

PART 1: EXECUTIVE SUMMARY, METRICS, AND GOALS

I. INTRODUCTION

A. Magnitude of the Problem

Health care-associated infections (HAIs) are infections that people acquire while they are receiving treatment for medical or surgical conditions in a health care setting. HAIs can be acquired anywhere health care is delivered. Hospital-acquired HAIs are among the leading causes of death in the United States. At any given time, about one in every 20 hospitalized patients has an HAI, while over one million HAIs occur across health care every year. Hospital-acquired HAIs alone are responsible for \$28 billion to \$33 billion in potentially preventable health care expenditures annually. Scientific evidence has shown that certain types of HAIs can be drastically reduced to save lives and avoid excess costs.

B. Context of the Executive Summary

The information that is to follow should be used along with the Framework of the *National Action Plan to Prevent Health Care-Associated Infections: Road Map to Elimination* (HAI Action Plan). While the Executive Summary provides brief summaries of the first eight chapters of the HAI Action Plan, enumerates the HAI Action Plan national measures and goals, and introduces key concepts important to the overall HAI prevention initiative, the Framework expands on these key concepts. The Framework also provides additional details complementary to those in the Executive Summary. Both documents are intended for public health professionals, clinicians, advocates, and policy makers. Chapters Five through Eight of the HAI Action Plan, which are categorized by Phases according to the health care setting or focus and time of development, can be used as stand-alone documents for stakeholders involved in the control and prevention of HAIs in that specific setting or focus area.

C. A National Focus on Improving Health Care Quality

To coordinate HAI prevention efforts across the U.S. federal government, a senior-level Steering Committee for the Prevention of Health Care-Associated Infections was established in 2008. Members of the Steering Committee include clinicians, scientists, and public health leaders from the:

- U.S. Department of Health & Human Services (HHS):
 - Agency for Healthcare Research and Quality (AHRQ)
 - Administration for Community Living (ACL)
 - Centers for Disease Control and Prevention (CDC)
 - Centers for Medicare & Medicaid Services (CMS)
 - Food and Drug Administration (FDA)
 - Health Resources and Services Administration (HRSA)
 - Indian Health Service (IHS)
 - National Institutes of Health (NIH)

- HHS Office of the Secretary (OS)
 - Office of the Assistant Secretary for Health (OASH)
 - National Vaccine Program Office (NVPO)
 - Office of Disease Prevention and Health Promotion (ODPHP)
 - Office of the Assistant Secretary for Planning and Evaluation (ASPE)
 - Office of the National Coordinator for Health Information Technology (ONC)
- U.S. Department of Defense (DoD)
- U.S. Department of Veterans Affairs (VA)

Given the substantial breadth and depth of HAIs, the Steering Committee decided to take a phased approach when developing the *National Action Plan to Prevent Health Care-Associated Infections: Roadmap to Elimination*. The initial HAI Action Plan was released in 2009 with a focus on HAI prevention in acute care hospitals, referred to as Phase One of the HAI Action Plan. Phase One addresses the most common infections in acute care inpatient settings and outlines specific recommended clinical practices, a prioritized research agenda, an integrated information systems strategy, policy options for linking payment incentives or disincentives to quality of care and enhancing regulatory oversight of health care facilities, and a national messaging and communications plan to raise awareness of HAIs among the general public and prevention strategies among health care workers. Experts and other stakeholders set five-year (by the end of 2013) HAI reduction goals or targets in the HAI Action Plan and identified metrics and accompanying measurement systems to assess progress towards the reduction of specific HAIs and adherence to recommended prevention practices (see section V below).

Following the release of the 2009 HAI Action Plan, the Steering Committee expanded its scope to include both the outpatient setting and the role of health care personnel (HCP) in ensuring optimal patient outcomes, referred to as Phase Two. Chapters developed for Phase Two include:

- (1) Prevention of HAIs in Ambulatory Surgical Centers (ASCs);
- (2) Prevention of HAIs in End-Stage Renal Disease (ESRD) Facilities; and
- (3) Increasing Influenza Vaccination Coverage of HCP.

Following the release of the Phase Two chapters, the Steering Committee's Long-Term Care Facilities (LTCFs) Working Group developed and released the LTCFs Chapter, which focuses on promising practices in infection control in nursing homes and skilled nursing facilities. In the HAI Action Plan, LTCFs is also referred to as Phase Three.

In April 2011, HHS launched the Partnership for Patients: Better Care, Lower Costs, a public-private initiative designed to improve the quality, safety, and affordability of health care for Americans. The first major goal of the Partnership for Patients is to keep patients from getting injured or sicker during the course of their care. Specifically, the initiative aims to decrease preventable hospital-acquired conditions by 40% compared with the 2010 rate. Achieving this goal would result in 1.8 million fewer injuries to patients and more than 60,000 lives saved over three years.

By implementing broad multiyear programs to significantly reduce harm in hospitals and reduce hospital readmissions through improved care and coordination across health care settings, the Partnership for Patients initiative carries out the broad aims of the National Strategy for Quality Improvement in Healthcare or the National Quality Strategy. The National Quality Strategy, authorized by the Affordable Care Act, is a plan to improve the delivery of health care services, achieve better patient outcomes, and improve the health of the U.S. population through the coordination of public and private sector activities.

