Tennessee's Plan for Prevention of Healthcare Associated Infections [HAI]: A Framework.

The Tennessee Department of Health has used the template provided by CDC to prepare this framework for HAI prevention activities. Target dates are indicated by year and quarter (e.g., 2010-Q1 indicates the first quarter of 2010).

1. Plan to Develop HAI Program Infrastructure in Tennessee

Successful HAI prevention requires close integration and collaboration with state and local infection prevention activities and systems. Consistency and compatibility of HAI data collected across facilities will allow for greater success in reaching state and national goals.

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

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I			*1. Establish statewide HAI prevention leadership through the formation of multidisciplinary group or state HAI advisory council*	
	☒	☐	We have constituted a multidisciplinary advisory group [MDAG] for prevention of HAIs. Membership of the MDAG was drawn from two existing groups: the HAI taskforce and the Tennessee Center for Patient Safety [TCPS] advisory group. Members include many infection preventionists (representatives from all 4 APIC chapters and large, small, academic, non-academic, rural and urban hospitals), healthcare epidemiologists, infectious diseases physicians, quality improvement staff, hospital leadership (chief executive officers, chief medical officer and chief nursing), consumers, THA (Tennessee Hospital Association), QSource (Quality Improvement Organization [QIO]), and the Tennessee Healthcare Association (representing nursing homes). We supplemented current membership to include representation from long-term acute care [LTAC] facilities, and invited representatives from dialysis centers, a clinical microbiology laboratory and a chief hospital information officer, among others. The MDAG met on October 7, 2009 and reviewed existing collaborative	2009-Q4

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☒	☐	efforts to reduce healthcare-associated infections in Tennessee and provided input on priorities for surveillance and prevention activities. A statewide survey of infection preventionists on their priorities for surveillance and prevention collaboratives was incredibly helpful in informing the meeting. Additional meetings are planned for 2010 and 2011; most will take place by teleconference and/or webinar. *ii.Identify specific HAI prevention targets consistent with HHS priorities* - Recommendations from the MDAG meeting on October 7, 2009: I. Surveillance (a) Central Line Associated Blood Stream Infection [CLABSI]– we plan to use a staged approach to expand CLABSI surveillance. We plan to expand to: • all intensive care units [ICU] (including burn and trauma ICUs), • long term acute care [LTAC] facilities (stand alone, and/or part of the acute healthcare facility) • all specialty care areas • at least one general med-surg unit • facility-wide surveillance (b) Surgical Site Infection [SSI] – To expand surgical procedures beyond current state reportable coronary artery bypass graft [CBGB/CBGC] procedures. Add the following procedure to SSI surveillance: • Hip prosthesis [HPRO] The MDAG will consider adding knee prosthesis [KPRO] to the list of procedures to be monitored for SSI in the future. (c) methicillin-resistant *Staphylococcus aureus* [MRSA] • Laboratory Identified [Lab ID] event (Blood Cultures only)	2010-Q2 2010-Q2 2010-Q2 2010-Q2 2011-Q1 2009-Q4 2010-Q2 To be determined 2010-Q2

