

Methicillin-Resistant *Staphylococcus aureus* (MRSA) Infections

Progress Report and Recommendations of the Tennessee Department of Health and the Infections Taskforce January 2011

This report was developed in response to PC 0157, Senate Bill 268, requiring the Department of Health and The State Health Department's Infections Taskforce to collectively issue a progress report on MRSA to the General Assembly. In October 2009, to ensure coordination with other healthcare associated infection activities, all members of the Infections Taskforce were invited to join the Multidisciplinary Advisory Group on Healthcare Associated Infections (MDAGHAI). The MDAGHAI and the Department of Health have been meeting at least semi-annually to discuss trends in the incidence of MRSA, among other issues, and used these data to formulate this report and recommendations.

Executive Summary

Tennessee is a leader in collecting and reporting on antibiotic resistant infections by having made invasive methicillin-resistant *Staphylococcus aureus* (MRSA) cases reportable to the Department of Health's Communicable and Environmental Disease Services section in June 2004. Since July 2010, hospitals are required to report MRSA positive blood cultures facility wide for inpatients and for blood cultures taken in the emergency department. The following report describes current findings on invasive MRSA in Tennessee, both community acquired and healthcare associated infections. Invasive MRSA infections are a major public health problem across the country including Tennessee. Nearly 2000 cases of invasive MRSA have been reported per year to the TDH. The incidence for 2009 was 31.8 per 100,000 making MRSA the most common reportable communicable disease in Tennessee after chlamydia and gonorrhea. The incidence for Tennessee is similar to findings for other states in our region.

The Department of Health is working with healthcare organizations and providers to implement evidence based strategies to prevent infections through the recent statute on reporting, changes to the licensure rules and regulations, and statewide education and awareness campaigns. In 2009, the Department of Health received funding for healthcare associated infections under the American Recovery and Reinvestment Act (ARRA) and was required to establish a multidisciplinary advisory group on healthcare associated infections (MDAGHAI). To ensure continuity and coordination, the MDAGHAI group incorporated members of the previously established infections taskforce. Infection control experts, consumers and healthcare facilities and associations are represented on the MDAGHAI. Tennessee has the infrastructure in place for the reporting and monitoring of healthcare associated infections and partnering with providers to significantly improve care. The Department will continue to monitor the efficacy of these strategies and report to the General Assembly on the state's progress.

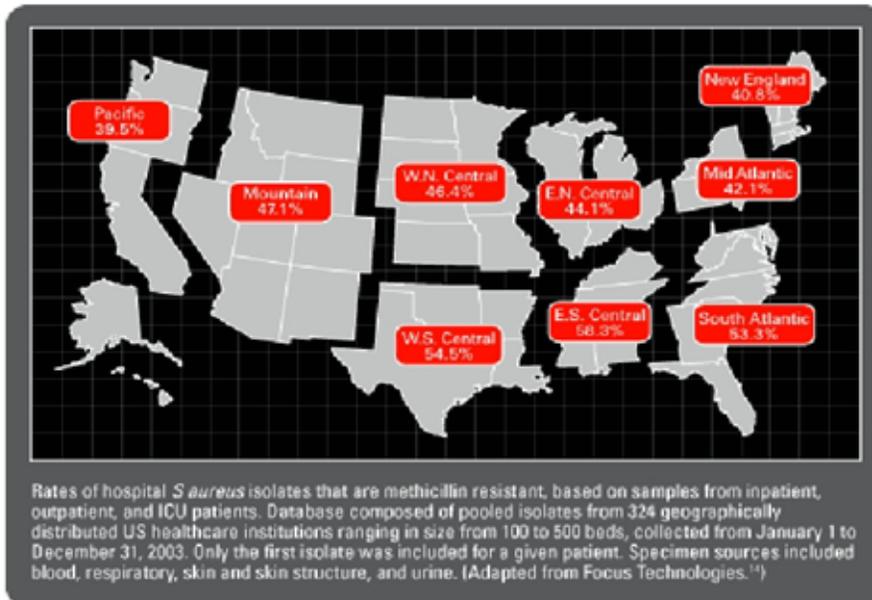
Invasive Methicillin-Resistant *Staphylococcus Aureus* (MRSA) Reporting in Tennessee

Introduction

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a bacterium that is resistant to antibiotics such as methicillin, oxacillin, penicillin and amoxicillin. Staphylococcal infection, including MRSA are often described as "community-acquired/associated" or "healthcare associated". Community associated staphylococcal infections are on the increase. Healthcare associated staphylococcal infections, including MRSA, occur most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems. MRSA in healthcare settings commonly causes serious and potentially life-threatening infections such as blood-stream infections.