The Partnership for Patients is committed to addressing all forms of harm that can affect patients in hospitals. As a starting point, the Partnership for Patients has identified nine areas of focus, including four HAIs: catheter-associated urinary tract infections (CAUTI), central line-associated bloodstream infections (CLABSI), surgical site infections (SSI), and ventilator-associated pneumonia (VAP). The reduction goals and timeline of the HAI Action Plan align with those of the Partnership for Patients. Whereas the Partnership for Patients focuses on acute care hospital settings, the HAI Action Plan extends its prevention efforts to other health care settings. Under the Partnership for Patients umbrella, the HAI Action Plan is anticipated to contribute to substantial increases in patient safety and health care quality according to an escalated timetable, thereby achieving both human and economic cost savings.

As demonstrated by the National Quality Strategy and the Partnership for Patients, HHS increasingly looks to its multidisciplinary and multi-sector partners to co-develop and amplify key messages, increase the adoption of recommended practices, and serve as local, state, regional, and national leaders in a coordinated effort to eliminate HAIs. Achievement of the goal of eliminating preventable infections will provide significant advancement for the Partnership for Patients.

D. Changing Landscape of HAI Prevention

This section highlights some of the accomplishments and successes in the field of HAI prevention seen over the last few years. Particularly notable items:

- Decreases in the national incidence of CLABSI, invasive methicillin-resistant *Staphylococcus aureus* (MRSA) infections, SSI, and CAUTI. For additional data regarding progress toward accomplishing the HAI Action Plan goals, please go to the HHS HAI Initiative page, <http://www.hhs.gov/ash/initiatives/hai/nationaltargets/index.html>.
- Investment in HAI research has increased, including in the field of implementation science. In addition, the Steering Committee's Research Working Group, chaired by AHRQ, and CDC's Prevention Epicenter research network have addressed priority gaps in prevention knowledge.
- More than 11,000 health care facilities have enrolled in CDC's National Healthcare Safety Network (NHSN) as of November 2012. CMS now requires health care facilities to report HAI Action Plan data to NHSN to fulfill CMS quality reporting requirements.
- The Comprehensive Unit-based Safety Program (CUSP) demonstrates how a structured strategic framework for safety can result in dramatic improvements in patient care. The approach was designed to improve the culture of safety and help clinical teams learn from mistakes by integrating safety practices into the daily work of a unit or clinical area.

Hospitals adopting this approach in their intensive care units (ICUs) have achieved significant reductions in CLABSI. The more than 1,000 adult ICUs that participated in AHRQ's nationwide CUSP for CLABSI project reduced the rate of CLABSI by 41%, prevented more than 2,100 of these infections, saved more than 500 lives, and avoided more than \$36 million in excess costs. AHRQ is currently expanding this effort to the prevention of other forms of HAIs, as well as to patient care areas of the hospital other than ICUs.

- To ensure that the HAI Action Plan is truly representative of the needs of the many partners and participants in the national effort to prevent HAIs, each of HHS' component Operating and Staff Divisions sponsored and/or conducted numerous activities in conjunction with OASH to ensure an on-going and vibrant dialogue with the many communities within public health and health care, as well as consumers.
- Funding made available by Congress created opportunities for strengthening and building the state-level infrastructure for HAI prevention. These programs enhanced state capacity to reduce and prevent HAIs, focusing on the HAI Action Plan goals, as well as enhanced state health department capacity to inspect ambulatory surgical centers.
- A three-year independent evaluation of the HAI effort has been conducted regarding the impact of the HAI Action Plan. The iterative, longitudinal, and comprehensive evaluation uses context, input, process, and product evaluations to measure the effectiveness of the initiative in reducing HAIs nationwide. A report summarizing initial recommendations is available: Longitudinal Program Evaluation of the Health Care-Associated Infections (HAI) HHS Action Plan Year 1 Report (September 2010).

E. Ten Themes for Translating Strategy to Action

No one, simple formula will lead to the prevention and elimination of HAIs in every setting and every facility and for every patient. However, well-established strategies to prevent and eventually eliminate HAIs have been tested and proven. These strategies include actions taken during patient care in the clinic and at the bedside; actions taken by executives, managers, and administrators of facilities and health systems; and broad-based system changes that involve focused and concerted efforts by everyone. Ten key strategies for preventing HAIs, identified at the 2010 Progress Toward Eliminating Health Care-Associated Infections meeting, are:

Frontline Clinicians

- Reducing Inappropriate/Unnecessary Device Use
- Improving Adherence to Hand Hygiene and Barrier Precautions
- Implementing and Improving Antimicrobial Stewardship

Clinical Leaders, Executives, and Administrators

- Demonstrating Leadership Support at the Highest Levels of the Facility
- Implementing a Culture of Safety

Government, Advocates, Clinical Leaders, and Administrators

- Enhancing Financial Incentives and Regulatory Oversight
- Implementing System-Based Approaches/Protocols/Checklists
- Achieving Better Use of Technology
- Improving Public Reporting of Credible Data
- Enhancing Traditional and Non-Traditional Partnerships

II. PHASE ONE: ACUTE CARE HOSPITALS CHAPTER SUMMARIES

A. Research

Since the first publication of the HAI Action Plan, the Steering Committee’s Research Working Group has brought about a more coordinated and aligned approach to HAI research across the HHS Operating and Staff Divisions including AHRQ, CDC, CMS, and NIH. Through this ongoing collaboration, the group has discussed the most effective approaches to address identified gaps in the existing HAI knowledge base.

