

## **Executive Summary**

Healthcare-associated infections (HAI) are an emerging public health issue and have received increasing public attention. Arizona healthcare facilities and infection preventionists at these facilities are actively engaged in HAI prevention on a daily basis. Healthcare personnel create infection control plans, implement proven practices for HAI prevention, and comply with The Joint Commission and Centers for Medicare and Medicaid Services requirements in order to prevent HAIs and improve patient outcomes. When HAI transmission does occur, facilities are generally quick to implement prevention and control measures in order to mitigate HAI spread and protect patients' health, sometimes contacting the state or local health department for assistance. Although many professional organizations and Arizona acute care hospitals are routinely working to prevent HAIs, there is limited statewide coordination of HAI prevention activities.

In previous years, the Arizona Department of Health Services (ADHS) has maintained an active HAI prevention program; however, due to budgetary restrictions, this program has been minimized. Currently, ADHS maintains a passive surveillance system for three common HAI-causing pathogens and ADHS staff provide assistance with outbreak investigations and make recommendations for infection prevention and control strategies to facilities when requested. The Arizona Legislature has acknowledged the importance of HAIs through passage of Senate Bill 1356, which established the Infection Prevention and Control Advisory Committee (IPCAC) to develop recommendations for the Governor and Arizona Legislature regarding HAI surveillance, prevention, and reporting.

Recently, ADHS was granted federal stimulus funds through the American Recovery and Reinvestment Act to develop a plan for HAI prevention in the state, to develop an HAI prevention program, and to establish a multidisciplinary HAI advisory committee. This funding will be used to support and enhance ongoing HAI prevention efforts and develop new HAI prevention infrastructure at the state level. ADHS hopes to work collaboratively with partners in order to determine ways to provide necessary HAI prevention services and resources. ADHS' role in HAI prevention will be flexible and will continue to evolve based on needs and input from partners.

The Arizona HAI plan is intended to support and enhance HAI prevention already occurring in the state. Items in the plan are described as *underway* if ADHS is currently addressing them or plans to address them within two years using currently available resources. Items described as *planned* are those that ADHS would like to undertake contingent upon resource availability and competing priorities. The HAI plan is divided into four general areas: development or enhancement of HAI program infrastructure; surveillance, detection, reporting, and response; prevention; and evaluation, oversight, and communication. Key activities for each of these areas are summarized below.

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*Development or enhancement of HAI program infrastructure*

- ADHS has established an HAI surveillance, prevention and control program and hired a State HAI Coordinator who will collaborate with partners to enact a coordinated statewide approach to HAI prevention.
- IPCAC has proposed central line-associated blood stream infection and surgical site infection as the state's HAI prevention targets.
- Following fulfillment of IPCAC's legislative charge, the HAI Coordinator expanded committee membership to form a new committee – the HAI Advisory Committee. The Advisory Committee and its corresponding subcommittees work to identify and support HAI prevention priorities for the state.
- The HAI Coordinator actively works with staff in ADHS' Division of Licensing Services to coordinate intra-agency HAI prevention activities.

*Surveillance, detection, reporting, and response*

- ADHS will maintain passive surveillance systems for reportable HAI-causing organisms.
- ADHS will continue to assist facilities and local health departments with HAI outbreak investigations by request.
- ADHS staff, including the HAI Coordinator, will work to expand HAI surveillance through targeted surveillance projects, including exploration of expanded use of the National Healthcare Safety Network (NHSN) among non-participating facilities in the state and partnership with an existing NHSN group in Arizona.
- The HAI Coordinator will work with partners to identify barriers to reporting HAI transmission or outbreaks to ADHS.

*Prevention*

- The HAI Coordinator will work with existing HAI prevention collaboratives facilitated by the state's Quality Improvement Organization and with the HAI Advisory Committee to identify ways ADHS can best support, contribute to, and expand existing prevention activities.
- The HAI Coordinator will promote the availability of existing HAI prevention resources and, if funding is available, develop new resources.

*Evaluation and communications*

- The HAI Coordinator conducted a survey of infection preventionists to collect baseline information about HAI prevention activities in the state.
- The HAI Coordinator will conduct an ongoing evaluation of progress toward HAI plan deliverables that will be shared with interested partners.
- ADHS will disseminate information about HAI prevention activities to partner organizations.

This document follows the structure of the HAI planning template provided by the Centers for Disease Control and Prevention. The planning template is presented followed by a narrative description of ways in which ADHS plans to address each element of the template. A timeline is included in the appendix detailing activities that ADHS will address in the next two years given available resources.

## **Background**

Healthcare-associated infections (HAI) are an emerging public health issue and have received increasing attention from federal and state government as well as the media. The Arizona Department of Health Services (ADHS), Arizona acute care hospitals, and professional organizations such as the local chapter of the Association of Professionals in Infection Control and Prevention (APIC) and the Arizona Hospital and Healthcare Association (AzHHA) are actively working to prevent HAIs. However, currently, there is limited statewide coordination of HAI prevention activities in Arizona.

The Infection Prevention and Control Advisory Committee (IPCAC), which was established by the Arizona Legislature in September 2008, was comprised of members with knowledge and experience in infection prevention representing various healthcare facilities and organizations in the state. This multidisciplinary committee was tasked with providing [recommendations](#) to the Arizona Governor and Legislature relating to community-associated and healthcare-associated infection surveillance, prevention, and reporting. These recommendations take into account the current state of Arizona's capacity to monitor and prevent HAIs as discussed below. Following IPCAC's fulfillment of its legislative mandate, the HAI Coordinator formed the HAI Advisory Committee, which is comprised of former IPCAC members and additional partners. This Advisory Committee works toward addressing many of the recommendations and priorities set forth by IPCAC.

Per the Arizona Administrative Code, laboratories are required to report positive laboratory results for invasive methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus* (VISA/VRSA), and invasive *Streptococcus pneumoniae* (*S. pneumoniae*) to ADHS. ADHS conducts routine surveillance of these infectious agents and evaluates trends in antibiotic resistance patterns of these organisms. From 1990 to 2006, ADHS had a dedicated HAI epidemiologist who was responsible for invasive MRSA and *S. pneumoniae* surveillance along with HAI outbreak investigation assistance and other educational and prevention efforts. Unfortunately, the HAI epidemiologist position became vacant in 2006 and due to budgetary constraints HAI surveillance activities were added to the duties of another infectious disease epidemiologist.

Since 2008, ADHS' primary HAI activity has been maintenance of a passive surveillance system for invasive MRSA, VISA/VRSA and invasive *S. pneumoniae*. The Office of Infectious Disease Services (OIDS) provides technical assistance and guidance with outbreak investigation and control by request from infection preventionists and can coordinate laboratory testing with the Arizona State Laboratory. ADHS works collaboratively with county health departments and healthcare facilities to provide infection control recommendations both during and after an investigation in order to optimize patient safety and alleviate the need for regulatory action.

In September 2009, ADHS received federal stimulus funding for HAI prevention through the American Recovery and Reinvestment Act (ARRA). This funding allows ADHS to develop a plan for HAI prevention in the state, to reestablish an HAI prevention program, and to convene a multidisciplinary HAI advisory committee. A goal of this program is to develop a coordinated approach to HAI prevention; however, Arizona will need to enhance its HAI infrastructure to

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overcome existing barriers to a centralized HAI program. For example, ADHS has no dedicated funding stream outside of ARRA funding to support HAI prevention from the state level. Unlike many states, Arizona also has no legislative mandate in place for HAI reporting, limiting quantification of HAI burden in the state as a whole. Only ten Arizona facilities are known users of the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN), the nationally standardized surveillance system for HAIs, but ADHS does not have the ability to view facilities' NHSN data due to privacy concerns. Unless some type of data use agreement is put in place that will protect facility identity, it is unlikely that facilities will voluntarily report HAI data to ADHS. In the absence of any assurances of confidentiality, it is difficult for ADHS to gain access to HAI data from any Arizona facilities, including those reporting to NHSN.

Despite these challenges, ADHS has identified productive ways of supporting ongoing efforts to reduce HAI burden in the state by strengthening ADHS HAI program infrastructure; enhancing HAI surveillance, detection, reporting, and response capabilities; implementing strategic prevention activities; and improving evaluation, oversight, and communication. Acute care hospitals with an intensive care unit, of which there are 53 in the state, will be the primary focus of ADHS' initial HAI prevention efforts. ADHS is proposing a coordinated statewide approach to HAI prevention, which is outlined in the state HAI plan. This plan reflects current HAI prevention capacity as well as HAI prevention activities ADHS would like to undertake given additional resource availability. This is a planning document and subject to change based on resource allocation, staffing changes, and passage of HAI legislation on the state or federal level. This plan will be shared with stakeholders and will evolve based on stakeholder input. A summary of the plan is presented below in table format followed by a descriptive narrative.