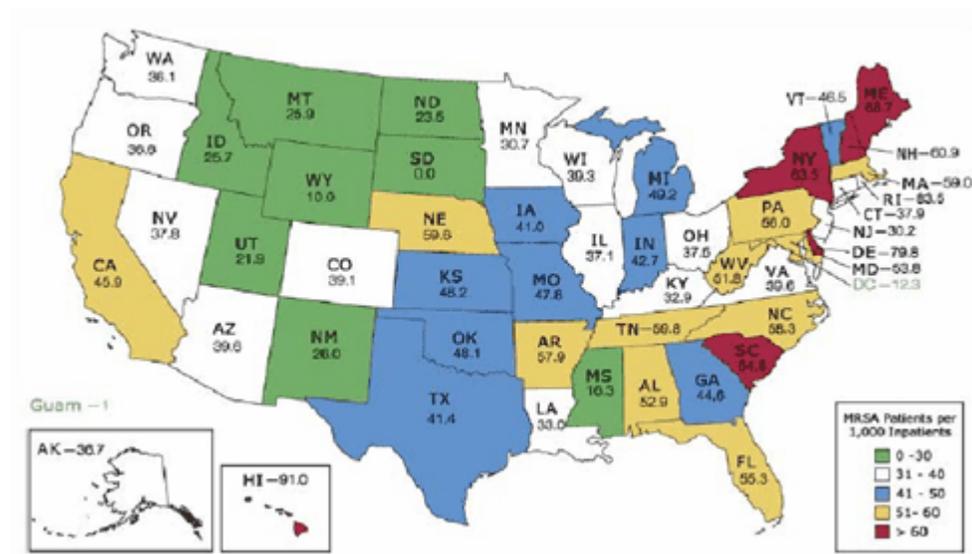
The overall proportion of *Staphylococcus aureus* infections that are MRSA in 2003 varied nationwide from 39.5% in the Pacific Region to 58.3% in East-South Central Region that includes Tennessee (Figure 1.)

Figure 1.



In Tennessee, at least 6 out of every 100 patients are colonized or infected with MRSA (Figure 2) according to the first National MRSA Prevalence Study, published by Jarvis et al in December 2007. Hawaii, Delaware, Maine, New York State and South Carolina had rates higher than Tennessee.

Figure 2.



More infections are occurring now than in past decades for a number of reasons. Some of these include the following. Hospitals are saving trauma and burn patients, who years ago would have died of their injuries. Tiny infants who are 24 weeks or less in gestational age often weighing less than a pound survive against all odds. Cancer patients now survive with newer, more powerful chemotherapeutic drugs and immune suppressing therapies. Along with cancer patients, other patient populations have an increased infection risk including the homeless, children in day care, injecting drug users, HIV-positive patients, diabetics, obese patients and those on renal (kidney) dialysis. All of this advanced technology, more invasive testing and treatments, and immune system suppressing drugs open an avenue for infection causing organisms to gain a foothold.

MRSA infections that are acquired by persons who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis for kidney failure, surgery, catheters) are known as community associated (CA-MRSA) infections. Staphylococcal or MRSA infections in the community are usually manifested as skin infections, such as pimples and boils, and occur in otherwise healthy people. CA-MRSA infections have been frequently mistaken for "spider-bites". Incision and drainage is very important in the management of skin and soft tissue infections.

Societal factors also contribute to the general problem of antimicrobial resistance. Many consumers demand an antibiotic when they are ill even if they have a viral infection. Antibiotics are used to treat bacterial infections, not viral infections. When consumers do have a bacterial infection and receive an antibiotic, they often stop taking it the moment they feel better and save the remainder for later use. Partial treatment of infections by not completing the entire antibiotic course contributes to the emergence of antibiotic resistance. Tennessee has high rates of inappropriate antibiotic use; prescription rates for antibiotics are the highest in the U.S.