Significant investments in all four research areas — basic and/or laboratory science, epidemiology, infection control interventions, and implementation science — have been made by these agencies. Funding awards have been made for research to prevent HAIs, through investigator-initiated research and grants, as well as contracts for specific priority projects; these efforts are described in detail in the Research chapter of the HAI Action Plan. Additionally, career development awards have been made to investigators to support their HAI-related efforts.

Continued research is needed to address remaining HAI research gaps across all four categories of scientific investigation in the priority areas of CAUTI, CLABSI, MRSA, SSI, ventilator-associated pneumonia (VAP), and *Clostridium difficile* infections (CDI). For each of these focus areas, the chapter outlines the current state of research, as well as current gaps in knowledge and practices in each of the four research categories. A new surveillance definition of ventilator-associated events (VAE) has been developed and has begun to be used in place of the surveillance definition of VAP in NHSN beginning in 2013.

Moving forward, the Research Working Group will support efforts to address these identified gaps and current challenges and continue to coordinate research efforts across HHS and other areas of the federal government. Specifically, the group has three main objectives:

- (1) Coordinate and prioritize research efforts to reduce HAIs nationwide;
- (2) Design a plan and metrics for evaluating progress within the research domain to address HAIs; and
- (3) Serve as a contact point to communicate to external stakeholders on this issue so that federal HAI research efforts are coordinated and linked to a broader national coalition.

Research has a key role in creating a “learning” health care system; through the efforts and activities described in detail in the Research chapter, the Research Working Group is a key component in supporting efforts to become a learning health care system.

B. Information Systems and Technology

Monitoring and measuring HAIs is a critical component of the overall strategy to prevent and reduce HAIs. Advances in information technology (IT), harmonization of disparate data standards, incentive programs designed to promote the meaningful use of electronic health records (EHRs), and capabilities to connect with and integrate multiple data types and sources all provide opportunities to enhance national capacity to monitor, measure, and prevent the occurrence of HAIs.

The following goals of the Steering Committee's IT Working Group seek to leverage IT advances and are shared by federal government, state agencies, health care providers and organizations, partner organizations, and the public:

- Take full advantage of health care data in electronic form;
- Build bridges between health care information systems used for infection control, quality improvement, and patient safety;
- Collaborate among and leverage resources and programs across federal agencies and other organizations at the local, state, and national levels;
- Use IT to link health care records and extend HAI reporting; and
- Apply new tools for putting HAI prevention into practice, such as clinical decision support embedded in EHR systems.

Promoting the linking or sharing of HAI data across disparate systems in a more integrated fashion provides data for comprehensive analysis and to inform prevention strategies. Critical elements that support HAI data integration and interoperability across HHS and other systems are detailed in the IT chapter.

The IT working group supports a collaborative effort toward common goals, as outlined fully in its chapter. The Patient Safety Working Group (PSWG), coordinated by AHRQ, has played a significant role in identifying and initiating collaborations aimed at integrating HAI monitoring and measurement systems. The PSWG and IT working group share the following goals:

- *Goal A:* Establish and maintain definitional alignment and identify standardized data elements that are needed to measure HAIs across HHS agencies and encourage existing federal participation with Standards Development Organizations and the Health IT Standards Committee to ensure that gaps in the available standards are addressed;
- *Goal B:* Provide guidance to enable integration of HAI data from multiple HHS databases for the purpose of benchmarking progress in reducing HAIs;
- *Goal C:* Mobilize health information systems to help reinforce appropriate patient safety recommended clinical practices; and
- *Goal D:* Seek strategic opportunities to make varied HHS data systems interoperable to enhance understanding of HAIs.

A recently-completed federal HAI data system inventory has informed the group's efforts toward these goals. Findings from the inventory helped clarify the extent of definitional alignment and data element standardization among the inventoried systems. The inventory was an important first step toward mobilizing health information systems in ways that address strategic gaps in HAI coverage at the local, state, and national levels.

The IT Working Group will continue to support a coordinated integration effort that engages federal agencies and public and private sector partners in the effort to integrate IT systems and leverage IT advances towards the elimination of HAIs.

C. Incentives and Oversight

The Incentives and Oversight chapter of the HAI Action Plan discusses various ways in which tools and initiatives are used to support the nation's efforts to prevent and reduce HAIs.

The chapter describes regulatory oversight activities, including Conditions of Participation (CoPs) and Conditions for Coverage (CfCs), accreditation, and survey and certification. The CoPs and CfCs are the federal health and safety requirements that hospitals and other providers must meet in order to participate in the Medicare and Medicaid programs and are intended to ensure that high quality care is provided to all patients.

The following recommendations would further strengthen the commitment to quality in HAI prevention:

- Require that a hospital ensure their infection control program follows currently recognized national standards of practice; and
- Add a requirement specifically requiring that the infection control program be an integral part of the hospital's quality assessment and performance improvement program. While the current Infection Control CoP does require that the hospital-wide quality assurance and training programs address the problems identified by the infection control officer, this revision would specifically link the Infection Control CoP with the equally important Quality Assessment and Performance Improvement CoP, requiring hospitals to pursue a more proactive and innovative approach to infection control through their on-going program.