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Note: CDC developed the following table as a standardized way for states to report HAI plans. Activities that ADHS is currently undertaking or plans to undertake in the next two years using currently available resources are marked as “underway”. Activities that ADHS would like to undertake but are contingent on available resources and competing priorities are marked as “planned”.

### 1. Develop or Enhance HAI Program Infrastructure

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Establish statewide HAI prevention leadership through the formation of multidisciplinary group or state HAI advisory council i. Collaborate with local and regional partners	10/2008 Ongoing
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ii. Identify specific HAI prevention targets consistent with HHS priorities	11/2009
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Establish an HAI surveillance prevention and control program i. Designate a State HAI Prevention Coordinator	10/2009 10/2009
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Develop dedicated, trained HAI staff with at least one FTE (or contracted equivalent) to oversee the four major HAI activity areas (Integration, Collaboration, and Capacity Building; Reporting, Detection, Response and Surveillance; Prevention; Evaluation, Oversight and Communication)	Ongoing; initiated 10/2009
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Integrate laboratory activities with HAI surveillance, prevention and control efforts. i. Improve laboratory capacity to confirm emerging resistance in HAI pathogens and perform typing where appropriate	6/2010
Level II	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Improve coordination among government agencies or organizations that share responsibility for assuring or overseeing HAI surveillance, prevention and control (e.g., State Survey agencies, Communicable Disease Control, state licensing boards)	6/2010

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☒	☒	5. Facilitate use of standards-based formats (e.g., Clinical Document Architecture, electronic messages) by healthcare facilities for purposes of electronic reporting of HAI data.	Ongoing

## 2. Surveillance, Detection, Reporting, and Response

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
<b>Level I</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Improve HAI outbreak detection and investigation	Ongoing; initiate by 2/2010
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	i. Work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments	Ongoing; initiate by 6/2010
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ii. Establish protocols and provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs.	1/2011
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	iii. Develop mechanisms to protect facility/provider/patient identity when investigating incidents and potential outbreaks during the initial evaluation phase where possible to promote reporting of outbreaks	Ongoing
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	iv. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAIs)	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Enhance laboratory capacity for state and local detection and response to new and emerging HAI issues.	6/2010
<b>Level II</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Improve communication of HAI outbreaks and infection control breaches	Dependent on resources
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	i. Develop standard reporting criteria including, number, size and type of HAI outbreak for health departments and CDC ii. Establish mechanisms or protocols for exchanging information about outbreaks or breaches among state and local governmental partners (e.g., State Survey agencies, Communicable Disease Control, state licensing boards)	Ongoing

	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>  <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	<p>4. Identify at least 2 priority prevention targets for surveillance in support of the HHS HAI Action Plan</p> <ul style="list-style-type: none"> <li>i. Central Line-associated Bloodstream Infections (CLABSI)</li> <li>ii. <i>Clostridium difficile</i> Infections (CDI)</li> <li>iii. Catheter-associated Urinary Tract Infections (CAUTI)</li> <li>iv. Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) Infections</li> <li>v. Surgical Site Infections (SSI)</li> <li>vi. Ventilator-associated Pneumonia (VAP)</li> </ul>	11/2009
	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<p>5. Adopt national standards for data and technology to track HAIs (e.g., NHSN).</p> <ul style="list-style-type: none"> <li>i. Develop metrics to measure progress towards national goals (align with targeted state goals). (See Appendix 1).</li> <li>ii. Establish baseline measurements for prevention targets</li> </ul>	12/2011; dependent on resources
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>6. Develop state surveillance training competencies</p> <ul style="list-style-type: none"> <li>i. Conduct local training for appropriate use of surveillance systems (e.g., NHSN) including facility and group enrollment, data collection, management, and analysis</li> </ul>	6/2011; dependent on resources
	<input type="checkbox"/>	<input type="checkbox"/>	<p>7. Develop tailored reports of data analyses for state or region prepared by state personnel</p>	
<b>Level III</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>8. Validate data entered into HAI surveillance (e.g., through healthcare records review, parallel database comparison) to measure accuracy and reliability of HAI data collection</p> <ul style="list-style-type: none"> <li>i. Develop a validation plan</li> <li>ii. Pilot test validation methods in a sample of facilities</li> <li>iii. Modify validation plan and methods in accordance with findings from pilot project</li> <li>iv. Implement validation plan and methods in all healthcare facilities participating in HAI surveillance</li> <li>v. Analyze and report validation findings</li> <li>vi. Use validation findings to provide operational guidance</li> </ul>	

			for healthcare facilities that targets any data shortcomings detected	
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9. Develop preparedness plans for improved response to HAI i. Define processes and tiered response criteria to handle increased reports of serious infection control breaches (e.g., syringe reuse), suspect cases/clusters, and outbreaks	12/2010
	<input type="checkbox"/>	<input type="checkbox"/>	10. Collaborate with professional licensing organizations to identify and investigate complaints related to provider infection control practice in non-hospital settings, and to set standards for continuing education and training	
	<input type="checkbox"/>	<input type="checkbox"/>	11. Adopt integration and interoperability standards for HAI information systems and data sources i. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in HC settings (e.g., hepatitis B, hepatitis C, multi-drug resistant organisms (MDRO), and other reportable HAIs) across the spectrum of inpatient and outpatient healthcare settings	
	<input type="checkbox"/>	<input type="checkbox"/>	ii. Promote definitional alignment and data element standardization needed to link HAI data across the nation.	
	<input type="checkbox"/>	<input type="checkbox"/>	12. Enhance electronic reporting and information technology for healthcare facilities to reduce reporting burden and increase timeliness, efficiency, comprehensiveness, and reliability of the data i. Report HAI data to the public	
	<input type="checkbox"/>	<input type="checkbox"/>	13. Make available risk-adjusted HAI data that enables state agencies to make comparisons between hospitals.	
	<input type="checkbox"/>	<input type="checkbox"/>	14. Enhance surveillance and detection of HAIs in nonhospital settings	

### 3. Prevention

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
<b>Level I</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Implement HICPAC recommendations. i. Develop strategies for implementation of HICPAC recommendations for at least 2 prevention targets specified by the state multidisciplinary group.	Ongoing; dependent on resources
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Establish prevention working group under the state HAI advisory council to coordinate state HAI collaboratives i. Assemble expertise to consult, advise, and coach inpatient healthcare facilities involved in HAI prevention collaboratives	Initiate by 6/2010
	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	3. Establish HAI collaboratives with at least 10 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions) i. Identify staff trained in project coordination, infection control, and collaborative coordination ii. Develop a communication strategy to facilitate peer-to-peer learning and sharing of best practices iii. Establish and adhere to feedback of a clear and standardized outcome data to track progress	12/2010  6/2011 12/2011; dependent on resources
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Develop state HAI prevention training competencies i. Consider establishing requirements for education and training of healthcare professionals in HAI prevention or work with healthcare partners to establish best practices for training and certification	12/2011; dependent on resources
<b>Level II</b>	<input type="checkbox"/>	<input type="checkbox"/>	5. Implement strategies for compliance to promote adherence to HICPAC recommendations i. Consider developing statutory or regulatory standards for healthcare infection control and prevention or work with healthcare partners to establish best practices to ensure	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	<input type="checkbox"/>	<input type="checkbox"/>	adherence	
	<input type="checkbox"/>	<input type="checkbox"/>	ii. Coordinate/liaise with regulation and oversight activities such as inpatient or outpatient facility licensing/accrediting bodies and professional licensing organizations to prevent HAIs	
	<input type="checkbox"/>	<input type="checkbox"/>	iii. Improve regulatory oversight of hospitals, enhancing surveyor training and tools, and adding sources and uses of infection control data	
	<input type="checkbox"/>	<input type="checkbox"/>	iv. Consider expanding regulation and oversight activities to currently unregulated settings where healthcare is delivered or work with healthcare partners to establish best practices to ensure adherence	
	<input type="checkbox"/>	<input type="checkbox"/>	6. Enhance prevention infrastructure by increasing joint collaboratives with at least 20 hospitals (i.e. this may require a multi-state or regional collaborative in low population density regions)	
	<input type="checkbox"/>	<input type="checkbox"/>	7. Establish collaborative to prevent HAIs in nonhospital settings (e.g., long term care, dialysis)	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Other activities or descriptions (not required):</i> 8. Develop new and promote availability of existing HAI prevention resources.	
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	i. Revise and provide training on the ADHS Guidelines for the Management of Patients with Antibiotic-Resistant Organisms.	12/2011; contingent on competing priorities
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ii. Implement antibiotic stewardship programs that target multi-drug resistant organism (MDRO) reduction in healthcare settings.	12/2010; dependent on resources
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	iii. Make electronic HAI prevention resources publically available.	3/2010