Reporting of Infections

In response to Public Chapter 323, the Tennessee Department of Health and the Tennessee Improving Patient Safety Coalition invited a group of infection control nurses and physicians and other health care personnel to assist with the review of issues relating to public reporting of hospital acquired infections. This group was composed of nine infection control nurses, two hospital physician epidemiologists, one Hospital administrator, one Tennessee Hospital Association representative, and three Department of Health representatives. This infections study group issued a report and recommendations to the Department of Health's Tennesseans Improving Patient Safety (TIPS) committee in December 2005. The Tennessee

Department of Health presented its report on infections to the General Assembly in January 2006 with many of the report recommendations included in statute PC 904 that was passed in 2006.

PC 904 requires acute care hospitals with an average daily census of greater than 25 patients to participate in reporting to the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN) database. Hospitals have been required to report central line bloodstream infections (CLABSI) in intensive care units and surgical site infections (SSI) for coronary artery bypass graft (CABG) surgeries since January 2008. The Tennessee Department of Health has access to the CDC database for the purpose of publicly reporting on hospital performance. The first and second report healthcare associated infections (HAI) have been posted on <http://health.state.tn.us/ceds/hai/index.htm>; the third report should be posted by March 2011.

In 2009, the Department of Health received funding for healthcare associated infections under the American Recovery and Reinvestment Act (ARRA) and was required to establish a multidisciplinary advisory group on healthcare associated infections (MDAGHAI). To ensure continuity and coordination, the MDAGHAI group incorporated members of the previously established infections taskforce. Infection control experts, consumers and healthcare facilities and associations (e.g., Tennessee Hospital Association, Tennessee Health Care Association) and the TN Center for Patient Safety, Q-Source and TN Initiative for Perinatal Quality Care (TIPQC) are represented on the MDAGHAI. The MDAGHAI provided input into Tennessee's Action Plan on Healthcare Associated Infections that was filed with the US Department of Health and Human Services (HHS) in December 2009. It included expanding reporting of healthcare associated infections to include the following: CLABSIs in specialty care areas (e.g., hematology/oncology, transplantation), and long term acute care (LTAC) facilities from July 2010, as well as reporting of SSI following hip prosthesis. In addition, hospitals and LTACs now report *Clostridium difficile* and MRSA positive blood cultures to NHSN. Details on what HAI are reportable in Tennessee can be found at: <http://health.state.tn.us/ceds/hai/index.htm>. The MDAGHAI meets at least 3 times per year.

Communicable Disease Reporting

Tennessee law (TCA Title 68, Chapter 5, Section 104 (a)) provides the authority for the Tennessee Department of Health (TDH) to mandate the reporting of certain communicable diseases/conditions. There are several categories of reportable diseases that are declared to be communicable and/or dangerous to the public and are to be reported to the local health department by all hospitals, physicians, laboratories and other persons knowing of or suspecting a case. Category Ia and Ib require immediate telephonic notification to the local health department. Telephonic notification is followed by a written report to the local health department using form PH-1600. Category II requires only a morbidity written report from physicians, laboratories, and hospitals using form PH-1600. Category V condition require reporting to the National Healthcare Safety Network (NHSN) on a monthly basis. The list of reportable conditions is published at the following URL: <http://health.state.tn.us/ceds/notifiable.htm>

This reporting system is designed to identify individual cases, for investigation and control, and provides an estimate of both disease burden and efficacy of control strategies. Data from this surveillance system is reviewed on a weekly basis by the Communicable and Environmental Disease Services (CEDS) section of the state health department, as well as local regional health departments. Apparent clusters or outbreaks are identified and investigated. CEDS works in a collaborative manner with healthcare facilities if any problems are identified by providing assistance by telephone or on-site to determine the cause of the problem and control it.