CMS, in coordination with experts across the country, have identified recommendations for regulatory oversight of hospitals, including:

- Increase hospital surveyor training on recent revisions of hospital interpretative guidelines to ensure that 100% of dedicated hospital surveyors have the opportunity to be trained on the revised guidelines;
- Incorporate enhancements, which arise from collaborative activities with CDC, into the surveyor training program as a means of providing surveyors with illustrative examples of best infection control practices in hospitals;
- Conduct a pilot study of a potential surveyor tool. CMS is currently piloting a surveyor tool to assess infection control in hospitals. This tool is based on a similar tool for ambulatory surgical centers, which was piloted in 2008 and adopted for use on October 1, 2009. After modification based on surveyor feedback, CMS expects to require the use of

the tool during all hospital surveys of the infection control CoP, beginning in FY 2013;
and

- Require accreditation organizations to also make assessment of infection control a priority focus.

Following the discussion of regulatory oversight activities, value-based purchasing programs and other financial incentives that encourage health care providers in various care delivery settings to report and reduce HAIs are addressed. These tools include measurement and payment incentives to encourage beneficial interventions and outcomes to improve performance. Value-based purchasing, under the Affordable Care Act, links payment to performance and is a key policy mechanism that CMS is proposing to transform Medicare from a passive payer to an active purchaser of high value services.

The Preventable Hospital-Acquired Conditions Provision, Present on Admission Indicator Reporting, and Hospital Pay-for-Reporting are three hospital-related initiatives that CMS is using to promote increased quality and efficiency of care. The Hospital-Acquired Conditions provision is a Medicare statute that requires CMS to select conditions that will no longer trigger higher payment when they are acquired during hospitalization. CMS selected conditions must be: (1) high cost, high volume, or both; (2) assigned to a higher paying Medicare-severity diagnosis-related group when present as a secondary diagnosis; and (3) known to be reasonably prevented through the application of evidence-based guidelines.

Under the Inpatient Prospective Payment System (IPPS), hospitals are encouraged to treat patients efficiently because they receive the same diagnosis-related group payment for stays that vary in length and the services provided, which gives hospitals an incentive to avoid unnecessary costs in care delivery. In some cases, conditions acquired in the hospital, including infections do not generate higher payments than the hospitals would otherwise receive for cases without these conditions. To this extent, IPPS encourages hospitals to avoid complications, including infections.

Beginning in FY 2015, under the Affordable Care Act, CMS will reduce payment for discharges with selected Hospital-Acquired Conditions by 1% for hospitals that have risk-adjusted Hospital-Acquired Conditions rates in the top quartile of applicable hospitals. In addition, the Affordable Care Act requires a Report to Congress on extending the Hospital-Acquired Conditions payment policy to other types of providers.

Other programs and incentives detailed include hospital pay-for-reporting, CMS demonstration projects, Physician Feedback Program, quality reporting outside of acute care hospitals, and accountable care organizations.

Finally, the chapter focuses on incentives associated with public reporting or transparency, including Hospital Compare and Physician Compare, and initiatives implemented by federal and non-federal partners to prevent and reduce HAIs.

CMS and its partners have many initiatives and programs to regulate and track HAIs. Compliance with these regulations and promotion of the quality based improvement practices

will improve the public's health. Increasingly, these efforts also include more direct sources of information for providers and patients that should influence choices that help reduce and prevent HAIs.

D. Outreach and Messaging

The Steering Committee's Outreach and Messaging Working Group addresses strategies for communications with numerous audiences about multiple infections and the various, sometimes complex, prevention practices. The Outreach and Messaging chapter builds on the 2009 HAI Action Plan by further developing the following goals:

- *Goal 1:* Promote and sustain heightened national attention about issues surrounding HAIs among various target audiences;
- *Goal 2:* Develop rapid communication strategies toward preventing various types of HAIs; and
- *Goal 3:* Increase knowledge and practice of key prevention strategies for the various HAIs across and within specific health care settings.

The chapter outlines target audiences, key messages, tactics, and materials/products for HAI communication efforts. Some audiences are customary constituents of HHS communications, such as health care providers and health professional groups. Others, such as academic medical institutions, were selected specifically to accomplish the outreach goal of maximizing knowledge gains and sustaining gains over time.

The chapter also describes the national HAI consumer media campaign sponsored by OASH and supported by the working group. The campaign engages patients and family caregivers as partners in HAI prevention. Messages, based on target audience research, rely on themes of a partnership between patients, their families, and health care providers for the prevention of HAIs.

As HAI prevention and reduction is a shared responsibility, the working group prioritized partnership engagement and collaboration across sectors. Finally, the chapter lists process measures that will help to determine the reach of social and traditional media, public education, and awareness activities.

III. PHASE TWO: CHAPTER SUMMARIES FOR SELECT OUTPATIENT SETTINGS AND INFLUENZA VACCINATION OF HEALTH CARE PERSONNEL

A. Ambulatory Surgical Centers

Ambulatory Surgical Centers (ASCs) are outpatient health care settings that have demonstrated tremendous growth not only in procedure volume but also in the complexity of the procedures performed on site. However, no reliable national estimates of the number of HAIs originating in ASCs currently exist and little is known about infection control and prevention practices in this setting.

The ASC chapter of the HAI Action Plan summarizes HAI prevention issues and key actions needed to assure safe care in ASCs. Three unmet needs pertaining to HAI prevention in ASCs are broadly categorized in the chapter:

- (1) The need for proactive HAI prevention at the clinic level;
- (2) The need to sustain and expand improvements in oversight and monitoring; and
- (3) The need to develop meaningful HAI surveillance and reporting procedures.

