CDIs across the state. Public Act 95-282 also requires hospitals to report MDROs associated with CLABSIs in intensive care units and VAPs.

A separate law, the MRSA Screening and Reporting Act, effective August 2007 through December 2011, requires all hospitals to develop a MRSA control program that includes isolation of MRSA colonized patients in intensive care units, identification of patients who are at-risk for contracting MRSA, and the monitoring and enforcing hand hygiene. Furthermore, the act obligates IDPH to publicly report aggregate data on the total number of MRSA infections that are contracted during hospital visits using the Hospital Discharge Dataset (diagnostic codes).

In August 2009, the MRSA Prevention, Control and Reporting Act made state residential facilities, including mental health hospitals and correctional centers, responsible for developing and implementing policies and procedures to prevent and control MRSA and for reporting MRSA cases to the Department of Public Health.

Progress

The Department of Public Health issued rules in March 2007 that established the following HAI reporting requirements for hospitals.

1. Surgical Care Improvement Project (SCIP) process measures[38] (reporting to begin by October 2007)
    a. Prophylactic antibiotic received within one hour prior to surgical incision

   b. Prophylactic antibiotic selection for surgical patients

   c. Prophylactic antibiotics discontinued within 24 hours after the surgery end time

   d. Cardiac surgery patients with prophylactic antibiotics discontinued within 48 hours after surgery

   e. Cardiac surgery patients with controlled 6 a.m. postoperative serum glucose

2. Surgical outcome measures for postoperative wound infection diagnosed during index hospitalization (reporting to begin by July 1, 2007)

3. CLABSIs in designated critical care units (reporting to begin by July 2008)

4. Postoperative VAPs during index hospitalization as described in SCIP (reporting to begin by July 2008).

Hospitals currently report quarterly on CLABSIs through NHSN and SCIP measures to CMS. In December 2009, IDPH notified Illinois hospitals of an extended deadline (April 1, 2010) for reporting SSIs associated with coronary artery bypass graft and total knee replacement surgeries through NHSN. IDPH and Illinois' APIC chapter will provide infection prevention specialists with SSI data entry training at no cost to facilities. The Illinois Hospital Report Card website publishes both infection and surgical process adherence rates by hospital, revealing when rates are statistically higher or lower than the national average. IDPH notes that, since numbers have not been risk-adjusted, they should not be used to compare facilities' HAI rates directly.

IDPH also released reports on trends in CDIs between 1999 and 2008 and MRSA between 2002 and 2008. According to hospital administrative data, cases of CDI have more than doubled since 1999, and MRSA rates increased substantially since 2002. However, the reports site several limitations of using administrative data for epidemiological assessments. In 2008, for example, the pool of billing codes associated with MDROs increased, potentially leading to an increase in reported infections that had more to do with the methodological change than with underlying trends. In addition, since Medicare no longer will pay for certain infections that are not "present on admission," there is concern that MDROs might be underreported. The reports suggest that MDRO rates input through the NHSN, which draws from laboratory data, could provide more reliable data.

ARRA Funding

In 2009, IDPH received $853,443 in grant funding through the ARRA to hire an infection coordinator to develop and implement a Statewide Action Plan to Prevent HAIs. The funds will help IDPH staff train hospital staff to use NHSN and present reported data to hospital leadership and patient quality committees. Staff also will explore the possibility of transferring electronic HAI data from hospital laboratories directly into NHSN through the Chicago Health Event Surveillance System (CHESS).[39] This public health surveillance tool is being developed by the City of Chicago according to guidelines established by the Centers for Disease Control's National Electronic Disease Surveillance System (NEDSS)[40] to integrate a range of public health data. Finally, IDPH staff will develop a collaborative with at least 20 hospitals from across the state to reduce rates of CDI. Collaborative participants will report MDROs through NHSN's MDRO module.

Illinois HAI Law and Policy	
Reporting Law(s)	• Public Act 93-563[41] (Hospital Report Card Act, 2003) • Public Act 094-0275[42] (Amends Report Card Act, 2004) • Public Act 95-282[43] (Multi-Drug Resistant Organisms, 2004) • Public Act 96-438[44] (MRSA Screening and Reporting Act, 2007) • Public Act 96-438[45] (MRSA Prevention, Control, and Reporting Act, 2009) • Hospital Report Card Code,[46] Title 77, Ch. 1, Subchapter b, Part 255, March 2007)
Entities Required to Collect Data/Report	Hospitals, ambulatory care centers, and residential facilities
Advisory Committee	IDPH organizes an advisory committee to include representatives of health care providers, academic researchers, consumers, insurance companies, organized labor and IDPH that will be meaningfully involved in all aspects of program development
Report What Agent/s	• MRSA and CDIs • MDROs responsible for CLABSIs and VAPs in designated hospital units
Infections for Reporting	• Postoperative SSIs diagnosed during index hospitalization • CLABSIs in designated critical care units • Postoperative VAPs
Process Measures	• Prophylactic antibiotic received within one hour prior to surgical incision • Prophylactic antibiotic selection for surgical patients • Prophylactic antibiotics discontinued within 24 hours after the surgery end time • Cardiac surgery patients with prophylactic antibiotics discontinued within 48 hours after surgery • Cardiac surgery patients with controlled 6 a.m. postoperative serum glucose
Report to which Agency	IDPH
Frequency of Reports	• Hospitals report quarterly to IDPH • IDPH to publish annual report on website
National Database	• NHSN for central line-related bloodstream and surgical site infections • CMS for SCIP measures