(a) Statewide Invasive MRSA Reporting

Tennessee was one of the very first states to make invasive MRSA reportable by adding it to the list of reportable diseases in June 2004. Tennessee has become a model for other states on MRSA reporting. For Tennessee's statewide reporting, invasive disease is defined as isolation of MRSA from a normally sterile site (i.e., specimen source is blood, bone or fluid from around the brain, lungs, heart, abdomen or joints). Sputum, wound, urine and catheter tip isolates are not counted. Repeat isolates within 30 days from the

same patient are not counted. Data is only collected on Tennessee residents. Information that is provided to the Tennessee Department of Health includes patient demographics (name, age, gender, race, address), from what body-site the invasive MRSA was isolated (e.g., blood), the date it took place, and who first reported it to the TDH (laboratory, hospital, nursing home, physician, infection control). It is not meaningful or valid to attribute a case of invasive MRSA to a particular healthcare facility based on the way that these data are reported to the TDH.

(b) MRSA positive blood culture reporting to NHSN

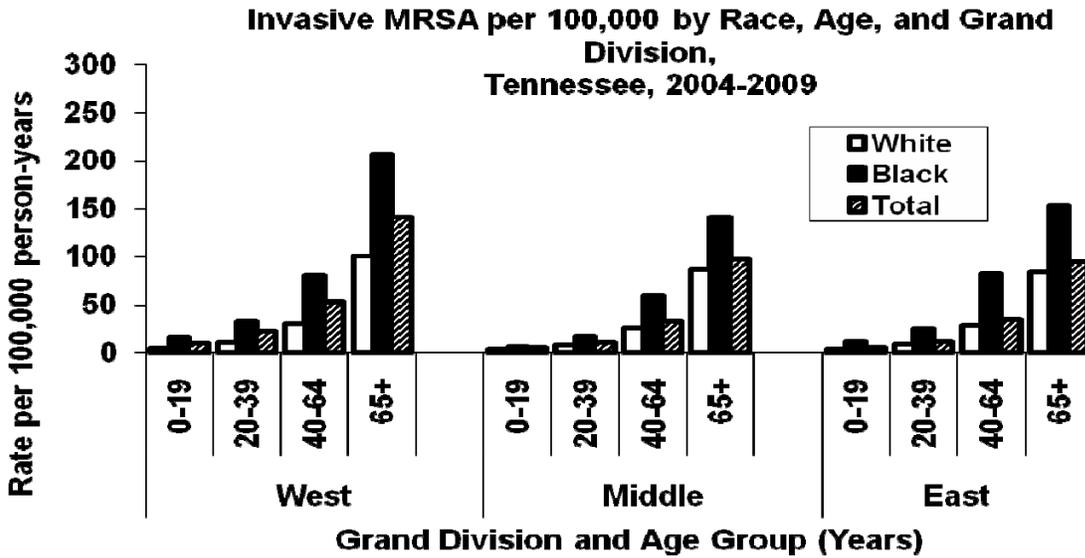
Since July 2010, non-duplicative positive blood cultures for MRSA from inpatients of acute care hospitals with an average daily census (ADC) of 25 and above and long term acute care hospitals (regardless of ADC) have become reportable in Tennessee. Cases are reported to the NHSN multi-drug resistant organism (MDRO)/*Clostridium difficile* (CDAD) module as laboratory identified events (LabID events). In addition, non-duplicative blood cultures for MRSA taken in emergency departments are also reported to NHSN. Non-duplicative blood culture means that there was not a positive blood culture in the previous 14 days. Cases are not restricted to Tennessee residents. The TDH conducted extensive training in case-finding and applying the NHSN LabID case definitions in 2010. States apart from Tennessee that are using the MDRO/CDAD module in NHSN include: California, Washington DC, New Jersey, Nevada and New York. Reporting of non-duplicative MRSA positive blood cultures is one of the metrics of the Action Plan on Healthcare Associated Infections from the Department of Health and Human Services. Over a 5 year period, the goal is to reduce healthcare facility onset MRSA positive blood cultures by 25%.

Results and Actions Taken

As shown in Figure 3, the incidence of MRSA dramatically increases with age. The incidence is higher among blacks than whites and is highest in west and lowest in east Tennessee. The incidence among blacks aged 65 or above in west Tennessee is greater than 150 per 100,000. Further research is needed to understand the demographic disparities. Analysis of Active Bacterial Core (ABC) surveillance data for Davidson County suggests that the higher prevalence of diabetes and dialysis among blacks may account for a large part of this racial disparity. Invasive MRSA is at least 100 times more common among persons on dialysis.