Key focus areas moving forward for HAI prevention in the ASC setting include:

- Engaging stakeholders to facilitate collaboration and promote a culture of safety, including
 - identifying additional strategies to involve consumers and others on an on-going basis;
 - discussions regarding how patients can be better educated and empowered about identification and reporting of adverse events resulting from outpatient procedures;
- Identifying needs and opportunities for HAI reduction through improvements in the process of care within ASCs;
- Disseminating evidence-based guidelines and training for infection control and prevention in ambulatory settings;
- Improving and expanding process measures while focusing on specific procedures for application across setting types;
- Expanding current knowledge of surveillance through research to include ASC-specific measures and associated strategies for outcome measurement;
- Expanding the utility of broad financial incentives to encourage the use of beneficial interventions; and
- Extending HAI prevention actions developed for ASCs to other outpatient surgery venues since ASCs represent only a subset of the ambulatory care facilities performing surgical procedures.

B. End-Stage Renal Disease Facilities

End-stage renal disease facilities provide hemodialysis treatment for ESRD patients on a regular basis. HAIs are a challenge in this outpatient setting — the process of hemodialysis treatment involves vascular access, or accessing blood vessels, to remove and return blood to the body. Patients can be at risk of contracting infections from other contaminated surfaces or equipment and from the hands of providers. Infection is the leading cause of morbidity and the second cause of death in patients with chronic kidney failure on hemodialysis.

The ESRD Facilities chapter of the HAI Action Plan focuses on HAIs related to vascular access and HAIs associated with hepatitis B and hepatitis C because these HAIs have significant impact on dialysis patients and due to the availability of evidence-based processes to prevent these infections. Key recommendations to prevent HAIs in the ESRD facility are:

- *Prevention of Intravascular Infections*: Prevention of infections that can occur due to accessing veins, particularly bloodstream infections;
- *Prevention of Bloodborne Pathogen Transmission*: Prevention of diseases spread by the contamination of blood, including hepatitis B and hepatitis C;

- *Prevention of Influenza and Pneumococcal Disease*: Prevention of the flu and pneumonia among ESRD patients, as they have an increased risk of developing severe complications from these diseases;
- *Prevention Priority Implementation Bundles*: Infection prevention protocols grouped together including catheter maintenance, environmental cleaning, and methods for conducting HAI surveillance and reporting; and
- *Education and Training*: Increased education and training in HAI prevention for providers, as well as patients and families.

Several challenges and opportunities to implementing and sustaining efforts aimed at reducing HAIs in ESRD facilities remain. Increased and sustained collaboration among federal, state, and local districts is needed to effectively coordinate regulatory oversight, infection reporting, and infection control recommendations. ESRD facilities often lack sufficient resources, such as a dedicated infection preventionist, educational resources, and infection prevention staff training. As many ESRD patients are frequently hospitalized, care provided in the hospital, free-standing ESRD facility, and home need increased coordination to ensure that the patient is receiving coordinated care and proven infection prevention practices are used in all settings. The ESRD patient and his or her family is a key element in infection prevention as well; educating and involving the patient as a member of the health care team is key to preventing HAIs. Finally, the integration of data systems would provide benefits in monitoring HAI data and applying infection data to improve prevention practices. On-going research and initiatives are underway to address these opportunities and challenges to reducing HAIs in the ESRD setting.

C. Influenza Vaccination of Health Care Personnel

Health care personnel (HCP) are a priority for influenza vaccination as they can acquire influenza from patients and can transmit influenza to other patients, who are more likely to be in a high-risk category, as well as other HCP. The term HCP refers to all paid and unpaid persons working in health care settings who have the potential for exposure to patients and/or to infectious materials such as body substances, including physicians, nurses, laboratory personnel, facility administrative staff, and volunteers.

Unlike many vaccines, the influenza vaccine needs to be developed annually. This requires a highly orchestrated, collaborative effort of the global health community. Each year there is a worldwide effort for influenza disease surveillance, development of recommendations for immunization, selection of virus strains, and the manufacture and distribution of new vaccine. The FDA regulates vaccines for use in the United States; the agency is responsible for evaluating vaccine safety and effectiveness and monitoring conformity with statutory and regulatory standards for licensure and use in the United States. Working to ensure an adequate, safe, and effective supply of influenza vaccine each year is one of FDA's highest priorities.

While vaccination is a key preventive measure against influenza, vaccination rates have historically been low. Healthy People 2020 supports a 90% vaccination rate goal for HCP. The Steering Committee's Working Group supports this target and also proposes an interim target of 75% vaccination coverage among HCP by the end of 2015. In response to numerous public comments and due to the rise in HCP vaccination coverage levels since the HAI Action Plan

began, the interim target has been increased from what was proposed in 2011 (70%) to 75%. To achieve these targets, comprehensive strategies are required, one component of which is vaccination. Employers of HCP should use evidence-based, multi-component intervention approaches to maximize vaccination rates. Some states have opted to pass legislation with vaccination requirements, such as requiring that an employer of HCP offer vaccination or requiring that employees be vaccinated. The chapter outlines various educational resources that can assist employers in developing an intervention that is appropriate for their context. While some have called for mandatory vaccination policies, others have argued that there is not enough data to support these policies and have cautioned that these policies can have a negative impact on the employer-employee relationship.

The working group aims to increase coordination across HHS Operating and Staff Divisions and other federal departments, increase awareness of the importance of influenza vaccination for HCP and patients, and make progress toward meeting national targets for influenza vaccination coverage of HCP. Specially, designated tasks are to:

- Develop, synthesize, and/or enhance evidence and tools for improving influenza vaccination of HCP;
- Enroll stakeholders in the initiative to improve influenza vaccination coverage among HCP; and
- Enhance and/or develop quality standards for influenza vaccination of HCP.