Appropriations	None specified
Penalties for Noncompliance	Hospital permits or licenses may be denied, suspended or revoked if facilities do not comply with state law
Published Reports and Planning Documents	• Hospital Report Card Website[47] (facility comparison) • Annual CLABSI Report[48] (2009) • Organisms Involved in CLABSI Report[49] (2009) • *Clostridium difficile* in Illinois Hospitals Report[50] (1999-2008) • Methicillin-resistant *Staphylococcus aureus* (MRSA) in Illinois Hospitals Report[51] (2002-2008) • Healthcare-Associated Infections Prevention Plan (ARRA)[52]

Massachusetts

The Law

In April 2006, the General Court of the Commonwealth of Massachusetts approved and incorporated House Bill 4850, An Act Providing Access to Affordable, Quality, Accountable Health Care, into Chapter 58 of the 2006 session laws. Included within the comprehensive health care legislation was a $1 million appropriation to the Massachusetts Department of Public Health, Division of Health Care Quality to develop a Statewide Infection Prevention and Control Program in licensed health care facilities according to protocols established by the Centers for Disease Control and Prevention.

Progress

In July 2007, the Massachusetts Department of Public Health and the Betsy Lehman Center for Patient Safety and Medical Error Reduction convened a panel[53] of more than three dozen experts and key stakeholders to make recommendations for a statewide infection prevention and control program, which may include health care associated infection reporting. Located within the Massachusetts Executive Office of Health and Human Services, the Betsy Lehman Center[54] is a clearinghouse for development, evaluation and dissemination of best practices for patient safety and medical error reduction. Between July 2007 and January 2008, the expert panel considered input from both local and national experts and released a report[55] outlining 15 recommendations[56] related to HAI reporting for consideration by the Massachusetts Department of Public Health.

The expert panel recommended that hospitals track CLABSIs and SSIs and proposed a tiered reporting system under which the Massachusetts Department of Public Health collects some data for public view and the Betsy Lehman Center collects other data for validation studies prior to release. The Betsy Lehman Center was selected as an intermediary for reporting due to an existing legal requirement[57] that information collected by or reported to the center is to be confidential and not subject to subpoena. Finally, the panel recommended that hospitals report hospital-acquired infection data through the NHSN.

Based on the expert panel's recommendations, the Massachusetts Department of Public Health issued Circular Letter: DHCQ 08-02-482[58] that requires acute care hospitals to report CLABSIs in intensive care units and SSIs related to vaginal and abdominal hysterectomies, knee arthroplasties, hip arthroplasties, and coronary artery bypass grafts. The Massachusetts Department of Health amended hospital licensing regulations in Chapter 105, Section 130 of the Code of Massachusetts Regulations to require hospitals to register with the NHSN by April 2008 and to begin submitting the required data by July 2008.

In August 2009, the Massachusetts Department of Public Health, through Circular Letter: DHCQ 09-09-516,[59] advised all acute care hospitals that, effective July 1, 2009, all HAI measures, including those previously reported to the Betsy Lehman Center, would be reported to the Department of Public Health for future public reports. On April 14, 2010, the Department of Public Health issued its first full report on data collected from the state's 73 acute care hospitals from July 1, 2008, through June 30, 2009. In only two cases were infection rates statistically higher than the national average.

ARRA Funding

In August 2009, the Massachusetts Department of Public Health received nearly $1.6 million in funding from the ARRA to create a statewide HAI prevention plan, facilitate hospital participation in NHSN and support collaboratives that provide peer-to-peer learning opportunities for facilities about preventing and reducing HAI (All three ELC activities are funded through ARRA). With this funding, the Department of Public Health plans to extend and expand reporting requirements to include new facilities as well as multi-drug-resistant organism infections. It also will perform validation studies of CLABSI data reported through NHSN. The Department

of Public Health has contracted with the Massachusetts Coalition for the Prevention of Medical Errors[60] to administer two prevention initiatives designed to reduce CLABSI and MDRO infections.

Massachusetts HAI Law and Policy	
Reporting Law(s)	Chapter 58 of the 2006 Session Laws[61] Chapter 105, Section 130 of the Code of Massachusetts Regulations[62]
Entities Required to Collect Data/Report	All acute care hospitals
Required Categories for Reporting	• CLABSIs • SSIs as a result of selected orthopedic, cardiac and gynecological procedures • Influenza vaccinations of hospital employees
Report to which Agency	Massachusetts Department of Public Health Division of Health Care Quality
National Database	National Healthcare Safety Network (NHSN)
Appropriations	Initial appropriation of $1 million
Penalties for Noncompliance	Termination of licensure or civil penalty of up to $1,000 per violation per day
Published Reports and Planning Documents	• Annual report[63] (April 2010) • Preliminary report[64] (April 2009) • Healthcare-Associated Infections Prevention Plan (ARRA)[65]

New Hampshire

The Law

In 2006, the New Hampshire legislature passed House Bill 1741 to establish a HAI reporting program within the Department of Health and Human Services (DHHS). The law requires hospitals to report to DHHS rates of central line-related bloodstream infections, ventilator-associated pneumonia (VAPs), surgical site infections (SSIs) and, once reporting protocols are developed, other infections, including healthcare-acquired urinary tract infections (UTIs). By law, DHHS must be able to identify the specific infectious agents and site of each infection, the location within the hospital where the infection occurred, the patients' initial diagnosis and the treatment performed. The law also requires hospitals to report on other measures, including adherence rates for standard central line insertion practices, surgical antimicrobial prophylaxis, and influenza vaccination rates for health care providers and patients. DHHS is responsible for receiving data from hospitals no more often than every three months.