Data from these surveillance systems has been used locally and for informing policy. The Tennessee Department of Health (TDH) identified clusters of invasive MRSA among young adults that may have resulted from suboptimal treatment practices for MRSA skin infections. These skin infections were misdiagnosed as "spider-bites" and/or did not get drained and progressed to invasive MRSA. The state health department responded by providing on-site educational meetings for providers in these locations and disseminated a newsletter to providers outlining diagnosis and treatment recommendations for skin and soft tissue infections. Invasive MRSA infections are a major public health problem in Tennessee. Nearly 2,000 cases of invasive MRSA have been reported per year to the TDH. The incidence of invasive MRSA for 2006 was 33 per 100,000, making MRSA the most common reportable communicable disease in Tennessee after chlamydia and gonorrhea. There has been no change in the incidence of MRSA. The Department of Health updated their Web site on MRSA (<http://health.state.tn.us/mrsa/>) in 2010 to provide resources on MRSA to providers, schools and the public.

Figure 3.



A study by Klevens et al, published in the *Journal of the American Medical Association (JAMA)* in 2007, described an incidence of 53.0 per 100,000 in Davidson County, TN for 2005. This was the second highest incidence out of the nine ABC sites. The incidence for community-associated invasive MRSA in Davidson County was 6.8 per 100,000. The incidence for healthcare-associated invasive MRSA was 44.3 per 100,000.

Table 1: Incidence Rates of Invasive MRSA per 100,000 by ABC Surveillance Site and Epidemiologic Classification, US, 2005 (from Klevens et al)

Surveillance Site	Healthcare-associated			Total
	Community-Associated	Community-Onset	Hospital-Onset	
Connecticut	2.7	15.6	8.4	27.1
Atlanta, GA, metropolitan area	5.1	16.7	10.3	33.0
San Francisco, CA, Bay Area	4.5	15.9	7.7	29.2
Denver, CO metropolitan area	2.8	12.3	6.0	21.2
Portland, OR metropolitan area	4.7	11.4	3.6	19.8
Monroe County NY	2.7	22.2	16.8	41.9
Baltimore City, MD	29.7	62.9	19.7	116.7
Davidson County, TN	6.8	30.4	13.9	53.0
Ramsey County, MN	1.6	11.5	6.1	19.2

Community-onset in this study was defined as infections identified upon admission or within the first 48 hours of admission. Hospital-onset is defined as occurring after 48 hours of hospital admission. Prevention efforts in healthcare settings need to focus on both the prevention of infections (central line-associated blood-stream infections, ventilator associated pneumonia, and surgical site infection) and the prevention of transmission of MRSA within healthcare facilities. The TDH is actively promoting the use of "bundles of interventions" (e.g., the central line bundle) to prevent these infections. The TDH Healthcare Facilities Licensure Board adopted rules that went into effect in October 2007 that require healthcare facilities to

implement the central line bundle and to actively promote and monitor hand-hygiene.

Current Quality Measures and Improvement programs

Many hospitals adopt the Centers for Disease Control and Prevention (CDC) Healthcare Infection Control Practices Advisory Committee (HICPAC) Guidelines for Isolation in Healthcare Facilities. The *Management of Multiply Drug Resistant Organisms in Healthcare Settings* was published by HICPAC in October 2006. This document is a guideline on how to manage MRSA and other antibiotic resistant organisms, as well as what to do in the event of an outbreak situation. The guideline gives the reader step by step instructions on isolation, monitoring trends, judicious use of antibiotics, and educating staff and patients. The Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society for America (IDSA) developed a compendium of recommendations to assist acute care hospitals in focusing and prioritizing efforts to implement evidence-based practices for prevention of HAI, including MRSA. The compendium was published in 2009 and is available at <http://www.shea-online.org/about/compendium.cfm>. APIC also updated their guide to elimination of MRSA transmission. It is available on their website under targeting zero healthcare-associated infections; www.apic.org

