

From the Editorial Board

MRSA Overview, Ongoing Public Health Activities, and Response to Recent Events

Recent events have focused state and national attention on the lethal potential of methicillin resistant *Staphylococcus aureus* (MRSA) infections.

Staphylococcus aureus, or “staph,” is a commonly occurring bacterium carried on the skin and in the nose of healthy persons. MRSA are staph bacteria that have become resistant to all beta-lactam antibiotics, not just methicillin. MRSA causes the same types of infections as staphylococcal bacteria that are sensitive to beta-lactam antibiotics—typically minor skin or soft tissue infections, such as boils. But in October, the death of a high school senior in Virginia reminded school and public health officials that the infections can be fatal, and reports of multiple staphylococcal infections in Texas public school athletes reinforced the message that this is a local problem as well. Almost concurrently, the Centers for Disease Control and Prevention (CDC) released an article in the *Journal of the American Medical Association* confirming that MRSA deaths are not isolated events.¹

Initially, infection with MRSA was associated with exposure to a health care environment, particularly the inpatient hospital setting. The CDC report bears out that this form of MRSA is still the most frequent cause of invasive disease and death. However, CDC estimates that MRSA strains have evolved that affect persons who have not been in contact with health care facilities (no invasive devices; no prior history of MRSA infection or colonization; no history of surgery, hospitalization, dialysis, or residence in a long-term care facility in previous 12 months preceding culture date) are also causing thousands of deaths nationally each year.

Awareness about MRSA has increased over the last five years, but is far from universal, as evidenced by large numbers of calls to state, regional, and local health departments after the events of the last few weeks. Special emphasis should be given to personal hygiene, early screening for infection, use of conservative mechanical therapies (incision and drainage and compresses) in lieu of antibiotics, and appropriate selection of antibiotics, when required. Many public inquiries relate to the role of environmental surfaces in infection transmission. This means of transmission is not completely understood, but it is well established that direct physical contact is a more efficient means of disease transmission. While the public has felt considerable anxiety about the possibility of infection through casual contact in public areas, based on the CDC report, interaction with health care facilities remains the most likely source of infection.

Although interest in MRSA has peaked in recent weeks, the Infectious Disease Surveillance and Epidemiology (IDSE) Branch of the Texas Department of State Health Services has been committed to reducing mortality and morbidity from MRSA since its emergence. IDSE has focused on surveillance, intervention, and evaluation.

Surveillance

“How many people in Texas have MRSA?”, “Is MRSA notifiable condition?” and, “Why doesn’t the State require MRSA to be reported?” are among the questions frequently asked by the media and the public. The answer to the first question is simple: we don’t know. IDSE, in collaboration with the School of Rural Public Health, Texas A&M Health Science

QuickLinks

[IDCU MRSA webpage](#)

[CDC Community-Associated MRSA webpage](#)

Center, is currently evaluating information from death certificates and laboratory records to estimate the number of people in Texas who die of staphylococcal infections and what proportion of those deaths are the result of MRSA. But fatal infections are a small fraction of the total number of deaths. The answer to the second question is: it depends. MRSA infections are not notifiable conditions. However, any disease can be reported to the Texas Department of State Health Services if there is an unusual group expression, an outbreak, or the illness is of unusual severity. Indeed, much of the work IDSE has been done on MRSA is in response to reports of these kinds. The third answer is complex. Surveillance for MRSA has been widely discussed and consensus has not been reached as to its utility in a public health context. Notifiable infectious diseases that are reportable by law generally deal with organisms that are not expected to occur within the general population, so that their detection through surveillance permits the identification of populations at risk for whom prevention and control measures can be recommended and instituted. From a public health perspective, *S. aureus* and MRSA are endemic nationwide and virtually everyone is at risk of exposure to these agents, if not already harboring them. In this public health context, surveillance of MRSA cannot help to determine who may be at risk for infection; everyone potentially is at risk. Furthermore, making MRSA a notifiable public health condition will only identify those persons who come to medical attention and have cultures taken to detect MRSA. This group is a small, but undetermined, fraction of all of the persons who actually carry or are infected with MRSA.

While routine public health surveillance for MRSA as a notifiable condition is

arguably of little value in reducing morbidity or mortality due to this organism, a much stronger case can be made for the surveillance for MRSA on an individual, group, or institutional or facility level. Defined risk factors in these settings may place individuals or groups at increased risk for MRSA. With the 2007 passage of Senate Bill 288, Texas is moving toward surveillance at the institutional and facility level. This bill authorized required reporting of health care associated infections (HAI) by general hospitals and ambulatory surgical centers. Although the bill does not require that the organism causing the infection (e.g., MRSA) be reported, tracking HAIs with the aim of reducing their occurrence would reduce MRSA infections. In health care facilities, underlying medical problems, surgical procedures, and the use of antibiotics may place patients at increased risk for MRSA infections. Studies have documented that routine MRSA surveillance -routine nares surveillance in all intensive care unit (ICU) patients upon ICU admission and weekly thereafter while hospitalized in the ICU- can result in significant reductions in MRSA transmission in the ICU and general hospital environment. Other examples of targeted surveillance conducted by IDSE include projects with high school athletic departments and correctional facilities.

Interventions

IDSE has assumed responsibility for leading and coordinating many interventions related to MRSA prevention and control. The most recent resource developed by DSHS is *Prevention and Containment of Staphylococcal Infection in Communities*, guidelines aimed at community-associated infections with recommendations for specific sites within the community such as child care facilities, the workplace, and schools.

Prevention, Treatment, and Containment of Methicillin-Resistant Staphylococcus aureus Infections in County Jails is also available as are posters and flyers for the general public. These resources are all available at www.mrsaTexas.org.

Evaluation

IDSE currently has projects in the planning stages for determining the impact of educational materials. IDSE also encourages the community sites to use the checklists and logs available in

Prevention and Containment of Staphylococcal Infection in Communities to evaluate their own efforts in reducing risks for staphylococcal infections.

Reference

1. Monina Klevens R, Morrison MA, Joelle Nadle, et al. Invasive Methicillin-resistant *Staphylococcus aureus* Infections in the United States JAMA. 2007;298:1763-1771.

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