The Department of Health developed data validation and risk-adjusted reporting methods in accordance with regionally and nationally recognized experts in infection identification and prevention organizations, including the CDC, the Joint Commission, the NHSN, and the New Hampshire Health Care Quality Assurance Commission (an entity established by the legislature in 2005).

The law established the first six months of the data submission as a pilot reporting phase during which hospital data remains anonymous for quality assessment purposes. Following this preliminary stage, all entities were required to report. A separate law passed in 2008 gave DHHS the ability to fine noncompliant hospitals up to $1,000 per day.

DHHS created a statewide database that included hospital identifiers to allow data comparison among facilities and to statewide, regional and, if available, national averages. In addition, DHHS publishes online a report that provides both risk-adjusted and non-risk-adjusted hospital-acquired infection rates at individual hospitals and analyzes trends in infection prevention and control. If the commissioner is unable to validate the data, DHHS is not required to identify hospitals in the information for public release. Finally, the commissioner must report on program progress quarterly to the state's Legislative Oversight Committee on Health and Human Services.

Progress

The New Hampshire Department of Health and Human Services elected to use the NHSN. On Jan. 1, 2009, DHHS required the state's 31 hospitals—including acute care facilities, rehabilitation centers and psychiatric care facilities—to comply with the law where applicable. With financial support from the Foundation for Healthy Communities, DHHS provided to hospitals one-day training in infection control, quality and use of NHSN.

In early 2009, DHHS created a Technical Advisory Workgroup, which consisted of 13 representatives from hospitals, infection prevention organizations, the Department of Health and the New Hampshire Healthcare Quality Assurance Commission. The Technical Advisory Workgroup first met in June 2009 and is scheduled to meet twice per year.

In July 2009, DHHS provided its first report to the Legislative Oversight Committee on Health and Human Services as required by law. The report included only process measures, however, because the department had not yet received enough funding to validate and standardize infection outcome data or to produce risk-adjusted data. Influenza vaccination coverage varied by hospital—from 28 percent to 82 percent—with 10 hospitals reporting vaccination rates that were significantly higher than the national average of 40 percent and 12 reporting significantly lower rates. In addition, standard central line insertion practices were observed 92 percent of

the time; intravenous administration teams and medical fellows demonstrated the highest and lowest adherence rates, respectively. The Department of Health planned to publish its first public report in June, 2010.

Through 2009, limited HAI data and financial resources have hindered DHHS from planning HAI prevention strategies. Recently, however, DHHS received $737,551 in ELC funding from the CDC through the ARRA. It will hire personnel to coordinate infection reporting, data validation and prevention efforts across the state over the next few years. The New Hampshire Healthcare Quality Assurance Commission established under separate legislation already offers various patient safety programs for hospitals. Included are "High Five for a Healthy New Hampshire," which monitors and promotes hand hygiene among health care staff; a World Health Organization Universal Protocol Safety Checklist for Surgical Care; and a two-year program developed by researchers at Johns Hopkins University to reduce instances of CLABSIs. Integrating DHHS' reporting initiative with such efforts is designed to improve the range and quality of data and maximize its resourcefulness for comprehensive HAI prevention planning. Although the state's 26 acute care facilities participate in the high-five program, for example, hand hygiene data is not always standardized, so it cannot be compared statewide or correlated with outcome data. To fully fund the HAI reporting program once ARRA funds expire, the legislature passed HB 433 in July 2009; it requires DHHS to develop a fee schedule for hospitals based on inpatient census.

New Hampshire HAI Law and Policy	
Reporting Law(s)	House Bill 1741[66] Approved June 15, 2006 Effective July 1, 2007
Entities Required to Collect Data/Report	Licensed hospitals
Advisory Committee	Consult with technical advisors who have regionally or nationally acknowledged expertise in prevention and control of infections/diseases to develop risk adjustment methodologies
Report What Agent/s	N/A

Infections for Reporting	• CLABSIs
	• VAPs
	• SSIs
	  ○ Coronary artery bypass graft procedures
	  ○ Colon surgery
	  ○ Knee arthroplasty

Process Measures for Reporting	• Adherence rates of central line insertion practices • Surgical antimicrobial prophylaxis • Coverage rates of influenza vaccination for health care personnel and patients/residents
Report to which Agency	DHHS
Frequency of Reports	• Annual public reports (if data meet validity standards) • Every six months to the Legislative Oversight Committee on Health and Human Services
National Database	• NHSN for outcome data and central line insertion practices • SCIP for surgical antimicrobial prophylaxis
Appropriations	No initial appropriation, but HB 433[67] of 2009 instructed DHHS to adopt a fee schedule for hospitals to fully fund the program requirements
Penalties for Noncompliance	Up to $1,000 per day per hospital
Published Reports and Planning Documents	• Initial report to legislature[68] (July 2009) • Healthcare-Associated Infections Prevention Plan (ARRA)[69]

Oregon

The Law

In July 2007, the Oregon legislature passed House Bill 2542, which requires the Office for Oregon Health Policy and Research (OHPR) to administer a health care facility-acquired infections reporting program. Although the program applies to hospitals, long-term care facilities, ambulatory surgical centers, freestanding birthing centers or outpatient renal dialysis facilities, OPHR was authorized to establish different reporting requirements for each type of facility. Under the law, OPHR would determine methodological reporting specifications by July 1, 2008, so reporting could begin by January 2009.