Nearly all licensed acute care hospitals in Tennessee have been accredited by the Joint Commission. As part of this accreditation process, hospitals submit to triennial inspections, also called surveys, and must have an Infection Control Program that is managed by a qualified person, usually the Infection Control Practitioner (ICP). Hospitals must systematically review health care acquired infections and have a plan in place to reduce those infections. Several of the Joint Commission's national patient safety goals are focused on reducing healthcare-acquired infections by adhering to the CDC guidelines for hand hygiene and reporting of healthcare-acquired infections that result in death or significant loss of function as sentinel events. The Joint Commission publishes institutional performance on quality measures and compliance with patient safety goals on their Web site at <http://www.qualitycheck.org/consumer/searchQCR.aspx>

The Centers for Medicare and Medicaid Services (CMS) is the federal agency that ensures hospitals treating Medicare patients meet high standards. Among the many mandates and performance measures that CMS requires for Medicare reimbursement, healthcare acquired infections are well represented. CMS hosts a consumer oriented Web site "Hospital Compare" at www.medicare.gov to provide consumers with information on their local area hospitals and quality of care. Hospitals nationwide have voluntarily submitted quality-of-care information on four common conditions that affect adult patients: heart attack, heart failure, pneumonia and surgical infection prevention. The CMS measures include 58 measures for 2010. Measures related to surgical care infections continue to expand, as well as information on patients' perceptions and experiences with hospital care. For 2011, all acute care hospitals will report certain information to the CDC NHSN system. Tennessee is well positioned for this new federal requirement, having state experience since 2008.

QSource

Tennessee's Quality Improvement Organization (Qsource) has been working on MRSA in the CMS 9th Scope of Work (SOW). The Qsource Patient Safety Theme Methicillin Resistant *Staphylococcus aureus* (MRSA) project began August 2008 with the CMS 9th SOW contract. The focus of the Qsource project is to reduce rates of healthcare acquired MRSA infections (HAIs). The TN QIO recruited and is collaborating with 29 hospitals across the state to ensure provision of quality and reliable patient care, eliminate factors of harm through infection prevention, and encourage reporting to the National Healthcare Safety Network (NHSN) Multi-Drug Resistant Organism (MDRO) module. The specific Qsource project measures include:

- Reducing MRSA infection rates
- Reducing MRSA Incidence Rate of Hospital-Onset (Transmission Rate)

The Qsource MRSA improvement initiative has included a combination of various onsite consultations /assistance, ongoing email/phone support, webinars/teleconferences, and education/training programs.

Qsource has collaborated with Dr. Kainer at the TDH in their efforts to provide statewide NHSN MDRO training and at every opportunity to ensure MRSA data accuracy, including regional meetings, sharing sessions, conference calls, webinars, etc. Qsource and TDH jointly participate in each other's Advisory Groups to develop strategies for reducing and preventing Healthcare-acquired infections within Tennessee. The partnership has had many benefits including sharing of resources, creating transparency across organizations, demonstrating a clear alignment of goals to providers, offering a broader expertise availability to providers, and reducing costs associated with healthcare-acquired infections.

The Qsource MRSA project is demonstrating success with 100% of our hospitals entering the required data within the required timeframes into the MDRO module. At the remeasurement milestone of our CMS contract, 69% of our project participants are demonstrating a 28% (our contract evaluation target) or more reduction in at least 1 of the 2 project metrics which has created a national spotlight within the Quality Improvement (QIO) community. As a result, QSource has been called upon to share nationally by CMS and the Centers for Disease Control and Prevention (CDC) not only for successes in improvement rates, but for the successful partnership with TDH.

Tennessee Center for Patient Safety

The Tennessee Center for Patient Safety (TCPS), an initiative of the Tennessee Hospital Association, was created in 2007 to support and accelerate hospital quality improvement and patient safety activities. The Center was established with a three-year grant from the Tennessee Health Foundation of Blue Cross Blue Shield of Tennessee (BCBST) and renewed for expansion in 2010 for an additional three years. The Center has an advisory council with representatives from 13 partner organizations including Department of Health, Quality Improvement Organization (QIO), American College of Surgeons, and Association for Professionals in Infection Control.