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			• facility wide (with or without being stratified by location type) (d) *Clostridium difficile* • Lab ID event • facility wide (with or without being stratified by location type) (e) Surgical Care Improvement Project [SCIP] measures • Tennessee hospitals have been participating in this measurement for many years	2010-Q2 2009-Q4
	☒ ☒	☐ ☐	*2. Establish an HAI surveillance prevention and control program* *i.Designate a State HAI Prevention Coordinator* As of December, 2009, we are still recruiting for this position. Dr. Kainer, director of the Hospital Infections and Antimicrobial Resistance Program and the epidemiology lead for Public Health Informatics at the Tennessee Department of Health, is the acting State HAI Plan Coordinator. 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*) We are in the process of recruiting staff. Once the staff is hired, Dr. Kainer will ensure they are trained in HAI so that they can oversee these four activity areas. We expect that staff will be hired by the first quarter of 2010.	2010-Q2 2010-Q1
	☐	☒	*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 (e.g., outbreak investigation support, HL7 messaging of laboratory results)*	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			We are planning to develop laboratory capacity to confirm resistance and perform typing. This is dependent on us being able to hire a person who will learn these skills. We have been in contact with CDC laboratory staff and have had preliminary discussions on prioritization of different skills to improve laboratory capacity We are also working with our State public health laboratory to implement HL7 messaging of laboratory results. This requires laboratory staff familiar with the laboratory tests as well as specific LOINC codes and can dedicate time to this effort.	2011-Q1
Level II	☒	☐	*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)* The communicable disease section within the TDH already has a relationship with the state licensing boards, and state survey agencies. The regulatory part of the Department of Health (the Bureau of Health Services Licensure and Regulation] is organizationally distinct from the Bureau of Health Services, the bureau within which General Communicable Disease Control (including the Hospital Infections Program) is located. They are also physically separated. However, we have had opportunities to work together on legislation (mandatory public reporting and MRSA), regulations (e.g., influenza declination, central line bundle) and have served together on committees (e.g., Tennessee's Improving Patient Safety). However, there is opportunity to improve coordination. We plan to address this in 2011.	2011-Q2
	☐	☒	*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. Providing technical assistance or*	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			other incentives for implementations of standards-based reporting can help develop capacity for HAI surveillance and other types of public health surveillance, such as for conditions deemed reportable to state and local health agencies using electronic laboratory reporting (ELR). Facilitating use of standards-based solutions for external reporting also can strengthen relationships between healthcare facilities and regional nodes of healthcare information, such as Regional Health Information Organizations. (RHIOs) and Health Information Exchanges (HIEs). These relationships, in turn, can yield broader benefits for public health by consolidating electronic reporting through regional nodes. Dr. Kainer from the TDH has been the epidemiology lead for public health informatics at the TDH as well as heading the hospital infections program. We therefore will have very close coordination with informatics capacity-building activities. We have received ARRA grant funding for our information technology staff to process ELR messages (for notifiable diseases) received by public health. This will provide an additional incentive for facilities to perform work at the data substrate level (e.g., translating local codes to standard codes), to enable ELR to both NHSN and public health. If public health is unable to receive these messages, there is less incentive for hospitals to perform this work. In addition, as of December 2009 we have hired a new public health information network (PHIN) coordinator who will ensure coordination at the State level between reporting of general communicable diseases as well as to NHSN. Investments in informatics infrastructure are key to long-term sustainability—the dollars invested for this purpose will reap benefits long after ARRA funding ceases. Our information system plan [ISP] was approved in December 2009 by our Office of Information Resources	2010-Q2

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			[OIR]. We have drafted the scope of services to be performed by a vendor and as of December 2009 are preparing a request for proposal [RFP] for an outside vendor. We hope to have 40 facilities reporting data to NHSN by December 2011.	

2. Plan for Surveillance, Detection, Reporting, and Response in Tennessee

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

The capacity for investigating and responding to outbreaks and emerging infections among patients and healthcare providers is central to HAI prevention. Investigation of outbreaks helps identify preventable causes of infections including issues with the improper use or handling of medical devices; contamination of medical products; and unsafe clinical practices.

[1] Thacker SB, Berkelman RL. Public health surveillance in the United States. Epidemiol Rev 1988;10:164-90.

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

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I			*1. Improve HAI outbreak detection and investigation*	
	☒	☐	*i. Work with partners including CSTE, CDC, state legislatures, and providers across the healthcare continuum to improve outbreak reporting to state health departments* The TDH has recently revised its rules and regulations on updating reportable diseases and events. We will reach out to providers across the healthcare spectrum to educate them on the new website, and the importance of outbreak reporting to state health departments. We have had opportunities to pro-actively educate the state legislature on issues such as MRSA and influenza, and recently attended a committee hearing on government operations that reviewed the revised rules and regulations for reportable diseases and events. The TDH is also actively involved in the nosocomial infection working group from the Council of State and Territorial Epidemiologists [CSTE]; this working group is lead by Dr. Kainer from the TDH. This working group holds regular (at least monthly) conference calls and provides a forum to share information and best practices. Dr. Kainer also participates in CSTE's surveillance policy working group. She also is the CSTE liaison to the Healthcare Infection Control Practices Advisory Group [HICPAC], a federal advisory group that provides advice to CDC and HHS.	2010-Q1
	☐	☒	*ii. Establish protocols and provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs.* TDH plans to request technical assistance from CDC and/or	2011-Q1