H.B. 2542 does not indicate which measures facilities must report, but suggests a combination of process and outcome measures, including rates of SSIs,CLABSIs and CAUTIs. To prevent duplicate reporting by facilities, the law recommends aligning data reporting methods, to the extent possible, with those of the HHS and CMS.

The law establishes a 16-member Health Care Acquired Infection Advisory Committee to guide OHPR in developing and implementing the program. It also provides a categorical breakdown of the professionals OHPR must appoint, including hospital administrators, health care providers, a representative of the Department of Human Services, and consumer and business representatives. Appointees serve staggered two-year terms through Dec. 31, 2011. The bill includes a general fund appropriation of at least $201,467 for the biennium beginning in fiscal year 2007.

Progress

The Health Care Acquired Infection Advisory Committee began meeting in 2007, and OHPR approved rules on July 1, 2008. The rules required hospitals to begin reporting quarterly, through the NHSN, CLABSIs in intensive care units and SSIs associated with coronary artery bypass graft with chest incision only, coronary artery bypass graft with both chest and graft incisions, and knee prosthesis procedures. OHPR also required reporting for the following three SCIP process measures: prophylactic antibiotic received within one hour prior to incision, prophylactic antibiotic selection for surgical patients, and prophylactic antibiotics discontinued within 24 hours after surgery. Facilities must report process measures quarterly to the CMS' Reporting Hospital Quality Data for Annual Payment (RHQDAPU) program. Reporting requirements apply to services provided on or after Jan. 1, 2009. Oregon's 58 hospitals have reported the required outcome data for 2009 where applicable.

As of January 2010, Oregon expanded the program to include the following new requirements:

- Hospitals began reporting a fourth SCIP measurement (SCIP-Inf-6) on hair removal before surgery.
- Hospital neonatal intensive care units (NICUs) began reporting on healthcare-acquired infection rates to a database of the Vermont Oxford Network (VON), a nonprofit organization of more than 800 NICUs in the world.
- Long-term care facilities began reporting urinary tract infections through CMS.
- Hospitals and long-term care facilities will report health care worker rates of influenza vaccination.
- Ambulatory surgery centers will complete a survey on their use of evidence-based patient safety practices.
- Additional requirements will be issued by July 2010.

In May 2010, OHPR released its first annual report on CLABSI, SSI and SCIP data.

ARRA Funding

Oregon was recently awarded $724,228 in ELC funds from ARRA to hire the following staff:

- HAI program coordinator within OHPR to focus HAI reporting and prevention planning activities across the state.
- HAI epidemiologist within the Oregon Public Health Division (OPHD) to help with data validation.
- Collaborations manager within the Oregon Patient Safety Commission (OPSC)[70] to help develop evidence-based prevention collaboratives across the state. OPSC is a semi-independent state agency created by the legislature in 2003 to reduce the risk of serious adverse events in Oregon's health care system and to develop a culture of patient safety within health care facilities.

In late 2009, Oregon hired all three staff and is making progress on proposed activities.

Statewide Healthcare-Associated Infection Prevention Planning

Using the ARRA funding, OHPR submitted a statewide Action Plan to Prevent HAIs to the Centers for Disease Control and Prevention in January 2010, and the advisory committee will soon vote on how to expand the HAI reporting requirements in accordance with the plan. Among the options are: 1) mandatory reporting of infections associated with additional surgical procedures by January 2012; 2) mandatory reporting of MDROs through NHSN beginning January 2012; and 3) the development of measures to assess each hospital's use of best practices in infection prevention.

At the January meeting of the advisory committee, six people testified on behalf of hospitals. They expressed concern about the additional burden that might be placed on hospitals by expanded NHSN reporting requirements. A common theme was that additional NHSN data entry might keep those who work to prevent infection from engaging hospital staff in actual prevention activities, thus reversing progress in reducing HAIs. Those testifying offered several suggestions for improving the HAI reporting program.

- Building reporting requirements on risk assessments hospitals already perform.
- Establishing a minimum threshold for reporting, so hospitals do not expend significant resources on reporting if denominators are too small for the data to be viable or helpful for prevention. Developing the capability for electronic transfer of data from laboratories to NHSN before expanding reporting requirements.
- Establishing data validation methods before expanding reporting requirements.
- Adopting a less burdensome but still viable reporting mechanism.

In response to the testimony, the Advisory Committee formed a workgroup to collaborate with hospitals and further explore these alternatives.

Data Validation

The HAI epidemiologist hired under the ARRA grant is conducting a CLABSI validation pilot study with four hospitals that will later be expanded to more than 30 facilities. OPHD staff will visit hospitals and compare laboratory data to that reported in NHSN. Validating surgical site infection data is not feasible at this time. It would involve following patients for a length of time and searching for data in many places— for example, visiting pharmacies and calling surgeons. Based on discussions with other states, OPHD found no standard

protocol for validating SSIs. Given that Oregon's reported SSI rates are lower than expected, however, OPHD hopes to pioneer development of such methods in collaboration with infection control personnel from across the country.

Evidence-Based Prevention Collaboratives

OPSC is beginning to develop a prevention collaborative that will work directly with hospital staff to reduce hospital-acquired infections. OPSC will recruit at least 10 hospitals to participate, and the collaborative will meet biannually for two years beginning in May. OSPC is forming a technical advisory board to establish goals and targets for the collaborative.