#### 4. Evaluation and Communications

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1. Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact <ul style="list-style-type: none"> <li>i. Establish evaluation activity to measure progress towards targets and</li> <li>ii. Establish systems for refining approaches based on data gathered</li> </ul>	Ongoing; initiate 3/2010
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Develop and implement a communication plan about the state's HAI program and progress to meet public and private stakeholders needs <ul style="list-style-type: none"> <li>i. Disseminate state priorities for HAI prevention to healthcare organizations, professional provider organizations, governmental agencies, non-profit public health organizations, and the public</li> </ul>	Ongoing; initiated 6/2009
Level II	<input type="checkbox"/>	<input type="checkbox"/>	3. Provide consumers access to useful healthcare quality measures	
Level III	<input type="checkbox"/>	<input type="checkbox"/>	4. Identify priorities and provide input to partners to help guide patient safety initiatives and research aimed at reducing HAIs	

### **Develop or enhance HAI program infrastructure**

#### **1. Establish statewide HAI prevention leadership through the formation of multidisciplinary group or state HAI advisory council.**

In September 2008, the Arizona Legislature passed Senate Bill 1356 (SB1356), which established the Infection Prevention and Control Advisory Committee (IPCAC). SB1356 required that IPCAC membership consist of the ADHS Director or Director's designee, the State Epidemiologist or Epidemiologist's designee, and thirteen members appointed by the ADHS Director. These members include:

- an infection control practitioner from a public hospital
- an infection control practitioner from a private hospital
- a hospital or medical school-associated physician with expertise in infection control
- an emergency room physician with expertise in infection control
- a pharmacist with expertise in antibiotic resistance programs
- a registered nurse with experience as an infection control practitioner
- a representative from a for-profit long term care facility with expertise in infection control
- a representative from a not-for-profit long term care facility with expertise in infection control
- a representative from an assisted living facility with expertise in infection control
- a representative from a consumer health organization
- a representative from a health insurer
- a survivor of a healthcare or community-associated infection
- a representative from an organization that represents hospitals in the state

Following the second committee meeting, an additional healthcare-associated infection survivor was added to the committee in order to ensure adequate consumer representation. Through the course of the committee's existence, a few members resigned their membership due to competing priorities. In these instances, members with comparable roles were appointed as replacements.

The IPCAC first convened in October 2008, and continued to meet monthly until submission of recommendations in December 2008. As a requirement of SB1356, the committee is required to fulfill eight tasks:

- Elect a chairperson.
- Review federal and state efforts to address the problem of community and healthcare-associated infection.
- Recommend standard definitions for community and healthcare-associated infections.
- Review current federal and state mandates relating to surveillance, prevention, and control of community and healthcare-associated infections.
- Determine if additional community and healthcare-associated infection reporting and outcome improvement requirements are necessary to improve or promote patient safety and healthcare outcomes.
- Recommend best practices for the prevention and control of community and healthcare-associated infections.

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- Recommend components of a community education campaign that foster awareness and education of the public regarding community and healthcare-associated infections.
- By December 31, 2009, submit a written report of committee findings and recommendations to the Governor, the President of the Senate, the Speaker of the House of Representatives, and the chairpersons of the health committees of the Senate and House of Representatives.

At the fourth committee meeting on January 21, 2009, members undertook a discussion of the scope of the committee's activities. Because Arizona statutes mandate public health to prevent and control community-associated infections, the committee decided that focus should be on control of healthcare-associated infections, except in the area of education and outreach, where both community and healthcare-associated infections should be addressed. Thus the committee's mission was narrowed to focus primarily on healthcare-associated infections.

ADHS plans to utilize IPCAC in an advisory capacity until December 31, 2009 when their final report to the Governor and Legislature is due. After this time, original members will be invited to remain a part of an HAI advisory committee with additional members recruited from ADHS' Infectious Disease staff, county health departments, the Health Services Advisory Group, Inc.(HSAG; Arizona's Quality Improvement Organization), and other partners with HAI interest. It is expected that this advisory committee will meet on a quarterly basis, either in person or through conference calls, to set HAI prevention priorities for the state and work together to further state HAI prevention activities. The State HAI Coordinator will coordinate the committee meetings.

**i. Collaborate with local and regional partners.**

A number of IPCAC members are active members of the Arizona Hospital and Healthcare Association (AzHHA) or the Association of Professionals in Infection Prevention and Control (APIC) and can serve as liaisons between these organizations and ADHS. ADHS plans to build upon these relationships to establish more formal collaborations with both AzHHA and APIC in order to move forward towards a shared state vision of HAI prevention. Because the majority of Arizona infection preventionists (IPs), with the exception of some IPs from small facilities, are APIC members, a continued relationship with APIC will allow ADHS to obtain input directly from IPs. The ADHS HAI Coordinator will regularly attend APIC meetings in order to enhance ADHS collaboration with APIC.

The HAI Coordinator regularly attended IPCAC meetings to ensure that IPCAC's recommendations to the Governor and Legislature are captured in the HAI plan. Because IPCAC meetings were open to the public and include a member who is a healthcare consumer representative, incorporation of IPCAC recommendations into the state plan allowed an opportunity for public input to be included in the plan. Continuation of the advisory committee with expanded membership will ensure that ADHS collaborates with local and regional partners as well as members of the public when developing additional elements of an HAI prevention program.

ADHS will also approach HSAG with the intention of forming a partnership to support HAI prevention activities. HSAG has been the Medicare Quality Improvement Organization (QIO) for Arizona since 1979. HSAG is currently supporting HAI prevention in the state by facilitating the Centers for Medicare and Medicaid Services (CMS) 9<sup>th</sup> Scope of Work for MRSA reduction within which six Arizona hospitals participate and use the National Healthcare Safety Network (NHSN) for data submission. Collaboration with HSAG will allow ADHS to glean lessons learned from this CMS project and to establish future collaborative projects with multiple healthcare facilities.

**ii. Identify specific HAI prevention targets consistent with HHS priorities.**

ADHS requested that IPCAC provide guidance about which HAI targets the state HAI plan should emphasize. In doing so, ADHS hoped to develop a plan that would prioritize HAIs that infection preventionists (IPs) in Arizona healthcare facilities and others with an interest and expertise in infection control view as most important. IPCAC requested that ADHS survey IPs in the state in order to understand the views of IPs statewide. Two hundred ten IPs were surveyed, with 52 (25%) responding. These 52 respondents represented at least 36 unique facilities.

IPs were asked to identify which HAIs were currently monitored at their facilities, for which HAIs prevention strategies currently exist, and for which HAIs they would most like to target prevention strategies in the future. By collecting information about current HAI surveillance and prevention as well as future HAI prevention plans, ADHS hoped to understand which HAI targets would be most relevant for inclusion in the plan.

Greater than 90% of survey respondents indicated their unit or facility was currently performing surveillance for at least four HAIs: central line-associated blood stream infection (CLABSI), methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* infection (CDI), and surgical site infection (SSI). Greater than 80% of respondents also reported having prevention strategies in place for these four HAIs.

IPCAC used these results, along with information from an extensive review of state and federal HAI surveillance and prevention activities, to select CLABSI and SSI as Arizona's HAI prevention targets.

**2. Establish an HAI surveillance, prevention and control program.**

ADHS originally envisioned a comprehensive HAI program within the Office of Infectious Disease Services (OIDS) to address HAI surveillance, prevention, and control staffed by a program manager, two epidemiologists, a prevention project coordinator, and a program project specialist. One of these staff members was desired to have clinical experience. Because resources were not available for this comprehensive program, the State HAI Coordinator position was established, which reports to the OIDS Office Chief and is responsible for HAI program activities. The Medical Director for ADHS' Bureau of Epidemiology and Disease Control is available for consultation on clinical matters.

In order to understand the needs of healthcare facilities in the state and to inform the role of ADHS in HAI surveillance, prevention, and control, the HAI Coordinator surveyed IPs in the state to determine what role they saw for ADHS in monitoring, preventing, and controlling HAIs. Many respondents indicated that they would benefit from ADHS serving in a coordinating role or providing guidance related to HAI prevention and surveillance. Results from this survey have informed initial HAI program development as well as this plan. The HAI Coordinator will continue to assess ADHS' role on a regular basis by maintaining relationships with key infection prevention organizations including APIC, AzHHA, HSAG, and IPCAC.