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			other States to establish protocols and to provide training for health department staff to investigate outbreaks, clusters or unusual cases of HAIs. We do not believe that we have the resources within the TDH to develop such protocols and training materials in isolation and will be dependent on CDC and/or other States for technical assistance	
	☒	☐	*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* Tennessee is an "open records state" it is able to protect patient identifiers, but not facility or provider identities; this may hinder such efforts. We will consult with the Office of General Council to explore the potential for protecting such information.	2010-Q4
	☒	☐	*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)* In collaboration with staff from a regional office, TDH is working on developing algorithms for data validation and quality control in the business process, particularly on acute viral hepatitis (hepatitis B and C) reported to the National Electronic Diseases Surveillance System [NEDSS] Base System [NBS]. Activities related to H1N1 have taken priority over this effort.	2011-Q2
	☒	☐	*2. Enhance laboratory capacity for state and local detection and response to new and emerging HAI issues.* We plan to coordinate activities with the Tennessee state public health laboratory to enhance laboratory capacity for local detection and response to new and emerging HAI issues. This will be achieved in part, by recruiting a part-time microbiologist	2010-Q3

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			who will work at the state laboratory.	
Level II	☐	☒	*3. Improve communication of HAI outbreaks and infection control breaches* *i.Develop standard reporting criteria including, number, size and type of HAI outbreak for health departments and CDC* The TDH would like to implement reporting criteria that are adopted on a national level. We are not aware of nationally accepted reporting criteria but are willing to work with other states and the CDC to develop such criteria and then implement these in Tennessee. The target date for implementation is dependent on national criteria being established.	2012-Q1
	☐	☒	*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)* The TDH would like to review models from other states that have well-established functioning mechanisms/protocols. We are hopeful that CDC and/or CSTE may be able to assist in identifying such models. Such models would then be considered for potential implementation in Tennessee (if they can be adapted to fit Tennessee's organizational structures, communication pathways and are consistent with Tennessee laws and regulations). The target date for implementation is dependent on identification of national models and relevance to and ease of implementation in Tennessee.	2012-Q1
	☒	☐	*4. Identify at least 2 priority prevention targets for surveillance in support of the HHS HAI Action Plan* *i.Central Line-associated Bloodstream Infections (CLABSI)*	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			In 2010, we plan to expand current CLABSI surveillance efforts from adult and pediatric ICUs (excluding burn and trauma) and neonatal intensive care units [NICU]s to monitor CLABSIs in all ICUs and all specialty care areas [SCA] and long term acute care [LTAC]s.	2010-Q2
			In 2011 we plant to expand CLABSI surveillance to monitor these events facility-wide in acute care hospitals and LTACs. The timing is dependent on identifying sustainable method of collecting valid denominator data (central line days) in non-ICU and non-SCAs.	2011-Q1
			Target dates for implementation reflect the date that monitoring of prevention target starts.	
	☒	☐	*ii.Clostridium difficile Infections (CDI)*	
			In 2010, we plan to start monitoring CDI using the LabID module within NHSN. This will be facility-wide in acute care hospitals and LTACs. The implementation date is dependent on our ability to enroll facilities with an average daily census of less than 25 and to train them in definitions/methodology.	2010-Q2
			As for all items in this section, target dates for implementation reflect the date that monitoring of prevention target starts.	
	☐	☐	*iii.Catheter-associated Urinary Tract Infections (CAUTI)*	
			The TDH currently has no plans to monitor CAUTI until we are able to reduce the burden of reporting by infection preventionists.	
	☒	☐	*iv.Methicillin-resistant Staphylococcus aureus (MRSA) Infections*	2010-Q2
			In 2010, we plan to start monitoring MRSA blood cultures facility-wide using LabID event module within NHSN for acute care hospitals and LTACs.	
			The implementation date is dependent on our ability to enroll	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			facilities with an average daily census of less than 25 and to train them in definitions/methodology. Target dates for implementation reflect the date that monitoring of prevention target starts.	
	☒	☐	*v.Surgical Site Infections (SSI)* The TDH is currently monitoring SSI post CBGB and CBGC (coronary artery bypass graft surgery). We plan to expand to monitor SSI following hip prosthesis [HPRO]. Target dates for implementation reflect the date that monitoring of prevention target starts.	2009-Q4 2010-Q2
	☐	☐	*vi.Ventilator-associated Pneumonia (VAP)* There are no plans to monitor VAP until there has been streamlining of definitions and we are able to reduce reporting burden on infection preventionists.	
	☒	☐	*5. Adopt national standards for data and technology to track HAIs (e.g., NHSN).* *i.Develop metrics to measure progress towards national goals (align with targeted state goals).* The metrics in Tennessee will align with the National HHS Action Plan (as published in 6/2009). Metric 1: CLABSI 1. We will measure the CLABSI Standardized Infection Ratio [SIR] in ICUs and other locations. We aim to reduce the SIR by at least 10% each year from baseline, or to 0. (at least 50% over 5 years, or to zero) Metric 3. b. *C. difficile* SIR. We aim to reduce the facility wide healthcare facility onset *C. difficile* LabID event SIR by at least 6% each	2010-Q1