The Center and its partners have created a statewide collaborative on reducing health care acquired infections (HAIs) that focuses on central line bloodstream infections, MRSA, and surgical care. TCPS has effectively engaged Tennessee hospital and partner organizations in a unique collaborative to address HAIs. The Tennessee collaborative utilizes a model developed by the Quality and Safety Research Group at Johns Hopkins School of Medicine. This model serves as the basis for the national campaign, *On the CUSP: Stop HAI*, co-directed by the Quality and Safety Research Group at Johns Hopkins School of Medicine and the American Hospital Association's (AHA) Health Research and Educational Trust (HRET). The TCPS hospitals have adopted the Comprehensive Unit-Based Safety Program (CUSP) to address culture changes and focus on overall safety opportunities at the unit level.

CUSP was designed to improve safety culture and help clinical teams learn from mistakes or defects by integrating safety practices into the daily work of a unit or clinical area. CUSP provides a structured strategic framework for safety improvement that is flexible enough to tap into staff wisdom and empower staff to fix hazards that they perceive pose the greatest risks. This program draws from frontline providers who have the most knowledge regarding safety hazards and the means to lessen the severity or mitigate those hazards. TCPS also utilizes the Hospital Survey on Patient Safety (HSOPS) developed by the Agency for Healthcare Research and Quality (AHRQ) that enables hospitals and health systems to assess their organization's culture of safety.

Through the Tennessee Center for Patient Safety, hospitals are engaged in efforts to reduce hospital onset MRSA. The Center partners with the TN Dept of Health and Q Source wherever possible on data collection and improvement strategies. Results from the initiative's first phase, 2007-2010 include:

- Hospital-onset cases of MRSA continue to decrease slightly, indicating the measures adopted by the hospitals to prevent transmission are working.
- Cases of hospital-onset MRSA were reduced by 234 from 2008-2009 among the 50 hospitals with complete facility-level data, a 16.4% reduction, equating to 11 lives saved, 1263 hospital days avoided and \$1.5 million in avoided costs.
- The average risk of hospital onset MRSA for the participating hospitals is one hospital-onset MRSA case for every 199 admissions in 2008 and improved to 1 hospital-onset MRSA case for

- every 231 admissions in 2009.
- Hospital-onset MRSA cases per 1,000 admissions trend shows a highly significant improvement of -1.52 cases per 1,000 admissions.

TCPS continues to effectively engage Tennessee hospitals and partner organizations in successful collaboratives to address HAIs in partnership with the Tennessee Department of Health.

Tennessee Initiatives to Reduce MRSA

Educational efforts have been directed at both patients and healthcare providers. The Tennessee Department of Health has created a toolkit on their Web site primarily aimed at Tennessee schools. This toolkit has suggestions for reducing transmission of MRSA for athletes and other students and offers direction for school custodians and school health care teams. A booklet is also available, [Living With MRSA](#), that can be downloaded and printed for distribution in the school systems.

In the fall of 2007, the Department of Health distributed 14,500 "Germs are not for sharing" books to public libraries, childcare resource and referral center libraries, headstart programs, daycare centers, schools (preK- Grade 4), pediatricians, public health clinics and acute care hospitals. This delightful book teaches important personal hygiene habits such as respiratory hygiene (using tissues when sneezing, coughing into your sleeve) and washing hands after using the bathroom. These hygiene habits help to prevent the spread of influenza, colds, diarrhea (for example, *Salmonella*, *Shigella*, *E. coli* O157), MRSA and lots of other diseases. These books proved very useful during the recent H1N1 pandemic.

In 2003, Blount Memorial Hospital (BMH), the only acute care non-psychiatric hospital in Blount county, partnered with long term care facilities and instituted active surveillance testing (AST) for MRSA for all admissions from long term care facilities in 2004. BMH placed long term care residents into contact isolation until the test results were available. This resulted in a dramatic decrease in hospital onset MRSA infections. In addition, Blount County is the only county with a population of >100,000 where the incidence of invasive MRSA has decreased significantly between 2004 and 2006. BMH has received state and national recognition for this initiative. BMH was the recipient of the 2007 Tennesseans Improving Patient Safety Award. IHI visited BMH in late 2007 and BMH is now a national IHI mentor hospital for the reduction of MRSA.