**i. Designate a State HAI Prevention Coordinator**

Jessica Rigler has been hired as the State HAI Prevention Coordinator. She has developed the HAI plan and will be primarily responsible for the activities of Arizona's HAI program.

**ii. Develop dedicated, trained HAI staff with at least one FTE to oversee the four major HAI activity areas.**

Unless additional resources are identified, the State HAI Coordinator will be the sole FTE devoted entirely to HAI activities. The Special Investigations Epidemiologist will continue to conduct passive surveillance for invasive infections and investigate HAI outbreaks. Additional OIDS staff at ADHS may support functions of the HAI program in a reduced capacity, serving as subject matter experts, facilitating partnerships with infection control individuals and organizations, and supporting HAI surveillance activities. A Council of State and Territorial Epidemiologists (CSTE) Fellow will also provide assistance with HAI surveillance activities. If additional HAI funding is made available and the hiring freeze at ADHS is lifted, staffing levels for the HAI prevention program will be increased in line with the original vision described above.

The HAI Coordinator and one infectious disease epidemiologist will attend the Society for Healthcare Epidemiology of America (SHEA)/Centers for Disease Control and Prevention (CDC) Course in Healthcare Epidemiology in May of 2010. One current ADHS employee and two county health department employees have previously received SHEA Healthcare Epidemiology training and will be available to consult with the HAI Coordinator. In addition, the Medical Director for ADHS' Bureau of Epidemiology and Disease Control will provide clinical guidance and oversight to the HAI program.

**3. Integrate laboratory activities with HAI surveillance, prevention, and control efforts.**

Per the Arizona Administrative Code, laboratories are required to report invasive MRSA, vancomycin-resistant *Staphylococcus aureus* (VRSA), vancomycin-intermediate *Staphylococcus aureus* (VISA), and invasive *Streptococcus pneumoniae* (*S. pneumoniae*) cases to ADHS. The Office of Infectious Disease Services within ADHS conducts routine surveillance for these infectious agents and monitors trends in antibiotic resistance.

While suspect invasive MRSA specimens are not routinely tested at the Arizona State Laboratory (ASL), this laboratory does have the capability to test VISA/VRSA in order to confirm tests run elsewhere. Five suspect VISA/VRSA specimens were sent to ASL for testing

in 2007, six in 2008, and four in 2009. To confirm VISA/VRSA isolates, ASL utilizes the E-test, using a 0.5 McFarland standard to prepare inoculum. Any VISA/VRSA isolates with a minimal inhibitory concentration of 4 µg/mL or higher are sent to CDC for confirmatory testing. In addition, all VISA/VRSA organisms are reported to the Office of Infectious Disease Services for surveillance and prevention purposes.

If an HAI cluster is suspected, as a reference laboratory, ASL can provide confirmatory testing upon request, including polymerase chain reaction (PCR) and pulse-field gel electrophoresis (PFGE) on a few nosocomial agents including *Acinetobacter* spp., *Pseudomonas* spp., and *Burkholderia* spp and can coordinate specimen submission to CDC for confirmatory testing if necessary. In general, ADHS, with county health departments, has assisted healthcare facilities by conducting epidemiological studies to identify potential sources of nosocomial clusters and recommending appropriate infection control recommendations.

Since 2008, antibiotic susceptibility information included on laboratory reports submitted to ADHS for invasive MRSA and invasive *S. pneumoniae* are entered into a separate surveillance database and analyzed annually. For 2008, susceptibility patterns were reported to ADHS for approximately 37% and 22% of all reported invasive MRSA and *S. pneumoniae* isolates, respectively.

**i. Improve laboratory capacity to confirm emerging resistance in HAI pathogens and perform typing where appropriate.**

The HAI Coordinator will work with representatives at ASL and a commercial laboratory that performs testing for many healthcare facilities in the state to develop an enhanced partnership between the two organizations. The goal of this partnership will be to enhance antibiotic resistance testing in the state for organisms or antibiotics which are currently unavailable at ASL. A proposed mechanism for supporting this partnership is to establish a system during HAI outbreaks whereby ASL can forward specimens to the commercial laboratory for antibiotic resistance testing. In return, the commercial laboratory could forward select specimens to ASL for PFGE analysis.

**4. Improve coordination among government agencies or organizations that share responsibility for assuring or overseeing HAI surveillance, prevention and control.**

The survey of IPs demonstrates that healthcare facilities are actively monitoring HAI transmission and implementing measures to control and prevent HAI spread. While facilities are required to inform ADHS or the county health department of individual cases or outbreaks of specified reportable diseases, some may be reluctant to report cases or outbreaks of HAIs that are not explicitly reportable to the health departments due to concerns regarding confidentiality of investigations and the potential involvement of ADHS' Division of Licensing Services. However, HAI reporting can be mutually beneficial for facilities, ADHS, and county health departments. Once alerted to HAI outbreaks, ADHS and county health department staff can assist facilities with investigations and make recommendations for infection control and prevention. ADHS will gain a better understanding of the HAI burden in the state in order to target future surveillance, prevention, and control initiatives. In addition, ADHS can share expertise with facilities over time by connecting facilities with

similar outbreaks to identify solutions and share strategies established in previous investigations.

Staff members within OIDS, including the HAI Coordinator, will work with staff in the ADHS Division of Licensing Services to coordinate mechanisms for increased HAI prevention. OIDS staff will work with Licensing to identify solutions which promote HAI outbreak investigation and provision of guidance on HAI prevention to prevent further illness. OIDS staff will partner with the Division of Licensing Services to identify mechanisms for quality improvement. This process could increase trust between healthcare facilities and the Division of Licensing Services and strengthen the relationship between OIDS and the Division of Licensing Services, which both strive to increase patient safety and reduce HAI incidence.

**5. Facilitate use of standards-based formats by healthcare facilities for purposes of electronic reporting of HAI data.**

ADHS facilitates use of HL7 for electronic reporting of laboratory data. Currently two commercial laboratories transmit electronic laboratory reports (ELR) to ADHS, with the Arizona State Laboratory and two additional commercial laboratories slated to electronically report results to ADHS in the coming months. At this time, only laboratory reports of required reportable conditions, including invasive MRSA, VISA/VRSA, and invasive *S. pneumoniae* are electronically sent to ADHS. Because reports of these conditions arrive with test results but no supporting clinical documentation, it is usually unknown whether they are healthcare or community-associated. In addition, laboratories do not typically report pathogens such as *Clostridium difficile* or *Klebsiella pneumoniae* carbapenemase-containing organisms that are not currently required to be reported under the Arizona Administrative Code. Thus, reporting of HAI data, electronic or otherwise, is not representative of statewide HAI burden.

ADHS is currently assessing tools for electronic reporting, which would help determine whether conditions were acquired in a healthcare facility or in the community. However, implementation is not expected within this grant period due to the cost associated with developing IT infrastructure for electronic reporting and the fact that electronic medical records are not yet ubiquitous enough to support standardized reporting formats.

## **Surveillance, Detection, Reporting, and Response**

### **1. Improve HAI outbreak detection and investigation.**

In addition to Arizona Administrative Code requirements mandating reporting for invasive MRSA, invasive *Streptococcus pneumoniae*, and VISA/VRSA, ADHS has a communicable disease rule for reporting “emerging or exotic disease agents.” This rule can be used to allow reporting of suspected HAI outbreaks (e.g., *Pseudomonas aeruginosa*, *Clostridium difficile*). Additionally, in the past, ADHS has created a limited time reporting rule in order to document and investigate newly emerging outbreaks such as *Acinetobacter* spp. and *Burkholderia* spp.. This tool could be used to investigate targeted HAIs in the future.

IPCAC has recommended that *Clostridium difficile* be made reportable from laboratories. At the current time, state rule-making has been temporarily halted; however, ADHS is interested in following IPCAC’s recommendations should rule-making capability be restored and could again implement a time-limited rule to increase surveillance of emerging HAIs.

#### **i. Work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments.**

IPCAC, Arizona’s legislatively initiated HAI advisory committee was tasked with providing a number of recommendations to the Arizona Governor and Legislature, including recommendations about the need for additional HAI reporting. The committee has concluded that other strategies including robust infection control programs, provider and community education campaigns, and an enhanced public health surveillance system are more effective than public reporting for improving healthcare outcomes. Therefore, HAI reporting, including outbreak reporting, will likely remain voluntary unless overriding federal legislation is introduced.

One initial method to improve voluntary HAI reporting, including outbreak reporting, is to minimize IPs’ barriers to reporting. ADHS will partner with the local APIC chapter to engage members in a discussion of barriers to reporting in an effort to understand these barriers. Outcomes of this discussion will be documented and ADHS, with input from APIC members, will identify ways these barriers can be overcome.