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			year from baseline (at least 30% over 5 years, or to zero) Metric 5.a. MRSA 1: Tennessee is an emerging infections program [EIP] site. We plan to reduce healthcare associated invasive MRSA infections by at least 10% each year (at least 50% over 5 years). Data source: EIP Metric 5 b MRSA 2. We plan to reduce facility wide healthcare facility onset MRSA bacteremia LabID event by at least 5% each year from baseline (at least 25% over 5 years or to zero) Metric 6. SSI 1. We plan to reduce the admission and readmission SSI SIR for CBGB/CBGC and HPRO by at least 5% each year (at least 25% from baseline or to zero). Metric 7. SCIP 1. We plan to achieve at least 95% adherence to process measures to prevent surgical site infections (data source: CMS)	
	☒	☐	*ii.Establish baseline measurements for prevention targets* The Tennessee Department of Health has established several Tennessee specific baseline measurements (as listed below); other baseline measurements will need to be established: Metric 1: CLABSI- baseline measurement established for ICUs (exclude burn and trauma ICU): Jan 2008-Dec 2008 Baseline measurement from Jan. 2008 – Dec. 2009 will be	2010-Q1 2010-Q3

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			available in the 3rd quarter of 2010. We will establish baseline measurement for specialty care areas [SCA] in 2010 (data available in 3rd quarter of 2011) We will establish baseline measurement for non-ICU/non-SCA in 2011 (data available in 3rd quarter of 2012) Metric 3b: Plan to use data from 2010 to establish baseline *C. difficile* baseline SIR Metric 5.a. We have established 2007-2009 as baseline MRSA incidence. Metric 5.b. We plan to use data from 2010 to establish baseline for facility-wide healthcare facility onset MRSA bacteremia. Metric 6. Have established 2008-2009 as baseline for CBGB/CBGC Plan to establish 2010 as baseline for HPRO. Metric 7. Have been establishing baseline data in 2008 and 2009. Will use years determined in consultation with CDC and CMS. Note: Target Dates for Implementation reflect dates that data will be available for analysis (6 months after baseline period; for SSI, 18 months, to take into consideration development of SSI up to 12 months following the procedure, because of implants (applicable to CBGB/CBGC and HPRO)	2011-Q3 2012-Q3 2011-Q3 2010-Q3 2011-Q3 2011-Q3 2012-Q3 2010-Q3