The group has planned activities in support of these tasks, fully outlined in its HAI Action Plan chapter.

IV. PHASE THREE: LONG-TERM CARE FACILITIES CHAPTER SUMMARY

Long-Term Care Facilities (LTCFs) provide a spectrum of institutional health care programs and services outside the acute care hospital. Because of the variability of LTCF populations, oversight, staffing levels, and payment incentives, the scope of this document will provide a more limited approach. It will identify and prioritize tasks for the prevention of HAIs in nursing homes and skilled nursing facilities.

Most LTCF residents in CMS-certified nursing homes/skilled nursing facilities (NHs/SNFs) are 65 years old or older. They face unique challenges that contribute to the severity and frequency of infections. Antibiotic exposure rates in LTCFs are high and increase the risk of adverse drug reactions, complications such as CDI, and the emergence of multidrug-resistant organisms (MDROs).

NHs/SNFs are required to maintain infection control and prevention programs in order to comply with the federal regulations governing licensing and certifications. Unfortunately, among other barriers, most facilities lack adequately trained and committed personnel and resources for this task.

One of the challenges of combating HAIs in LTCFs is that their true extent is unknown. Current tools for data collection, such as the Minimum Data Set, administrative claims data, and surveys

from the National Center for Health Statistics (NCHS), and single-day point-prevalence studies in the Department of Veterans Affairs (VA)–run facilities, present challenges. However, new options are becoming available:

- NCHS’s new National Survey of Long-Term Care Providers will replace several other tools from that agency and will expand coverage of long-term care providers to include residential care facilities and adult day services centers. There will also be opportunities to add HAI-related modules.
- CDC’s National Healthcare Safety Network (NHSN) provides a secure, internet-based surveillance reporting infrastructure. In 2012, a LTCF component was released. AHRQ is coordinating the development of the Common Formats, which standardize the definitions and reporting formats for patient safety events.

Long-Term Care Facilities includes metrics within five priorities:

- (1) Enrollment in NHSN for Nursing Home Infection Surveillance Activity
- (2) *Clostridium difficile* Infection
- (3) Vaccination for Residents (influenza, pneumococcal)
- (4) HCP Influenza Vaccination
- (5) Urinary tract infections/Catheter Associated Urinary tract infections (UTIs/CAUTIs) and Catheter Care Processes

Issues of provider burden, data collection vehicles and infrastructure, measure reliability issues, and risk adjustment continue to present challenges. However, the success stories for Phase One of the HAI Action Plan serve as examples of successful enrollment and participation. Policy levers such as public reporting requirements may also provide opportunities for improved participation rates.

Summaries of promising practices in infection control in LTCFs include many state-based initiatives promoting infection surveillance. Efforts by professional societies, unions, and hospitals to improve health care personnel influenza vaccination rates have been growing. Clinical guidelines are being created for use in LTCFs. Finally, the CDC has outlined state financial practices that could be used with LTCFs.

Federal regulatory oversight for LTCFs is provided by the Division of Nursing Homes in the Survey and Certification Group at CMS. Performance incentive programs that may impact HAI rates in LTCFs include:

- Nursing Home Value-Based Purchasing Demonstration
- Hospital-Acquired Condition Present on Admission Policy
- Improving Care Quality for Nursing Facility Residents
- Pay for Performance Initiatives

The Affordable Care Act also requires all nursing homes to have a Quality Assurance and Performance Improvement (QAPI) program in place by 2013. Enrollment in NHSN and other HAI prevention efforts may demonstrate commitment by LTCFs to quality improvement.

The Communication Strategies Plan provides information on quality and health care-related initiatives across HHS. Key partners, existing campaigns, and target audiences are included in Appendix D. Strategies to be disseminated include:

- Raising awareness of the importance of addressing HAIs in LTCFs
- Empowering consumers with the tools and knowledge to be effective self-advocates for HAI prevention
- Helping health care professionals focus their attention on preventive steps (including relevant CDC evidence-based guidelines) that will yield the greatest benefits
- Sharing the overall progress of the nation in reducing national rates of HAIs in LTCFs
- Promoting and sustaining heightened national attention to HAIs within the LTCF provider community by highlighting the HAI Action Plan and the progress that will be realized through the fulfillment of the plan
- Reshaping the social norms that impact HAIs so that HHS prevention measures become standard practice for both LTCF providers and consumers

The next steps for this project contain several opportunities. Further investigation of antibiotic stewardship issues, additional research into barriers to vaccination of HCP, and improvement of tracking of hospitalizations and re-hospitalizations will be priorities.

V. HAI PREVENTION TARGET GOALS

Progress toward the goal of reducing and eliminating HAIs can only be gauged by quantifying their incidence. The 2009 HAI Action Plan established nine five-year target goals and accompanying measurement systems to aid in monitoring progress toward reducing HAIs in acute care hospitals.

In addition to the original nine measures and target goals, the HAI Action Plan adds goals related to four areas: VAE in acute care hospitals, infections in ASCs, infections in ESRD facilities, and influenza vaccination coverage rates of HCP. The measures and corresponding goals are summarized below.