The HAI Coordinator is also participating in regular conference calls with the CSTE HAI Subcommittee in order to learn from experiences of other states. Participation with CSTE will allow ADHS to identify best practices for outbreak reporting and apply lessons learned from states with more HAI prevention experience.

#### **ii. Establish protocols and provide training for health department staff to investigate outbreaks, clusters, or unusual cases of HAIs.**

Currently one ADHS staff member has received training on HAI investigation through the SHEA/CDC Healthcare Epidemiology training course. Two additional staff members will attend this course in 2010.

A general protocol for outbreak investigation exists at ADHS and infectious disease epidemiologists have been trained on this protocol. For specific HAIs such as VISA/VRSA and MRSA, ADHS staff members provide training to county health department staff on ADHS and CDC investigation and control guidelines. An OIDS staff member has previously delivered training to county health departments on HAI outbreak investigation and OIDS staff members are available to assist county health departments with HAI outbreak investigations by request. ADHS has assisted with three outbreak investigations in healthcare facilities in 2008 and 2009 for *Acinetobacter baumannii*, *Burkholderia cepacia*, and *Legionella pneumophila*.

With additional resources, ADHS could provide more comprehensive HAI investigation training to county health department staff and develop improved investigation protocols for future use.

**iii. Develop mechanisms to protect facility/provider/patient identity when investigating incidents and potential outbreaks during the initial evaluation phase where possible to promote reporting of outbreaks.**

Existing mechanisms are in place to protect the privacy of patients, facilities and providers when investigating HAIs. Protections afforded by the Health Insurance Portability and Accountability Act (HIPAA) protect a patient's personal health information from being disclosed to individuals not involved with the patient's care. In order to protect facility and provider identity in potential outbreak situations, OIDS staff generally consult with the facility's IPs about strategies that work best for them. In many instances, the presence of state health department officials can raise suspicions of patients and others, who may conclude that there is a problem at the facility. For this reason, OIDS staff entering a facility during an investigation typically attempt to uphold a degree of anonymity by not drawing attention to their status as a state health department worker. This can include removal of an ADHS badge prior to entering facilities, and dressing in plain clothes when permitted. ADHS will continue to work with facility IPs in order to protect provider and facility privacy where possible.

**iv. Improve overall use of surveillance data to identify and prevent HAI outbreaks or transmission in healthcare settings.**

At present, ADHS has only passive surveillance mechanisms in place to identify potential HAIs through laboratory reporting. Invasive MRSA, VISA/VRSA, and invasive *S. pneumoniae* are reportable in the state, but clinical information sufficient to identify these organisms as healthcare-associated is not generally provided. Thus, HAI outbreaks are only detected by ADHS if an OIDS epidemiologist identifies a pattern in laboratory reports or a facility voluntarily reports an outbreak to ADHS. For common HAI-causing organisms such as *Legionella* spp. and *Acinetobacter* spp., ADHS relies primarily on voluntary reporting to detect an outbreak.

If an HAI outbreak is detected or reported, an infection preventionist at the facility can contact a state and/or county epidemiologist for infection control and prevention guidance if desired. An epidemiologist may visit the facility in order to identify a point source of infection and observe facility operations in the unit in which the HAI is

detected. The epidemiologist will follow up on this investigation by providing infection control and prevention recommendations to the facility to complement action already taken by the infection preventionist.

A number of projects have been undertaken in order to assess existing surveillance data, with additional projects planned in the future. An ADHS infectious disease epidemiologist recently undertook a study comparing MRSA lab data from normally sterile sites with the Arizona Hospital Discharge Database (HDD) to determine the feasibility of using the HDD to monitor MRSA infections, which could augment surveillance information provided by laboratory reports. At the outset of the study, it was thought that HDD data would give a better indication about whether or not a case was hospital-associated, which would improve ADHS' capacity to monitor healthcare-associated MRSA. Unfortunately, this study found that lab data and HDD data were not closely matched. The name fields for the data sets were not easily matched due to different input styles, leading to difficulty in comparing cases. In addition, it was not possible to determine whether MRSA reported through the HDD was invasive. Finally, data from the HDD did not provide confirmation that a case was healthcare-associated, decreasing its utility in allowing ADHS to focus on healthcare-associated MRSA. For these reasons, ADHS continues to focus primarily on laboratory data for invasive MRSA surveillance. Laboratory data, however, do not distinguish hospitalized cases from non-hospitalized cases. In addition, like with HDD data, it is difficult to determine whether reported MRSA cases are healthcare-associated or community-associated.

Arizona's CSTE Fellow and the HAI Coordinator will work together on a project that will aim to identify the number of MRSA infections that are healthcare-associated versus community-associated. This will require a medical records review of subjects testing positive for invasive MRSA. Results of this study will establish a baseline for healthcare-associated versus community-associated rates of infection in the state.

The CSTE Fellow will also undertake a surveillance project to identify the percentage of invasive MRSA infections that are blood stream infections (BSIs). She will review laboratory reports for subjects testing positive for invasive MRSA. These reports will be reviewed to determine the site of MRSA infection. A similar study in Tennessee found that about 90% of MRSA infections were BSI. If similar rates of MRSA from BSIs are found in Arizona, surveillance of MRSA can focus primarily on BSIs, a more efficient use of surveillance capacity in the state. More funding is necessary for ADHS to improve use of surveillance data beyond the projects mentioned above.

In discussions of public reporting, IPCAC representatives communicated support for continuing existing reporting systems, including ADHS' passive surveillance system for HAI-causing pathogens. However, IPCAC raised concerns about the increased burden and resource requirements that will be placed on healthcare facilities to enhance surveillance of HAIs in a standardized manner (e.g., through NHSN) and the potential for misinterpretation of publicly reported data if reporting is not done with appropriate care and education. Until these concerns are resolved, ADHS must work with partners to increase support for voluntary surveillance using NHSN. Currently, ADHS cannot serve

as an administrator for a NHSN group without potentially compromising the identity of participating facilities. Thus, ADHS does not have access to any NHSN data. ADHS recognizes the need to balance facility concerns over privacy and misinterpretation of data with the responsibility to respond to HAIs. As such, the State HAI Coordinator is currently exploring other methods of gaining access to HAI surveillance data while ensuring the privacy of reporting facilities. A handful of other states have been successful in encouraging facilities to voluntarily report HAI data to the state in the absence of a legislative mandate through data use agreements drawn up by state attorneys that protect data privacy. The HAI Coordinator will continue to pursue this voluntary approach to HAI reporting through consultation with ADHS legal staff and advisement from other successful states in hopes of establishing a group in NHSN.

In the event that funding and other resources are unavailable for ADHS to facilitate a new NHSN group and data use agreements are not feasible, the HAI Coordinator plans to contact HSAG to determine if they will consider developing an agreement with their existing MRSA collaborative allowing ADHS access to their NHSN data, in aggregate if necessary. This will be a key initial step in enhancing HAI surveillance in the state.

**2. Enhance laboratory capacity for state and local detection and response to new and emerging HAI issues.**

In order to enhance laboratory capacity for state and local detection of and response to HAIs, ADHS will first work to enhance relationships with existing laboratories used in the state. The HAI Coordinator will obtain HAI points of contact at ASL and commercial laboratories to initiate conversations about HAI testing and reporting. Laboratory reportable conditions relevant to HAI will be reviewed and discussions held about which conditions are reportable and what the triggers are for labs to contact ADHS if they identify emerging HAI issues.

**3. Improve communication of HAI outbreaks and infection control breaches.**

ADHS has had past success in communicating HAI outbreaks and infection control breaches. In these cases, patient and facility confidentiality were maintained throughout the investigation process. In past outbreaks, OIDS epidemiology staff have been able to identify the source of infection, provide infection control recommendations to the facility and publish a report to inform the scientific and medical community. This has occurred in outbreaks of *Acinetobacter*, *Burkholderia*, and *Legionella*. OIDS staff members will continue outbreak investigation and subsequent effective communication of results to the scientific community while maintaining patient and facility privacy.

**i. Develop standard reporting criteria including number, size, and type of HAI outbreak for health departments and CDC.**

While ADHS has no mandate requiring facilities to report HAI incidents other than cases of reportable conditions previously mentioned, it can be mutually beneficial for Arizona facilities to voluntarily report HAI outbreaks. When outbreaks are reported, ADHS can work with the reporting facility, county health departments, and CDC, if needed, to offer expertise in identifying the etiology and source of the outbreak and propose infection control measures. Additionally, outbreak reporting allows for better tracking and control of emerging infections in the state. With increased levels of reporting, it will be possible

for ADHS to learn what has and has not worked with regard to outbreak reporting, allowing for the development of standard criteria for reporting. Standardized reporting will assure consistent surveillance across facilities.