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☒	☐	*6. Develop state surveillance training competencies* *i. Conduct local training for appropriate use of surveillance systems (e.g., NHSN) including facility and group enrollment, data collection, management, and analysis* ***Training of facilities****:* We have already invested a lot of resources in training healthcare facilities (with an average daily census of at least 25 and at least one intensive care unit [N=76]) in enrolment into NHSN, group enrollment as well as CLABSI definitions; an additional 26 facilities that perform CBGB/CBGCs have received extensive training in SSI. This training consisted of face- to-face regional instructions that included didactic lectures, case-studies and pop-quizzes. These trainings were followed up with monthly statewide NHSN conference calls and some email and phone support. As we will be expanding the number of facilities that need to enroll into NHSN (beyond the current 76), expanding the areas in which surveillance is conducted to beyond the ICUs (for CLABSI)s, adding facilities that will be performing SSI surveillance for HPRO (beyond the 26 that perform CBGB/CBGC), and adding MRSA and CDI surveillance, we will need to hold additional face-to-face training sessions in Memphis, Nashville and Knoxville Training will cover the following topics: • Enrollment and conferring of rights to a group; • CLABSI; • SSI; • MDRO (for MRSA Lab ID event) • CDI (for *C. difficile* Lab ID event) • Data-management/ Analysis. Training sessions will be half a day to ¾ days in length (based	2009-Q4 2010-Q3

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			on previous evaluations). The sessions will include didactic lectures, but will also be very interactive, using many case studies, and pop-quizzes. We will use color handouts showing detailed screenshots (2 per page).We will continue monthly conference calls; some of these will take the form of webinars.	
	☒	☐	*7. Develop tailored reports of data analyses for state or region prepared by state personnel* In June, 2006, TN Legislature passed Senate Bill 2978 and the Governor signed Public Acts, Public Chapter 904 into law requiring hospitals to report selected hospital-acquired infections (HAIs) to the Tennessee Department of Health (TDH or "the Department") by using CDC's National Healthcare Safety Network (NHSN). The initial starter set included central line-associated bloodstream infections (CLABSIs) and surgical site infections associated with coronary artery bypass procedures. The analysis on 2008 data of TN HAIs have been done, and a plan is already under way to release Tennessee's very first public report that provides 2008 hospital-acquired CLABSI infection rates by individual hospital, grand division and Tennessee totals and that compares these rates to the most recent available national data (2006-2007). This state report will be released in January 2010 and will be posted as a pdf file on the TDH website	2010-Q1
Level III	☐ ☒	☐ ☐	*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* *i.Develop a validation plan* In 2008- 2009, the TDH performed a pilot study validating	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			CLABSI data reported to NHSN for adult and pediatric ICUs. This pilot study would not have been possible without the assistance of a volunteer who used this project as part their thesis for a Masters program. We selected 14 facilities (mostly high and low outliers for CLABSI rates) and attempted to review at least 16 medical charts of patients who had positive blood cultures that were taken in the ICU. We intentionally over-sampled for specific organisms (*Candida* spp, MRSA, *S. aureus*, Coagulase negative staphylococci). We will use lessons learned from that pilot study as well as resources from CDC/ the EIP and other States to develop a validation plan for Tennessee.	2010-Q3
	☒	☐	*ii. Pilot test validation methods in a sample of healthcare facilities* We intend to pilot test the validation methods decided upon as part of the above plan in a sample of healthcare facilities. We probably will take a similar approach to the pilot study we conducted in 2008-9 (i.e., concentrate on outlier facilities, and include some non-outlier facilities).	2010-Q4
	☒	☐	*iii. Modify validation plan and methods in accordance with findings from pilot project* We plan to modify the validation plan and methods using lessons learned from the above pilot project, as well as lessons learned from other states and from the EIP project that aims to identify innovative, less resource-intensive methods to perform validation.	2011-Q2
	☐	☒	*iv. Implement validation plan and methods in all healthcare facilities participating in HAI surveillance* With current resources (ARRA) we do not have the staff to be able to validate all HAI measures in all facilities participating in	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			HAI surveillance. We will need to prioritize which HAI measures we will validate (i.e., CLABSI or MRSA or CDI or SSI) and use a sampling method to determine which healthcare facilities will be visited (e.g., over-sample high and low outlier facilities). We are concerned about sustainability of validation after ARRA funds run out in December 2011 and are excited about opportunities to examine innovative, less resource intensive methods to perform validation as part of EIP-HAI-ARRA activities.	
	☒	☐	*v.Analyze and report validation findings* We plan to analyze and report our validation findings. However, with current resources we expect to be able to validate findings in only a sample of facilities; not all healthcare facilities participating in HAI surveillance.	2011-Q4
	☒	☐	*vi.Use validation findings to provide operational guidance for healthcare facilities that targets any data shortcomings detected* We plan to use validation findings to provide operational guidance, in a similar fashion as we have used validation findings from our pilot study in 2008-2009. In 2008-9 we identified that many facilities were misclassifying candida blood stream infections as secondary to pneumonia rather than CLABSI, even though the NHSN criteria for pneumonia were not met (frequently patients only had an isolate from a respiratory specimen). We asked facilities to review all candida blood culture isolates and re-examine whether all the criteria for infection at a secondary site were met, and if they determined that in retrospect these cases met the definition for	2011-Q2