A. Current Metrics and Targets

The following metrics and five-year targets for reducing the incidence of infections in acute care hospitals were published in and established by the 2009 HAI Action Plan. Most of these targets are five-year targets to be met by December 31, 2013. A complete summary of progress can be found on the [HHS HAI Initiative page](http://www.hhs.gov/ash/initiatives/hai/nationaltargets/index.html).¹

¹ <http://www.hhs.gov/ash/initiatives/hai/nationaltargets/index.html>

Table 1. Current HAI Metrics and Targets Five-Year Goals (2009-2013)

Priority Area	Measure/Metric	Five Year (2013) Goal	National Baseline Period
Catheter-Associated Urinary Tract Infection	Catheter-associated urinary tract infections	25% reduction	2009
<i>Clostridium difficile</i> Infection	Hospitalizations with <i>Clostridium difficile</i>	30% reduction	2008
	<i>Clostridium difficile</i> infections	30% reduction	2010-2011
Central Line-Associated Bloodstream Infection	Central line-associated bloodstream infections	50% reduction	2006-2008
MRSA Infection	MRSA invasive infections (population)	50% reduction	2007-2008
	MRSA bacteremia (hospital)	25% reduction	2010-2011
Surgical Site Infection	Surgical site infections	25% reduction	2006-2008
	Adherence to CMS Surgical Care Improvement Project (SCIP) processes	95% adherence	2006-2008
Ventilator-Associated Events (formerly VAP)*	-	-	-

*A new surveillance definition of ventilator-associated events (VAE) has been developed and will be used in place of the surveillance definition of VAP in NHSN beginning in 2013.

It is important to note that all the measures for which data is available are on target to meet their associated five-year goal by the end of 2013. The one exception is adult discharges with CDI sourced from AHRQ’s Healthcare Cost and Utilization Project which shows a stabilization of rates over the assessment period. According to the reported data, the five-year HAI Action Plan goal will not be met based on these early assessments. However, efforts are underway in both the public and private sectors to address the challenging problem of CDI. As an example, AHRQ has made investments in various research projects to better understand CDI transmission and prevention and has developed a toolkit to help reduce CDI through antibiotic stewardship. CDC is working with various stakeholders on CDI prevention collaboratives. In addition, CDI is included in the “All Other” category in the list of priority conditions to be addressed by the Partnership for Patients.

It should also be noted that the HAI Action Plan goals established in 2009 are aligned with the goals of the Partnership for Patients and have the same timeline ending in 2013. The HAI Action Plan goals are also aligned with other federal initiatives (e.g., Healthy People 2020, HHS Agency Priority Goals) to reduce confusion. While the definitions may differ slightly across HHS systems and the populations covered by the assessment systems differ, the reduction goals are consistent.

Also, it should be noted that the HAI Action Plan process measure and associated target for adherence to central-line insertion practices (CLIP) has been removed from the most recent version of the HAI Action Plan. Given recent declines in the national CLABSI standardized infection ratio (SIR) among ICU patients and the central role of safe central-line insertion practice in preventing ICU CLABSIs, as well as in response to public comments, national tracking of the central-line insertion practice process measure is no longer deemed necessary so

long as the CLABSI SIR either continues to decline or approaches a low level consistent with the maximum prevention of CLABSI possible via safe central-line insertion practices and other state-of-the-art prevention practices.

B. Proposed Metrics and Targets for Ventilator-Associated Events, Ambulatory Surgical Centers, End-Stage Renal Disease Facilities, and Influenza Vaccination of Health Care Personnel

The following metrics and corresponding goals are proposed for inclusion in the second iteration of the HAI Action Plan.

Acute Care Hospitals – Ventilator-Associated Events

The 2009 HAI Action Plan identified ventilator-associated pneumonia (VAP) as a priority area for prevention, however did not specify a related measure and five-year reduction goal for national use due to the lack of an accepted, objective definition that could be used for multiple purposes, including national benchmarking and inter-facility comparison. The HAI Action Plan will be shifting its focus to address the issue of ventilator-associated events (VAE) in adult patients. Subject matter experts at the Critical Care Societies Collaborative, CDC, and other partner organizations have recently developed a new approach to VAE surveillance. Acknowledging the inaccuracies inherent in the diagnosis of VAP, the group focused instead on developing more objectively-defined measures resulting in a new, proposed VAE surveillance definition algorithm. For more information regarding the new algorithm, please see http://www.cdc.gov/nhsn/PDFs/vae/Draft-Ventilator-Associate-Event-Protocol_v6.pdf. CDC anticipates that this definition will be implemented in NHSN in 2013. In future years, a measure and reduction goal for VAE may be added to the HAI Action Plan.

Ambulatory Surgical Centers

CMS-certified ASCs are expected to demonstrate 100% adherence to all measures contained within the infection control survey tool used by surveyors during the inspection process. Facilities, including office-based practices and other settings not subject to routine inspections, are encouraged to conduct regular self-audits to assure ongoing compliance.

By December 31, 2013, HHS, with stakeholder input, will:

- (1) Identify existing quality measures (e.g., serious reportable events, CMS SCIP process measures) that have been endorsed and are applicable to ASCs;
- (2) Identify areas where additional quality measures are needed for ASCs; and
- (3) Establish a timeline and methods for adoption and implementation of select measures within ASCs.

To support a consistent approach to HAI surveillance in ASCs, by December 31, 2013, HHS, with stakeholder input, will:

- (1) Identify a set of ASC procedures for which SSI definitions and methods should be developed; and
- (2) Establish a multi-year plan and phased approach to support their routine surveillance.