In the May report, OPHR notes that, while the first public report represents a step toward eliminating HAIs, future program expansions that include new infection types and facilities will provide a more comprehensive depiction of HAIs in the state. OPHD staff adds that program funding is essential to ensuring that trained prevention specialists do not spend their time on administrative data entry.

Oregon HAI Law and Policy	
Reporting Law(s)	• House Bill 2524[71] Passed June 2007 Effective July 1, 2007 • OAR 409-023-0000 through 409-023- 0035: HAI Reporting and Public Disclosure Rules, February 2010[72]
Entities Required to Collect Data/Report	Hospitals (long-term care facilities, ambulatory surgical centers, freestanding birthing centers and outpatient renal dialysis facilities included in law under different reporting requirements)
Advisory Committee	Health Care Acquired Infection Advisory Committee will advise the OHPR on the Oregon HAI Reporting Program OHPR to appoint 16 members (specified in law), including: • Seven health care providers • Nine representatives from consumer, academic, government and business groups
Report What Agent/s	N/A
Infections for Reporting	• SSIs ○ Coronary artery bypass graft surgery with both chest and graft incisions ○ Coronary artery bypass graft surgery with chest incision only ○ Knee prosthesis procedures • CLABSIs in intensive care units • Urinary tract infections (long-term care facilities)

Process Measures for Reporting	• SCIP
	  ○ Prophylactic antibiotic received within one hour prior to surgical incision
	  ○ Prophylactic antibiotic selection for surgical patients
	  ○ Prophylactic antibiotics discontinued within 24 hours after surgery ends
	  ○ Appropriate hair removal before surgery
	• Hospitals and long-term care facilities will report health care worker rates of influenza vaccination.
	• Ambulatory surgery centers will complete a survey on their use of evidence-based patient safety practices.

Report to which Agency	OHPR
Frequency of Reports	• Public disclosure of facility-level and state-level hospital-acquired infection rates at least biannually in 2010 and quarterly in 2011 • Annual public reports on health care facility data beginning in 2010
National Database	• NHSN for hospital outcome data • Vermont Oxford Network (VON), a nonprofit organization of more than 800 NICUs in the world, for NICU data • CMS minimum data set nursing home resident assessment and screening tool for long-term care facility data • SCIP for process measures
Appropriations	At least $201,467 in FY 2007 from the general fund
Penalties for Noncompliance	Up to $500 per day per facility that fails to report
Published Reports and Planning Documents	• Annual Healthcare-Acquired Infections Report[73] (2009) • Healthcare-Associated Infections Prevention Plan (ARRA)[74]

Pennsylvania

The Law

Pennsylvania has a long history of collecting and publicly sharing data related to patient safety, cost and healthcare-associated infections. As early as 1986, under Act 89, the Pennsylvania Health Care Cost Containment Council was formed to collect comparative information about health care providers. The information, including discharge and cost data, was to be used by consumers, group health services purchasers and providers to identify opportunities to contain costs and improve quality of care.

In 1998, the Pennsylvania Department of Health amended Chapter 51 of the hospital regulations to require health care facilities—ambulatory surgical facilities, general hospitals, specialty hospitals, long-term care nursing facilities, birth centers, home health care agencies and cancer treatment centers—to collect data on "serious events," including sepsis, deaths due to injuries or unusual circumstances, medication errors, wrong site surgery and patient abuse.

Building on serious event reporting, the General Assembly passed the Medical Care Availability and Reduction of Error Act[75] (Act 13; HB 1820) that, among other provisions, established the Patient Safety Authority. This independent state agency is charged with reducing and eliminating medical errors by identifying problems and recommending solutions that promote patient safety in health facilities. Although the authority's role is nonregulatory and nonpunitive, all health care facilities must report "serious events" and "incidents" to it. The authority operates with dedicated funding, separate from the general fund, called the Patient Safety Trust Fund. Money in the fund come from an annual surcharge on licensing fees of the medical facilities required to report to the authority.

In 2005, the General Assembly passed SB 293,[76] which issued guidance to the Health Care Cost Containment Council (PHC4) to "address rapidly growing health care costs, and make publicly available and more transparent information on healthcare costs," including preventable infections. Hospitals were required to submit data on the following infection categories: 1) SSIs for orthopedic surgery, neurosurgery and surgery related to the circulatory system; and 2) all device-related infections for CLABSI infections, VAPs and indwelling CAUTIs. Beginning in January 2006, hospitals were required to submit data on all hospital-acquired infections to PHC4. Reports through 2008 are available to the public the website at www.phc4.org.

To marshal and coordinate the efforts of all relevant state agencies involved in infection reporting, the General Assembly passed The Health Care Associated Infection and Prevention Control Act (SB 968,) (Act 52[77]) in July 2007.

Major provisions in Act 52 include:

- Synchronizing infection reporting being performed by the Pennsylvania Healthcare Cost Containment Council, the Department of Health and the Patient Safety Authority by requiring all facilities to report to the NHSN. The data submitted by Pennsylvania hospitals are shared among PHC4, the Patient Safety Authority (PSA), and the Pennsylvania Department of Health (PADOH).

- Requiring health care facilities to develop infection prevention and control plans. Plans were to be submitted to the Department of Health no later than December 2007 and were to include a multidisciplinary committee from the health facility; identification of effective measures for detection, control and prevention of HAIs; surveillance protocols; a system to identify patients colonized or infected with MRSA or other MDRO; and procedures for distribution of patient safety advisories issued by the Patient Safety Authority.