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			CLABSI to enter them into NHSN. In our training we also increased emphasis on the definitions for common HAIs that resulted in secondary bacteremia (e.g., pneumonia), and informed CDC of the common misconception that we identified. This resulted in this issue being highlighted in a national NHSN newsletter. We expect that the pilot study will provide further insights that can be incorporated in updates/monthly state conference calls and operational guidance.	
	☐	☒	*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* We plan to build on infrastructure created in Planning Level I and II before embarking on Level III. We are aware that CDC and the New York State Health Department has developed preparedness plan/s for improved response to HAI. Lessons learned from NY and other States/CDC will be used to define such processes once basic infrastructure is created	2012-Q2
	☒	☐	*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* Because of rising infection rates of HAI occurring outside acute care general hospitals, we plan to collaborate with licensing organizations to identify and investigate complaints related to provider infection control practices in non-hospital settings such as dialysis centers and long term care facilities and take	2011-Q3

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			appropriate measures including legislation, standard setting, education and training. We will look to CDC/ CSTE and other States to provide models that may be applicable to Tennessee.	
	☐ ☒	☒ ☐	*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* We need to lay the foundation for this (see Level I planning activity) before we can undertake this. *ii.Promote definitional alignment and data element standardization needed to link HAI data across the nation.* The TDH has had a long-standing history of promoting definitional alignment and data element standardization, through active participation in CSTE public health informatics related working groups, CSTE HAI working groups, as well as HICPAC and the NHSN steering committee. The TDH also actively participates in relevant HL-7 working groups. Dr. Kainer from the TDH has been a primary author and co-author of several CSTE position statements in recent years that promote this concept. Definitional alignment and adherence to standards is essential for interoperability and to reduce data collection burden. We will enthusiastically continue to promote this effort. Harmonization of data elements for electronic laboratory reporting to NHSN for HAI events and to general communicable disease surveillance systems for reportable	2009-Q4