ADHS will work with IPCAC and solicit input from additional partners to advise on standard reporting criteria. HSAG's MRSA collaborative, which utilizes NHSN reporting, will be an invaluable source of advice on standard reporting criteria currently in use. In the event that a state or federal reporting mandate is implemented, standard pre-determined reporting criteria that meet the state's needs will be beneficial.

**ii. Establish mechanisms or protocols for exchanging information about outbreaks or breaches among state and local governmental partners.**

ADHS and local health departments have established secure communication with IPs that allows for information shared between IPs and the health department to be protected. HIPAA regulations allow for protected information exchange between state and county health departments and IPs. In addition, OIDS has and will continue to protect facility identity throughout the course of an outbreak investigation.

As discussed previously, the HAI Coordinator will work with individuals in the Division of Licensing Services to reach an agreement regarding communication of infection control breaches.

**4. Identify at least two priority prevention targets for surveillance in support of the HHS HAI Action Plan.**

While funding is not currently available to establish a comprehensive HAI surveillance program, ADHS has surveyed IPs in order to determine which HAIs are currently being monitored. Any prevention targets for surveillance set by ADHS will be aligned with current activities in facilities across the state. Greater than 90% of respondents indicated that their unit/facility currently performs surveillance for CLABSI (98%), MRSA (94%), CDI (92%), or SSI (90%). Greater than half of respondents indicated performing surveillance for ventilator associated pneumonia (VAP; 79%) and catheter-associated urinary tract infections (CAUTI; 75%).

From the survey of IPs and discussions with IPCAC, the two prevention targets most feasible for surveillance are CLABSIs and SSIs. In addition, current passive surveillance of MRSA and planned MRSA surveillance projects make MRSA a good target for continued surveillance efforts. With additional funding, surveillance efforts could be expanded to other priority HAIs including CDI.

**5. Adopt national standards for data and technology to track HAIs.**

While funding is not currently available to implement a comprehensive HAI surveillance program, ADHS endorses NHSN as the technology standard for HAI monitoring in the state. Based on a survey of Arizona IPs, at least ten facilities are currently using NHSN to monitor one or more HAIs. Baseline measures and target surveillance goals for Arizona will be identified once resources are available to conduct more extensive surveillance.

**6. Develop state surveillance training competencies.**

In order to carry out basic levels of HAI surveillance, healthcare facilities and laboratories must have knowledge of conditions reportable to ADHS under the Arizona Administrative Code. If funding is available for enhanced surveillance, the HAI Coordinator will work with the OIDS Office Chief and other epidemiology staff to develop state surveillance training competencies that include knowledge of selected NHSN modules.

In order to appropriately develop training competencies, the HAI Coordinator will undergo training through CDC's Division of Healthcare Quality Promotion regarding NHSN recruitment, enrollment, and user functionality. In addition, the HAI Coordinator has been, and will continue to participate on monthly NHSN calls in order to understand other states' experiences with NHSN and to apply and communicate lessons learned to Arizona facilities interested in initiating participation in NHSN.

**i. Conduct local training for appropriate use of surveillance systems (e.g., NHSN) including facility and group enrollment, data collection, management, and analysis.**

In the absence of additional funding, the HAI Coordinator will direct facilities interested in utilizing NHSN as their surveillance system to the NHSN training section on the CDC website. Additional resources including staff and funding are necessary to develop and implement local training for appropriate use of NHSN. If resources were made available, the HAI Coordinator would work with staff at CDC's Division of Healthcare Quality Promotion to design local trainings for NHSN use. The HAI Coordinator would develop detailed training programs for Arizona facilities on data collection, management and analysis specific to the Patient Safety Module of NHSN, which collects CLABSI and SSI data. Training topics would include case definitions, collection of denominator data, and data validation.

**9. Develop preparedness plans for improved response to HAI.**

Because improved health department response to HAI will be dependent on additional resources, preparedness plan development will most likely occur only with allocation of such resources. In the case that resources are allocated, the HAI Coordinator will engage partner organizations including AzHHA to establish a plan.

**i. Define processes and tiered response criteria to handle increased reports of serious infection control breaches, suspect cases/clusters, and outbreaks.**

Within a preparedness plan for improved health department response to HAI, a tiered response system will be established. The HAI Coordinator would collaborate with the ADHS Division of Licensing Services to determine a trigger for which an HAI outbreak would be considered a serious infection control breach. By working with critical entities including AzHHA and Licensing, the HAI Coordinator can clearly define processes for improved response to HAI outbreaks that are agreeable to all parties involved.

## **Prevention**

### **1. Implement HICPAC recommendations.**

#### **i. Develop strategies for implementation of HICPAC recommendations for at least two prevention targets specified by the state multidisciplinary group.**

Many facilities have developed strategies for successful implementation of HICPAC recommendations. ADHS hopes to support an existing collaborative or an offshoot of this collaborative to connect facilities that are interested in improving implementation of HICPAC recommendations through sharing of these strategies and best practices. ADHS will provide background information on HICPAC recommendations and technical assistance for facilities wishing to implement these recommendations. Any guidance provided by ADHS will occur by voluntary request of the healthcare facility. Although CLABSI and SSI were selected as prevention targets by IPCAC, ADHS will also provide guidance on implementing HICPAC strategies for preventing multi-drug resistant organisms (MDRO) if requested, provided additional funding is made available to support these efforts.

### **2. Establish prevention working group under the state HAI advisory council to coordinate state HAI collaboratives.**

#### **i. Assemble expertise to consult, advise, and coach inpatient healthcare facilities involved in HAI prevention collaboratives.**

Members of the current HAI advisory committee, IPCAC, will be invited to serve in an advisory role to ADHS and additional members will be recruited. Once IPCAC membership is expanded and an initial meeting is held to review the HAI plan and set HAI priorities on which to initially focus, the HAI Coordinator will assess member interest in forming relevant working groups to meet outside of the committee. If interest is sufficient, one of these working groups will center on prevention collaboratives. A handful of infection preventionists in the state, including a current IPCAC member, currently comprise an Arizona MRSA prevention collaborative facilitated by HSAG. HSAG members will be recruited to join the expanded membership of IPCAC. It is possible that an HSAG member and IPs participating in the MRSA collaborative will be interested in joining a prevention collaborative working group and will lend expertise to advise the formation of new prevention collaboratives.

### **3. Establish HAI collaboratives with at least 10 hospitals**

Currently Arizona's QIO, HSAG, facilitates an MRSA prevention collaborative. Without additional funding to support collaborative formation, the HAI Coordinator will discuss with HSAG the possibility of ADHS participating in this existing collaborative. The HAI Coordinator will hold discussions with HSAG to learn about mechanisms for collaborative establishment as well as key factors driving participation and collaborative success. Eventually, ADHS hopes to work with HSAG to expand the MRSA collaborative from its current 6 members to 10 or more members and/or establish additional collaboratives with a focus on other HAIs of interest or HAI prevention in general. To this end, ADHS recently conducted a survey asking IPs to indicate their level of interest in participating in a voluntary collaborative to establish prevention and surveillance strategies for HAIs. Eighty-five percent of respondents were interested in either participating in such a collaborative or learning more

about it. This demonstrates interest in collaborative creation, which can be achieved in the future with additional resources.

**i. Identify staff trained in project coordination, infection control, and collaborative coordination.**

The HAI Coordinator will establish a relationship with the lead of the HSAG MRSA collaborative, which is composed mainly of IPs, in order to better understand ADHS' potential role in such a collaborative. This HSAG MRSA lead will be asked to provide expertise related to HAI prevention collaboratives. In addition, a prevention working group composed of IPCAC members can provide expertise in collaborative coordination.

The HAI Coordinator attends regular prevention collaborative calls hosted by CDC, through which expertise is shared related to collaborative coordination. The HAI Coordinator will also receive project management training in order to formally equip her with expertise in project coordination.

**ii. Develop a communication strategy to facilitate peer-to-peer learning and sharing of best practices.**

ADHS will turn to community partners already involved in prevention collaboratives for counsel on peer-to-peer learning and best practices dissemination. These individuals will help define ADHS' role in a prevention collaborative and lend insight into effective ways to move forward with an expanded collaborative.

**iii. Establish and adhere to feedback of clear and standardized outcome data to track progress.**

While funding is not currently available to support collection of standardized outcome data to track collaborative progress, the existing MRSA collaborative facilitated by HSAG utilizes the NHSN MDRO module to track outcomes. It is possible that additional members joining this collaborative may also agree to use NHSN to track progress, particularly in light of the fact that existing collaborative members are already experienced NHSN users.