End-Stage Renal Disease Facilities

By December 31, 2015, achieve the following:

Table 2. Proposed ESRD Facility HAI Reduction Measures and Goals

Measure/Metric	Definition	Five Year (2015) Target	Data Source(s)
All bloodstream infections stratified by access type	# of incident positive blood cultures in CVC patients/ 100 CVC patient-months	Pooled mean < or = to 5.0 OR RIR > or = 40%	NHSN CrownWeb*
Access-related BSI stratified by access type	# of incident positive blood cultures with vascular access as suspected source or with unknown source in CVC patients/100 CVC patient-months	RIR > or = 50%	NHSN CrownWeb*
Seasonal influenza vaccination for ESRD patients	# of ESRD patients who received seasonal influenza vaccination /all ESRD patients x 100	Greater or = to 90%	Medicare Claims CrownWeb*
Facilities reporting to NHSN either manually or electronically or via data interoperability mechanism with CMS	# of ESRD facilities that report to NHSN/all ESRD facilities x 100	Greater or equal to 90%	NHSN
Any CVC use in patients on hemodialysis	# of hemodialysis patients with CVCs/# of hemodialysis patients x 100	Absolute target: less or = to 20%; OR RIR greater than or = to 20%	Fistula First NHSN CrownWeb*
Screening for Hepatitis C antibody	# of ESRD facilities that screen all susceptible every six months/# of all ESRD facilities x 100	Greater than or = to 70%	CrownWeb*
Hepatitis B vaccine coverage in hemodialysis patients	#of hemodialysis patients who have ever received > or = to 3 doses of hepatitis B vaccine/all hemodialysis patients x 100	Greater or = to 90%	Data from ESRD Networks CrownWeb* Medicare Claims

*As CrownWeb has not yet been launched for national rollout at the time this document is being written, it could not be confirmed definitively as a source of data for the above metrics.

Key: BSI = bloodstream infection, CMS = Centers for Medicare and Medicaid Services, NHSN = National Healthcare Safety Network, RIR = Relative Improvement Rate, OR = odds ratio, CVC = central venous catheter

Please see the ESRD Facilities chapter for additional comments and discussion of these proposed metrics.

Influenza Vaccination of Health Care Personnel

By December 31, 2015, achieve 75% vaccination of HCP. The proposed measurement system for monitoring vaccination coverage rates is NHSN.

C. Proposed Metrics and Targets for Long-Term Care Facilities

Enrollment in NHSN for Nursing Home Infection Surveillance Activity

Priority Area 1:

Proposed Metric:

- Number of certified nursing homes enrolled in the NHSN LTCF Component / Number of certified nursing homes in the U.S.

Goal: 5% of CMS certified nursing homes enroll in NHSN over the 5 years following launch of the component

Clostridium difficile Infection

Priority Area 2:

Proposed Metric:

- Incident NH-onset CDI Lab-ID events: Number of events / 10,000 resident days
 - Incident lab events are defined as no previous positive or prior positive more than 8 weeks ago.
 - Only those events occurring more than 3 calendar days after resident admission are considered NH-onset.

Goal: Pilot implementation of reporting to NHSN, evaluate variability in measure, and obtain consensus on measurable five-year goal

Vaccination for Residents (Influenza, Pneumococcal)

Priority Area 3:

Proposed Metrics:

- Number of residents receiving influenza vaccine either within the facility or outside the facility during the current or most current influenza season / Number of residents eligible for the influenza vaccine
- Number of residents receiving pneumococcal vaccine or who are up-to-date with their pneumococcal vaccination / Number of residents eligible for pneumococcal vaccine

Goal: We propose a goal of 85% vaccination coverage of LTCF residents for seasonal influenza and pneumococcus in five years.

Health Care Personnel Influenza Vaccination

Priority Area 4:

Proposed Metric:

- Proportion of Health Care Personnel who work in long-term care who received the seasonal influenza vaccine as measured by the National Health Interview Survey

Goal: In alignment with the previous Influenza Vaccination of HCP chapter, 75% of HCPs in long-term care receiving the seasonal influenza vaccination by 2015.

Urinary Tract Infections, Catheter-Associated Urinary Tract Infections, and Catheter Care Processes

Priority Area 5:

Proposed Metrics:

- Non-catheter associated symptomatic UTI incidence rate: Number of events / 1,000 resident days
- Catheter-associated symptomatic UTI incidence rate: Number of events / 1,000 catheter days
- Catheter utilization ratio: Catheter days / Resident days

Goal: Pilot reporting to NHSN, evaluate variability, obtain consensus on measurable five-year goal

VI. CONCLUSION: A NATIONAL COMMITMENT TO SAFE, QUALITY HEALTH CARE

The HAI Steering Committee is pursuing the aspirational goal that HAIs, specifically certain types of HAIs, can and should be eliminated and recognizes the following:

- Under the Partnership for Patients, the national commitment and partnership between health care providers, consumers, government, and industry is expected to be strengthened and sustained over time; and
- While some strategies are well-known and ready for universal adoption, others are not yet fully proven and some solutions will require innovation and technology not yet available.

The necessary commitment of resources for these efforts should be balanced against the considerable anticipated savings in lives and health care costs over time. Demonstrable human and economic savings will be central to strengthening and sustaining our efforts. The HAI Action Plan has contributed to the significant progress in HAI prevention seen across the country and has brought about an enhanced level of federal collaboration that was called for in the 2008 report from the Government Accountability Office. The goal of the HAI Action Plan in achieving action in preventing HAIs, a product of many years of work, will be continued through and contribute vitally to the Partnership for Patients.