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			conditions is just one such example. The TDH plans to use ARRA funds to reduce reporting burden for Infection preventionists by facilitating electronic laboratory reporting. This will provide an important test-bed on one practical implementation approach that leverages common infrastructure to benefit traditional public health (general communicable diseases) and prevention of HAIs.	
	☒	☐	*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* The TDH will release its first report on HAI to the public in January 2010. This will report CLABSI data from adult and pediatric ICUs for 2008. The report will provide unit-specific rates for each facility as well as a summary measure (standardized infection ratio [SIR]). This report will be released as a .pdf file on the TDH website.	2010-Q1
			Other activities or descriptions (not required) We plan to facilitate electronic reporting from hospitals to NHSN and to other public health surveillance systems (e.g., general communicable disease surveillance systems) in order to reduce burden of reporting. The information systems plan for this activity was approved in December 2009 by the Tennessee Office of Information Resources. We expect that a request for proposals (RFP) should be available by June 2010. We hope to have 40 facilities reporting electronically by December 2011.	2010-Q2 2011-Q4
	☒	☐	*13. Make available risk-adjusted HAI data that enables state*	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			agencies to make comparisons between hospitals. The TDH will release its first report on HAI to the public in January 2010. This will report CLABSI data from adult and pediatric ICUs for 2008. The report will provide unit-specific rates for each facility as well as a summary measure (standardized infection ratio [SIR]). This report will be released as a .pdf file on the TDH website.	2010-Q1
	☒	☐	*14.* E*nhance surveillance and detection of HAIs in nonhospital settings* We plan to expand surveillance and detection of HAI to long term acute care [LTAC] facilities. Pending the outcome of the EIP pilot study with dialysis centers on the epidemiology of blood stream infections, we are considering expanding surveillance in dialysis centers. Target date of implementation is dependent on the timing of the results of the EIP pilot study. Tennessee is one of the 10 EIP sites.	2010-Q3

3. Plan for HAI Prevention Activities: Tennessee

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

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	☒	☐	*1. Implement HICPAC recommendations.* *i.Develop strategies for implementation of HICPAC recommendations for at least 2 prevention targets specified by the state multidisciplinary group.* After consultation with the multi-disciplinary advisory group, we have decided that Tennessee will implement HICPAC recommendations for the following prevention targets: • CLABSI • MRSA • *Clostridium difficile* • SSI	2009-Q4
	☒	☐	*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 MDAG were drawn from two existing groups in Tennessee: the HAI taskforce and the Tennessee Center for Patient Safety [TCPS] advisory group. We plan to use the MDAG to set strategic direction. We will continue to collaborate with the TCPS,	2010-Q1

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			(in part via the TCPS infection working group) and with Q-source (our quality improvement organization) to consult, advise and coach inpatient healthcare facilities. Staff from the TDH, hired using ARRA funds will assist in this effort.	
			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) The TDH already has HAI collaboratives in place for prevention of SSI; MRSA and CLABSI. Each of these collaboratives has more than 10 hospitals, and additional facilities are interested in joining.	2009-Q4
	☒	☐	*i. Identify staff trained in project coordination, infection control, and collaborative coordination* We have identified a person that is trained in project and collaborative coordination; this person is in the process of being hired. They will then need to be trained in infection control.	2010-Q1
	☒	☐	*ii. Develop a communication strategy to facilitate peer-to-peer learning and sharing of best practices* We will continue our current communication strategies to facilitate peer to peer learning. This consists of regular conference calls and webinars, as well as in person regional and statewide meetings. Recent economic constraints have greatly impacted the ability of hospital staff to attend in-person regional and/or state meetings.	2009-Q4
	☒	☐	iii. *Establish and adhere to feedback of a clear and standardized outcome data to track progress*	
			activities or descriptions (combined 3i, 3ii, 3iii): We will provide feedback of hospital specific outcome data for each of the metrics using the outcome measures outlined in the HHS Action Plan, dated June, 2009.	2010-Q1

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☐	☒	4. Develop state HAI prevention training competencies *i. Consider establishing requirements for education and training of healthcare professionals in HAI prevention (e.g., certification requirements, public education campaigns and targeted provider education) or work with healthcare partners to establish best practices for training and certification* The TDH requests technical assistance from CDC and/or APIC/SHEA to prepare low-cost online training modules for healthcare providers. Preliminary discussions indicate that until such materials are readily available, it will not be feasible to establish such requirements in Tennessee. Target date for implementation assumes that such online training materials are available and have been in use for at least 3 months. At such time we shall make proposals to the relevant healthcare professional boards.	2011-Q2
Level II	☒	☐	*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 adherence* The TDH currently has established regulatory standards for the insertion of central lines (central line bundle), hand-hygiene and influenza vaccination of staff (requiring vaccination or signed declination statement)	2009-Q4
	☐	☒	*ii. Coordinate/liaise with regulation and oversight activities such as inpatient or outpatient facility licensing/accrediting bodies and professional licensing organizations to prevent HAIs*	