**4. Develop state HAI prevention training competencies.**

The HAI Coordinator will evaluate existing HAI prevention training modules and materials available to Arizona healthcare providers to determine gaps in training and existence of outdated information. In consultation with subject matter experts, new training materials will be developed to fill any gaps and outdated training materials will be updated. The HAI Coordinator will contact other states individually and through the CSTE HAI Subcommittee to determine the existence of effective training materials prior to developing any new materials.

**i. Consider establishing requirements for education and training of healthcare professionals in HAI prevention.**

The HAI Coordinator will confer with APIC and AzHHA representatives or professional boards to determine current HAI education and training requirements for Arizona healthcare providers. IPCAC members discussed the prospect of requiring infection

control training for healthcare professionals. In light of the fact that infection control education is currently provided during professional training, the committee decided not to recommend that healthcare professionals undergo additional mandatory training in HAI prevention as a part of licensure requirements. The committee did endorse HAI prevention training as an essential component to improving patient outcomes, however, and informally recommended inclusion of HAI prevention training at the time of facility licensure. The HAI Coordinator will hold a discussion with the ADHS Division of Licensing Services to determine whether an HAI training program should be instituted in conjunction with first-time licensing of a healthcare facility. Implementation of this activity would be dependent on additional resources.

**8. (Other activity) Develop new and promote availability of existing HAI prevention resources.**

**i. Revise and provide training on the ADHS Guidelines for the Management of Patients with Antibiotic-Resistant Organisms.**

In 1999, ADHS developed its Guidelines for the Management of Patients with Antibiotic-Resistant Organisms, which are available on the ADHS website. Reportedly, these guidelines are the primary resource available to Arizona long term care and assisted living facilities for infection control of multi-drug resistant organisms and are still in use. Although these guidelines were developed a decade ago, many components are still relevant. In light of this, the guidelines should be updated to reflect current evidence-based practice. If resources are available, the HAI Coordinator will work with the ADHS Medical Director of the Bureau of Epidemiology and Disease Control and infection control experts to update the guidelines.

If additional resources are available beyond those necessary to revise the Guidelines, ADHS staff will provide training on these Guidelines to staff at healthcare facilities as requested. A particular need for this kind of training has been identified among staff at long term care and assisted living facilities, which may house patients with multi-drug resistant organisms. At the minimum, a PowerPoint presentation could be delivered in a webinar format to facilities statewide with the slides made electronically available to all interested parties.

**ii. Implement antimicrobial stewardship programs that target multi-drug resistant organism reduction in healthcare settings.**

IPCAC, Arizona's HAI advisory committee, has recommended to the Arizona Governor and Legislature that antimicrobial stewardship programs targeting MDRO reduction be implemented in healthcare settings. Such programs have been implemented in the past by ADHS and partners such as AzHHA. If resources are available in the future, the HAI Coordinator will work with partners to build upon previous antimicrobial stewardship work in order to fulfill IPCAC's recommendation.

**iii. Make electronic HAI prevention resources publically available.**

The HAI Coordinator will work with the ADHS Web Postings group to develop an HAI program website. This website will include information about current HAI prevention activities within and outside of ADHS and will link to nationally recognized guidelines

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for HAI prevention and control. In a recent survey of IPs, respondents indicated a desire for a repository of HAI information. The creation of an HAI website will address this need.

## **Evaluation and Communications**

### **1. Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact.**

At the time ADHS responded to the request for proposal for the ARRA-HAI grant, OIDS staff members assessed the baseline status of the state's need for HAI prevention. From this assessment, a comprehensive HAI program was devised, which could be created contingent upon the level of funding awarded. More recently, with current funding levels in mind, ADHS surveyed IPs in order to gather input about state HAI program development. One survey question assessed the need for a state HAI prevention program by asking IPs how ADHS can support their HAI prevention efforts. Results from this survey will guide the development of ADHS' HAI prevention program.

Twenty-eight of the survey respondents provided input regarding ways ADHS can support their HAI prevention efforts. The most common responses indicated that additional resources, including staffing, are necessary for effective HAI prevention in facilities; IPs rely on evidence-based guidelines for HAI prevention; that data collection issues make accurate HAI surveillance challenging; and that ADHS can act as a unifier for individuals working in HAI prevention across the state.

Each of these points are addressed in the body of this plan, although some, including the need for enhanced staffing and challenges with surveillance, are not feasible for ADHS to fully address given current funding levels.

#### **i. Establish evaluation activity to measure progress towards targets.**

The HAI Coordinator will undertake a simple process evaluation to determine whether action items outlined in this plan are implemented in a timely manner. Because the plan is flexible and may change depending on competing priorities (e.g., H1N1) or resource allocation, action items not met by the timeline specified in the plan will be revisited to determine whether they need to be revised. Quarterly progress reports submitted to HHS will allow for quick assessments of plan progress. These quarterly assessments will be shared with interested partners.

Currently no funding is available for comprehensive monitoring of HAIs at the state level. Therefore, a baseline level for HAIs cannot be assessed. Due to this challenge, process measures rather than outcome measures will need to be assessed to determine progress toward HAI prevention in the state. For instance, the survey of IPs collected information about the number of facilities currently using standardized methods to monitor HAIs and which HAIs are monitored. ADHS will conduct a follow-up survey to determine whether the number of facilities monitoring HAIs or the number of HAIs monitored has increased. Similarly, ADHS collected baseline information about HAI prevention activities in the state. A future survey can compare baseline levels of prevention with levels following state HAI program implementation.

**ii. Establish systems for refining approaches based on data gathered.**

As HAI program activities progress, identified needs and strategies may change. The HAI Coordinator, in conjunction with the OIDS Office Chief, other ADHS staff, and external partners will regularly assess the need for revisions to the HAI plan.

**2. Develop and implement a communication plan about the state's HAI program and progress to meet public and private stakeholders' needs.**

**i. Disseminate state priorities for HAI prevention to healthcare organizations, professional provider organizations, governmental agencies, non-profit public health organizations and the public.**

In order to introduce the idea of a state HAI prevention plan and to provide information on ADHS' initial ideas regarding this plan, the HAI Coordinator presented information through a number of venues including the Epidemiology and Surveillance Capacity In-Person meeting with all Arizona county health departments, IPCAC meetings, and through a survey of Arizona IPs.

ADHS will disseminate information about HAI prevention and activities through partner organizations with large and representative membership including APIC, AzHHA, HSAG and IPCAC. In January and February of 2010 the executive summary and major plan components along with timelines and target activities will be shared in these venues. The HAI Coordinator will regularly present new information about state HAI prevention activities at meetings of IPCAC and partner organizations and use group listservs to disseminate relevant information.

## **Conclusion**

This plan sets the framework for coordinated HAI prevention in Arizona, but will evolve over time based on stakeholder input, provision of additional resources, and enhanced ADHS capacity. The HAI Coordinator will share the plan with partners, including membership of APIC, AzHHA, and HSAG in order to gain input and further define ADHS' role in HAI prevention. A revised version of the plan with partner input incorporated will be shared back with organizational partners and county health departments.

While a few aspects of the plan have already been addressed, full-fledged implementation will begin in early 2010. The appendix includes a detailed action plan outlining activities and timelines for meeting objectives that ADHS plans to undertake given current capacity. In summary, next steps for HAI plan implementation include:

- Expanding IPCAC membership, with meetings convened by ADHS
- Enhancing collaboration with regional partners including APIC, AzHHA, and HSAG
- Making electronic HAI prevention resources publically available
- Establishing partnerships between ADHS, ASL, and large commercial laboratories
- Facilitating an agreement with ADHS' Division of Licensing Services to coordinate mechanisms for enhancing HAI prevention
- Monitoring HAIs through ADHS' passive surveillance system
- Revising existing HAI investigation protocols and providing training to county health department staff
- Continuing to assist facilities and county health departments with outbreak investigations by request
- Working with partners to explore establishment of a prevention collaborative
- Facilitating a group of partners to explore and share best practices for implementing proven prevention strategies for reduction of HAIs, including CLABSI and SSI
- Working with partners to identify barriers to reporting HAI transmission or outbreaks to ADHS
- Consulting with ADHS legal counsel and other states to explore creation of data use agreements that allow facilities to share HAI surveillance data with ADHS while protecting data privacy
- Disseminating information about HAI prevention activities to partner organizations

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**Appendix: HAI Plan Timeline**