- Requiring hospitals to report (no later than February, 2008) HAI data to the CDC through the NHSN.
- Requiring nursing homes to electronically report healthcare-associated infection data to the Department of Health and the Patient Safety Authority using CDC definitions.
- Implementing electronic surveillance systems in hospitals (no later than Dec. 31, 2008). Hospitals must implement a qualified electronic surveillance system, or comply with the applicable provision of the act if the facility has conducted a strategic assessment that demonstrates such systems are not clinically effective.
- Requiring the Department of Health to develop a public awareness campaign on healthcare-associated infections to provide information to the public on causes and symptoms of hospital-acquired infections, diagnosis and treatment, prevention methods and proper use of antimicrobial agents.
- A detailed description of the responsibilities and authority of the Healthcare Cost Containment Council, the Department of Health and the Patient Safety Authority.
- Clarifying penalties for health care facilities that fail to report healthcare-associated infections, and for facilities that fail to develop, implement and comply with its infection control plan. The penalty imposed under The Health Care Facilities Act is $1,000 per day.

Progress

The Healthcare Associated Infection Prevention Section (HAIP) was created to execute the Department of Health's responsibilities, as outlined by the Act 52. Among other things, the HAIP is responsible for reviewing and becoming familiar with ambulatory surgical center, nursing home and hospital infection control plans to ensure key protocol is addressed as mandated by Act 52; evaluating practical application and execution of infection control plans within health care facilities; consulting with facility infection control practitioners; establishing benchmarks for reduction of HAIs and evaluating facility eligibility for quality improvement payments; monitoring facility HAI reporting, performing data analysis and correlating ICP protocol and on-site observation with infection rates; pairing poorer performing facilities with better performing facilities to form mentoring relationships; identifying practices that are correlated with low infection rates and making this data available to facility practitioners in the form of practice statements and advisories; and developing and implementing community awareness programs.

In 2008, hospitals began reporting HAIs to the Department of Health, and in January 2010, the first infection report was released. The report includes HAIs for each hospital, emphasizing two infection types: CAUTIs and CLABSIs. These infection types were included as benchmarks. Future reports will analyze the patterns of SSIs, including: hip and knee prosthesis; abdominal hysterectomies; cardiac surgery, other than, transplant or pacemaker implant; coronary bypass with chest and donor incisions; and coronary bypass with chest incision only.

The transition to NHSN was motivated in part by the desire for more "clinically meaningful data." Before passage of Act 52, the Patient Safety Authority, the Healthcare Cost Containment Council and the Department of Health all collected data for various purposes; for example, the Healthcare Cost Containment Council used data for financial analysis.

Stakeholders (Department of Health, PHC4, the Hospital and Healthcare Association) unanimously agreed that Pennsylvania's long history of focusing on cost containment and patient quality "set the stage" for the current paradigm of hospital-acquired infection data collection and reporting. In addition, Act 52 was considered a "well-thought out piece of legislation" that followed an evolution of reporting and has taken "monitoring to the next level of accountability."

Pennsylvania HAI Law and Policy	
Reporting Law(s)	Act 52 of 2007; Amends SB 293 (2005)[78]
Entities Required to Collect Data/Report	• Hospitals • Ambulatory surgical centers • Birthing centers • Nursing homes
Advisory Committee	Consult with technical advisors who are regionally or nationally acknowledged as experts in infection/disease prevention and control to develop risk adjustment methods
Report What Agent/s	• MRSA • MDRO
Infections for Reporting	• SSIs • CAUTIs • VAPs • CLABSIs
Process Measures for Reporting	• Adherence rates of central line insertion practices • Surgical antimicrobial prophylaxis • Coverage rates of influenza vaccination for health care personnel and patients/residents
Report to which Agency	• Department of Health • The Pennsylvania Healthcare Cost Containment Council • The Pennsylvania Patient Safety Authority
Frequency of Reports	Quarterly reports
National Database	NHSN – data available to the DOH, Healthcare Cost Containment Council and the Patient Safety Authority
Appropriations	The council is funded from the Pennsylvania state budget and revenue from sale of its data to health care stakeholders around the state, the nation and the world
Penalties for Noncompliance	$1,000 per day
Published Reports and Planning Documents	• Healthcare-Associated Infections (HAI) in Hospitals (2008)[79] • Healthcare-Associated Infections Prevention Plan (ARRA)[80]

Washington

The Law

In May 2007, the Washington Legislature passed House Bill 1106, requiring hospitals to report to the Department of Health cases of CLABSIs in intensive care units by July 2008; VAPs by January 2009; and SSIs for deep sternal wounds associated with coronary artery bypass graft, total hip and knee replacement surgeries, and abdominal and vaginal hysterectomies by January 2010. The Legislature selected such measures after determining that these infections carried the highest probability of damage and death. The NHSN was designated as the reporting mechanism to ensure a national standard for data quality and comparability.

The Department of Health is responsible for overseeing the HAI program and conducting regular evaluations of the quality and accuracy of the data and methods used to generate it. The department can recommend additional reporting requirements or delete, by rule, requirements it deems no longer are necessary to protect public health and safety. To guide implementation, the department must establish an advisory committee, which may represent infection control professionals, epidemiologists, health care providers and facilities, health maintenance organizations, payers, consumers and the state Department of Health.