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
			The TDH plans to engage in such activities; we plan to look to other States/CSTE/CDC to provide models on how best to engage/coordinate and liaise with other organizations and examine how these can be applied in Tennessee.	2011-Q2
	☐	☒	*iii. Improve regulatory oversight of hospitals, enhancing surveyor training and tools, and adding sources and uses of infection control data*	
			We plan on using training tools developed by CMS/CDC/other agencies and introduce these to our regulatory partners and provide infection control data as applicable. Target date for implementation assumes that such tools are readily available and have been used in other States by early 2011.	2011-Q2
	☐	☒	*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*	
			The TDH plans to look to other States/CSTE/CDC to provide models on how to best establish "best practices". Fiscal considerations are likely to significantly impact the ability to expand regulation and oversight activities to unregulated settings. We will embark on this activity only after we have examined regulatory and oversight activities in regulated settings.	2013-Q2
	☒	☐	*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)*	
			-same as 3.	
			The TDH already has HAI collaboratives in place for prevention of SSI, MRSA and CLABSI. Each of these collaboratives has more than 20 hospitals, and additional facilities are interested in joining.	2009-Q4

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
	☐	☒	*7. Establish collaborative to prevent HAIs in nonhospital settings (e.g., long term care, dialysis)* We will consider establishing collaboratives to prevent HAI in dialysis and/or long term care settings once we have established methodology to measure outcomes and have greater insight into the epidemiology of HAI in those settings. Some of this information will be obtained from one of the EIP activities examining the epidemiology of blood stream infections in dialysis centers.	2012-Q2

4. Plan for Evaluation and Communications: Tennessee

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

Planning Level	Check Items Underway	Check Items Planned	Items Planned for Implementation (or currently underway)	Target Dates for Implementation
Level I	☒	☐	*1. Conduct needs assessment and/or evaluation of the state HAI program to learn how to increase impact* *i.Establish evaluation activity to measure progress towards targets* We will measure statewide SIR for CLABSI, SSI, MRSA and *C.difficile* and measure adherence to SCIP measures to measure progress towards targets. We will measure progress every 6 months. The first evaluation report establishing Tennessee's baseline CLABSI rates will be published January 2010.	2010-Q1
	☒	☐	*ii.Establish systems for refining approaches based on data gathered* The TDH examines data submitted to NHSN on a regular basis and uses these data to refine approaches (e.g., feedback at meetings through the Tennessee Center for Patient Safety. Observational data gathered at time of validation (e.g., process measures) has also been very valuable. We will continue to build on this work.	2009-Q4
	☒	☐	*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 We plan to develop a communication plan to disseminate state priorities for HAI prevention in 2010. We plan to utilize communication tools provided by HHS, CDC, SHEA, APIC and CSTE in our efforts.	2010-Q2
Level II	☒	☐	*3. Provide consumers access to useful healthcare quality measures* The first state report on HAI will be published in January 2010. It will provide facility specific, unit specific rates as well as a summary measure for adult and pediatric ICU CLABSIs for 2008. We have engaged with the consumer representatives on the MDAG as well as the national Consumer's Union organization in an attempt to provide data that are meaningful and useful to consumers. We will continue to engage with these groups to maximize the utility of these data.	2010-Q1
Level III	☒	☐	*4. Identify priorities and provide input to partners to help guide patient safety initiatives and research aimed at reducing HAIs* The TDH will continue to identify priorities and provide input to partners to help guide patient safety initiatives. Dr. Kainer from the TDH has been engaged in such efforts for a long time. Examples of venues where such feedback occurs include: the NHSN steering committee, HICPAC, the patient safety and quality improvement committee for SHEA and senior APIC leadership on a national level, as well as local state APIC chapters, the state QIO, the Tennessee Center for Patient Safety and the Tennessee Hospital Association.	2009-Q4