OBJECTIVES	ACTIVITIES	TARGET DATE	MEASURE OF SUCCESS
Establish statewide HAI prevention leadership through formation of a multidisciplinary council	<ul style="list-style-type: none"> <li>• SB 1356 established IPCAC</li> <li>• Invite continued participation from existing IPCAC members</li> <li>• Recruit additional members from HSAG, CMS</li> <li>• Informally poll current members and ADHS staff for recommendations on additional members</li> <li>• Create initial agenda and mission of expanded committee</li> </ul>	Initiated 10/2008; expansion 1/2010	<ul style="list-style-type: none"> <li>• IPCAC is expanded beyond current membership to be more representative of HAI players in the state</li> <li>• 1<sup>st</sup> meeting convened by 2/2010</li> </ul>
Develop and implement a communication plan about the state's HAI program and progress to meet public and private stakeholders' needs	<ul style="list-style-type: none"> <li>• Present executive summary and timeline of the plan to partners (e.g., APIC, AzHHA, IPCAC)</li> <li>• Present plan progress to partners on a continual basis</li> </ul>	Initiated 6/2009; Ongoing	<ul style="list-style-type: none"> <li>• Presentation of relevant plan components in a timely manner</li> </ul>
Collaborate with local and regional partners	<ul style="list-style-type: none"> <li>• Establish contact with HSAG</li> <li>• Attend and contribute to APIC meetings</li> <li>• Explore collaboration opportunities with AzHHA</li> </ul>	Initiate 1/2010; Ongoing	<ul style="list-style-type: none"> <li>• Relationship with HSAG initiated</li> <li>• Regular ADHS attendance at APIC meetings</li> <li>• Contact established with AzHHA</li> </ul>
Work with partners to improve outbreak reporting to state health departments	<ul style="list-style-type: none"> <li>• Hold discussion with IPs to identify barriers to reporting</li> <li>• Participate on CSTE HAI conference calls to learn about other states' experiences</li> </ul>	Initiate by 2/2010; Ongoing	<ul style="list-style-type: none"> <li>• Report of IPs' barriers to reporting created</li> <li>• Ongoing participation on CTSE-HAI calls</li> </ul>
Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact	<ul style="list-style-type: none"> <li>• Conduct a process evaluation comparing program progress with dates outlined in this plan</li> <li>• Submit quarterly progress reports to CDC</li> </ul>	Ongoing	<ul style="list-style-type: none"> <li>• Conduct of process evaluation</li> <li>• Submission of quarterly progress reports</li> </ul>
Make electronic HAI prevention resources publically available	<ul style="list-style-type: none"> <li>• Research web resources, including SHEA, CDC, and HICPAC, to identify current HAI prevention resources</li> <li>• Create an ADHS webpage with HAI prevention resources and activities listed</li> </ul>	3/2010	<ul style="list-style-type: none"> <li>• Creation of an HAI prevention web page on azdhs.gov</li> </ul>
Train HAI staff	<ul style="list-style-type: none"> <li>• HAI staff attendance at SHEA Healthcare Epidemiology course in May 2010</li> </ul>	10/2009; Ongoing	<ul style="list-style-type: none"> <li>• Attendance at SHEA course</li> </ul>

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Integrate laboratory activities with HAI surveillance, prevention, and control efforts	<ul style="list-style-type: none"> <li>• Establish partnership between ASL and large commercial laboratory to enhance antibiotic resistance testing</li> </ul>	6/2010	<ul style="list-style-type: none"> <li>• Memorandum of Understanding in place for antibiotic resistance testing partnership</li> </ul>
Improve coordination among government agencies that share responsibility for assuring or overseeing HAI surveillance, prevention, and control	<ul style="list-style-type: none"> <li>• Meet with Licensing to understand current process for investigating complaints</li> <li>• Facilitate an agreement with Licensing to coordinate mechanisms for HAI prevention</li> <li>• Establish mechanisms for exchanging information about outbreaks with Licensing</li> </ul>	6/2010	<ul style="list-style-type: none"> <li>• Agreement in place between Licensing and OIDS regarding HAI outbreak and transmission investigation and reporting procedures</li> <li>• Agreement in place between Licensing and OIDS for information exchange about HAI events</li> </ul>
Establish protocols and provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs	<ul style="list-style-type: none"> <li>• Revise existing HAI investigation protocols</li> <li>• Adapt CDC protocols for specific HAI-causing organisms (MRSA, VISA/VRSA) for Arizona use</li> <li>• Train county health departments (CHDs) on outbreak investigation</li> </ul>	Initiate by 6/2010; Ongoing	<ul style="list-style-type: none"> <li>• Existing HAI investigation protocols revised</li> <li>• CDC protocols examined and adapted for Arizona use</li> <li>• CHDs trained on any new protocols</li> </ul>
Enhance laboratory capacity for state and local detection and response to HAI issues	<ul style="list-style-type: none"> <li>• Establish points of contact at ASL and large commercial laboratories</li> <li>• Provide educational materials to laboratories on laboratory-reportable conditions</li> <li>• Determine triggers for labs to contact ADHS with emerging HAI issues</li> </ul>	6/2010	<ul style="list-style-type: none"> <li>• Points of contact at labs identified</li> <li>• Documented understanding of trigger points for emerging HAI issues</li> </ul>
Establish prevention working group under the state HAI advisory council to coordinate state HAI collaboratives	<ul style="list-style-type: none"> <li>• Assess IPCAC member interest in forming a prevention work group</li> <li>• Recruit HSAG prevention collaborative members to join a state prevention work group</li> </ul>	Initiate by 6/2010	<ul style="list-style-type: none"> <li>• Formation of a prevention work group composed of IPCAC and HSAG collaborative members</li> </ul>
Develop preparedness plans for improved ADHS response to HAI	<ul style="list-style-type: none"> <li>• Work with Licensing to define processes for improved HAI response, including a tiered response system</li> </ul>	12/2010	<ul style="list-style-type: none"> <li>• Development of a tiered HAI response process</li> </ul>
Improve overall use of surveillance data to identify and prevent HAI outbreaks or	<ul style="list-style-type: none"> <li>• Conduct medical record review to identify rate of invasive MRSA infections that are hospital-associated (HA) vs. community-associated (CA)</li> <li>• Identify percentage of invasive MRSA infections that</li> </ul>	Ongoing	<ul style="list-style-type: none"> <li>• Report on HA vs. CA MRSA in AZ</li> <li>• Report on BSI MRSA in AZ</li> <li>• Discussion with HSAG about NHSN data sharing</li> </ul>

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transmission in HC settings	<ul style="list-style-type: none"> <li>are BSIs</li> <li>• Initiate discussion with HSAG about ADHS access to NHSN data (in aggregate if necessary)</li> <li>• Explore ways of securing data by communicating with Michigan, New Mexico, Idaho, and other states with successful data use agreements</li> <li>• Consult with ADHS legal staff about feasibility of implementing data use agreements</li> <li>• Assess interest among IPs in joining a voluntary NHSN group reporting to ADHS</li> </ul>		<ul style="list-style-type: none"> <li>• Collection of success stories from other states with voluntary reporting</li> <li>• Meeting with ADHS legal counsel</li> <li>• Assessment of IPs' interest in voluntary reporting</li> </ul>
Identify staff trained in project coordination, infection control, and collaborative coordination	<ul style="list-style-type: none"> <li>• Meet with lead of HSAG MRSA collaborative to discuss ADHS' potential role in the collaborative</li> <li>• Invite the HSAG MRSA lead such to provide collaborative expertise</li> <li>• Participate in monthly CDC collaborative calls</li> <li>• Attend project management training</li> </ul>	12/2010	<ul style="list-style-type: none"> <li>• Establishment of a relationship with the HSAG MRSA collaborative lead</li> <li>• Participation in monthly CDC collaborative calls</li> <li>• Completion of project management training</li> </ul>
Develop mechanisms to protect facility/provider/patient identity when investigating incidents to promote reporting of outbreaks	<ul style="list-style-type: none"> <li>• Consult with Licensing to determine what protocols exist for protecting identity when investigating HAI incidents</li> <li>• Work with IPs to develop general protocol for ADHS staff undertaking investigations at a facility</li> <li>• Draft protocol and vet through APIC</li> </ul>	1/2011	<ul style="list-style-type: none"> <li>• Creation of a general protocol for ADHS investigation at a facility</li> </ul>
Establish HAI collaborative with at least 10 hospitals	<ul style="list-style-type: none"> <li>• Contact HSAG to determine feasibility of ADHS participation in their MRSA prevention collaborative</li> <li>• Survey IPs to assess interest in formation of an HAI prevention collaborative</li> <li>• Establish a prevention collaborative</li> </ul>	6/2011	<ul style="list-style-type: none"> <li>• Establishment of a 10-facility collaborative OR</li> <li>• ADHS participation in HSAG collaborative</li> </ul>