Beginning in December 2009, the department must publish annual reports comparing validated hospital-acquired infection rates at individual hospitals on its website, which may be updated quarterly. In January 2011, the department must report to the Legislature on program progress and recommendations for additional reporting requirements. The law also requires hospitals to address infections through their existing quality improvement programs, which are statutorily required committees within each hospital that review negative health care results and coordinate education and prevention programs for diverse patient safety issues. The State Department of Health, the Joint Commission and other accrediting organizations may review quality improvement program activities in conjunction with hospital inspections.

The Department of Health received $571,000 in fiscal year 2008 and $458,000 in fiscal year 2009 to implement the hospital-acquired infections reporting program.

Progress

All licensed acute care hospital infections in the Washington currently report the required data on CLABSIs and VAPs. The department's website comparing CLABSI and VAP rates among individual hospitals went live in January 2010. Although the report does not analyze statewide trends, it provides tables that highlight hospitals where rates are in significant excess of the state's average and includes notes about corrective actions being taken. According to one official, the department was able to meet program deadlines with the help of the advisory committee's technical expertise, since infection reporting was new to administrators.

Although the law required hospitals to begin reporting surgical site infections by Jan. 1, 2010, hospitals have had difficulty meeting this benchmark SSI reporting is more labor-intensive than the other two measures; it requires extensive denominator data entry for various types of procedures. In particular, entering surgical site infections for sternal wounds involves separate data entry for roughly 77 codes, while other infections require inputting only five to seven codes. Hospital staff also cited system bugs and crashes and challenges setting up the digital certificate.

In response to the state's concerns, the CDC will reconfigure the SSI reporting mechanism to allow aggregate denominator data entry. In the meantime, the Legislature passed House Bill 2828,[81] which allows hospitals to submit SSI data to the Washington State Hospital Association's quality benchmarking system until NHSN is updated. Surgical site infection data will be reported later in 2010.

The state currently is validating reported data by 1) ensuring that hospitals have not changed the department's rights to view NHSN data, 2) confirming that hospitals have reported the required data each reporting period, 3) identifying instances where hospital data falls outside reasonable ranges for similarly situated facilities nationwide, and 4) identifying inconsistencies within hospitals over time. Recovery Act funds also support a pilot project that compensates hospitals $10,000 for performing a simple accuracy check and for maintaining hospital infection control programs during the economic downturn. Funding constraints prohibit officials from visiting hospitals individually to check for accuracy.

The law does not contain any monetary penalties should a hospital decline to participate in the reporting process; however, acute care hospitals cannot receive a license if they do not comply with state law. As an alternative, later in 2010 state surveyors and JCAHO inspectors will begin random, more detailed spot checks to see if hospital-acquired infection cases are adequately measured and reported.

The Washington State Hospital Association believes that data are helpful for the public, but notes that Washington hospitals were actively engaged in voluntary infection prevention and control before the reporting law passed. In 2005, hospitals set a goal of eliminating hospital-acquired infections by 2012 and, through the Washington Hospital Association, created *Eliminating Hospital Acquired Infections Safe Table,*[82] a process that enabled facilities to learn about the latest hospital-acquired infection prevention research and strategies and to share data with their peers in a confidential setting. Each hospital in the state has participated in at least one meeting. In addition, the Hospital Association has helped hospitals implement the World Health Organization's Safe Surgery Checklist,[83] which is used by more than 80 percent of the state's hospitals and is being adopted by most of the rest. Since *Safe Table* began, hospitals have lowered overall CLABSI rates to less than one percent, and Washington's hospital-acquired infection rates are among the lowest in the nation, according to the association. The association currently is asking the Legislature to support mandatory flu immunizations for hospital staff to ensure that progress is not reversed.

Washington HAI Law and Policy	
Reporting Law(s)	House Bill 1106[84] Passed May 2, 2007 Effective July 22, 2007
Entities Required to Collect Data/Report	Licensed hospitals
Advisory Committee	Department establishes advisory committee that may include infection control professionals, providers, nursing staff, organizations, HMOs, payers and consumers, and the Department of Health
Infections for Reporting	• CLABSIs in intensive care units–by July 1, 2008 • VAPs –by Jan. 1, 2009 • SSIs–by Jan. 1, 2010 o Deep sternal wound for cardiac surgery (including coronary artery bypass graft) o Hysterectomy (abdominal and vaginal) o Total hip/knee replacement
Process Measures for Reporting	N/A
Report to which Agency	Washington Department of Health
Frequency of Reports	Annual public report beginning Dec. 1, 2009 (if data deemed acceptably valid)
National Database	NHSN
Appropriations	$571,000 for FY 2008 and $458,000 for FY 2009 from state's general fund
Penalties for Noncompliance	None specified in law
Published Reports and Planning Documents	• Healthcare-Associated Infections (HAI) Website[85] (Compares hospital data from 2009) • Healthcare-Associated Infections Prevention Plan (ARRA)[86]

Table 3. State HAI Laws and Policies

State	Year Initial Reporting Law Passed	NHSN Selected for Reporting at least One Infection Type	Non-Hospital Facilities Required to Report at least One Infection Type	Infection Types to Report				First Public Report of Facility-Specific HAI Rates Released or Expected
				CLABSIs	SSIs	CAUTIs	VAPs	
Alabama	**2009**	✓		✓	✓	✓		**TBD**
Colorado	**2007**	✓	✓	✓	✓			**2009**
Delaware	**2007**	✓	✓	✓				**2009**
Illinois	**2003**	✓	✓	✓	✓		✓	**2010**
Massachusetts	**2006**	✓		✓	✓			**2010**
New Hampshire	**2006**	✓		✓	✓		✓	**2010**
Oregon	**2007**	✓	✓	✓	✓	✓		**2010**
Pennsylvania	**2005**	✓	✓	✓	✓	✓	✓	**2010**
Washington	**2007**	✓		✓	✓		✓	**2010**

Source: NCSL, 2010.