Nationally known hospital epidemiologist, Dr. William Schaffner, has been interviewed on CNN as well as appearing on local news broadcasts to answer questions and concerns about MRSA and its ramifications for the public. Many Tennessee Infection Control Practitioners, including several members of the infections taskforce have worked with the Association for Professionals in Infection Control (APIC) and a Tennessee based medical film company to create educational videos for healthcare workers. Three recent films, [Screening for MRSA: How to Swab](#), [Top Priority: The CDC Guideline for Multi-Drug Resistant Organisms \(MDROs\)](#), and [Of Critical Importance: The New CDC Isolation Guideline Explained!](#) focus on MRSA and precautions healthcare providers should take to decrease transmission and have been distributed nationally and internationally through APIC.

In June 2007, all Hospital Corporation of America (HCA) hospitals in Tennessee joined a national HCA initiative to combat MRSA. This consists of "A, B, C, D, E": (A= Active surveillance; B= Barrier precautions (same as contact precautions); C: Compulsive hand-hygiene; D= [Disinfection/environment cleaning](#); E= Executive championship). Additional details can be found at www.hcahealthcare.com.

In September 2007, Veterans' Administration hospitals in Tennessee joined a nationwide initiative roll-out by the VA to reduce MRSA infections. There are four components: active surveillance testing for MRSA for all admissions, transfers and discharges; aggressive hand hygiene; contact precautions and cultural transformation. Additional details can be found online at: http://www.va.gov/pittsburgh/mrsa/mrsa_overview.htm.

Many other Tennessee hospitals have also voluntarily initiated MRSA reduction strategies.

Extensive training on the National Healthcare Safety Network (NHSN) was conducted by Tennessee Department of Health staff to ensure that infection control professionals were confident in definitions and methodology in 2007 in preparation for reporting to NHSN in January 2008. Additional training was conducted in 2010.

Recommendations:

The 2010 Tennessee State Health Plan includes the following goals and strategies under Principle 4: Quality of Care

Efficiency is one of the aims outlined by the Institute for Health Care Improvement in their 2001 report to promote the quality of health care, to increase safety and effectiveness, and to help close the gap between the health care people expect and the health care they actually receive.

Goal 4A. Ensure that health care delivery is safe and effective.

Promising Strategies:

- Create incentives for health care providers and patients to select procedures that have demonstrated effectiveness.
- Continue to increase the number of health plans accredited by the National Committee for Quality Assurance (NCQA) that report a full set of Health Care Effectiveness Data and Information Set data, e.g. the Bureau of TennCare managed care organizations.
- Endorse plans that reduce health care related errors, e.g. the Tennessee Department of Health's "Healthcare-Associated Infections" plan and the Centers for Medicaid and Medicare Services Care Transitions program.
- Ensure that providers and facilities acquire and maintain adequate licensure and accreditation, e.g. the Tennessee Department of Mental Health and Developmental Disabilities' licensure procedures, the Joint Commission, and the Tennessee Department of Health's licensure and accreditation procedures.

Tennessee's action plan for prevention of healthcare associated infections is consistent with the national HHS action plan, which includes reducing hospital onset MRSA by 25% over a 5 year time period. The plan is available at: <http://www.cdc.gov/HAI/pdfs/stateplans/tn.pdf>

Summary

Tennessee is a leader in the tracking and reporting of healthcare-acquired infections including MRSA. Effective strategies to prevent and control MRSA require a collaborative effort of public health officials, local communities, health care facilities and infection control professionals. Several initiatives are underway that show promise. These include proposals to replicate the "Blount Memorial Hospital model" (partnership between hospitals and long-term care facilities) and interventions to reduce invasive MRSA infections among dialysis patients. The MDAGHAI established by the Tennessee Department of Health is a partnership of infection control experts committed to improving care and preventing infections. The Department of Health is working with the MDAGHAI, healthcare organizations and providers to implement evidence based strategies to prevent infections through the recent statute on reporting, changes to the licensure rules and regulations and statewide education and awareness campaigns. The MDAGHAI and Department of Health recommend that these strategies be given adequate time for implementation and evaluation of effectiveness before additional legislative mandates for reporting is considered. These collaborative efforts proceed to bring about significant prevention and reduction in HAIs across Tennessee.