Glossary

Data validation is the process of checking the reported healthcare-associated infection data for accuracy, for example, by reviewing facilities' laboratory records.

Clostridium difficile infection (CDI) is a bacterial infection that causes diarrhea and more serious intestinal conditions such as colitis, sepsis and occasionally death.

Central line related bloodstream infection (CLABSI) is a serious bloodstream infection associated with the insertion of a central vascular catheter.

Healthcare-associated infection, also called a nosocomial infection, is an infection that patients acquire during the course of receiving treatment for other conditions within a health care setting or facility. Infections are considered nosocomial if they first appear 48 hours or more after hospital admission or within 30 days after discharge. The terms healthcare-associated infection, hospital-acquired infection and nosocomial infection are often used interchangeably.

Health care facility includes acute care hospitals, long term acute care hospitals, psychiatric hospitals, rehabilitation hospitals, outpatient dialysis centers, ambulatory surgery centers, and long term care facilities and midwifery centers.

Hospital-acquired infection is an infection acquired during the course of receiving treatment for other conditions within a hospital. The terms healthcare-associated infection, nosocomial infection and hospital-acquired infection are often used interchangeably.

Methicillin-resistant Staphylococcus aureus (MRSA) is an often fatal type of staph bacteria that does not react to certain antibiotics. MRSA normally will cause skin infections but can also cause other infections, including pneumonia.

Multi-drug resistant organism (MDRO) is a microorganism, including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE) and certain gram-negative bacilli (GNB), that is resistant to most available antimicrobial agents.

National Healthcare Safety Network (NHSN) is an internet-based surveillance system that integrates and expands legacy patient and health care personnel safety surveillance systems managed by the Division of Healthcare Quality Promotion (DHQP) at the Centers for Disease Control and Prevention. NHSN also includes a new component for hospitals to monitor adverse reactions and incidents associated with receipt of blood and blood products. Enrollment is open to all types of health care facilities in the United States, including acute care hospitals, long term acute care hospitals, psychiatric hospitals, rehabilitation hospitals, outpatient dialysis centers, ambulatory surgery centers, and long term care facilities.

Public reporting is the public disclosure by health care facilities of healthcare-associated infection rates, and other adverse events.

Process measures are related to the adherence by health facility staff to recommended health care practices, such as hand hygiene, pre-surgical protocols.

Risk adjustment is a statistical process used to identify and adjust for variation in patient outcomes that stem from differences in patient characteristics (or risk factors) across health care settings. Risk adjustment allows for the practical comparison of infection rates.

Surgical site infection (SSI) is an infection that occurs at the site of surgery within 30 days of an operation or within 1 year of an operation if a foreign body (e.g., an artificial heart valve or joint) is implanted as part of the surgery.

Catheter-associated urinary tract infection (CAUTI) is an infection of the urinary tract. Virtually all healthcare-associated UTIs are caused by instrumentation of the urinary tract, including an indwelling urinary catheter is a drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a closed collection system. UTIs are the most common type of healthcare-associated infection, accounting for more than 30 percent of infections reported by acute care hospitals.

Ventilator associated pneumonia (VAP) is defined as nosocomial pneumonia in a patient on mechanical ventilator support (by endotracheal tube or tracheostomy) for more than 48 hours.[87]

Notes

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Web sites and Web Resources

Association for Professionals in Infection Control and Epidemiology Inc. (APIC) Mandatory Reporting Webpage (includes information on state laws and pending legislation) http://www.apic.org/AM/Template.cfm?Section=Mandatory_Reporting

Centers for Disease Control and Prevention (CDC) http://www.cdc.gov/hai/

Frequently Asked Questions about Specific HAIs
http://www.cdc.gov/ncidod/dhqp/HAI_shea_idsa.html

Healthcare Infection Control Practices Advisory Committee (HICPAC)
http://www.cdc.gov/hicpac/

Healthcare-Associated Infections: Recovery Act – State Funding Map http://www.cdc.gov/HAI/recoveryact/map.html

National Healthcare Safety Network
http://www.cdc.gov/nhsn/

State Plans to Address Healthcare-Associated Infections http://www.cdc.gov/hai/HAIstatePlans.html

Centers for Medicare and Medicaid Services (CMS) Hospital-Acquired Conditions Webpage (includes information on Medicare's nonpayment for hospital-acquired conditions initiative) https://www.cms.gov/Hospital-AcqCond/

Consumers Union Safe Patient Project Webpage (includes reports on state HAI laws and model legislation from a consumer perspective) http://www.safepatientproject.org/topic/hospital_acquired_infections/

Resources for the Future Public Health Webpage (includes publications on antibiotic resistance and other topics) http://www.rff.org/Research_Topics/Pages/Public_Health.aspx.

Society for Healthcare Epidemiology of America Inc. (SHEA) Public Policy Webpage (includes model legislation and other resources on the public reporting of HAIs) http://www.shea-online.org/news/publicpolicy.cfm.

U.S. Department of Health and Human Services (HHS)

Healthcare-Associated Infections Webpage (includes information about the HHS Action Plan to Prevent HAIs) http://www.hhs.gov/ophs/initiatives/hai/.

Medicare Hospital Compare Website (compares hospitals on quality of care, including several process measures) http://www.hospitalcompare.hhs.gov/.