

## **AHA Talking Points on CDC Report on MRSA Infection Rates October 2007**

### ***Background***

The Centers for Disease Control and Prevention issued a report that estimates over 94,000 cases of methicillin-resistant staphylococcus aureus (MRSA) infection occurred in the U.S. in 2005. The study was reported Oct. 17 in the *Journal of the American Medical Association*. The CDC says the report establishes the first national baseline for MRSA infection rates.

While the study said most MRSA infections occur in health care settings, media coverage has focused on the dangers of community-based MRSA infections because of the death of a Virginia high school student who contracted MRSA from somewhere in his community.

### ***Main Messages***

- Physicians, nurses and hospitals are **fighting a never-ending battle with an invisible and increasingly powerful enemy**. Hospitals are constantly beefing up their efforts to combat infections as we learn more about them.
- The CDC's report adds critical information about the changing nature of MRSA and provides **valuable insights** for those of us on the front lines of care.
  - CDC's report provides a full picture about MRSA's reach into communities and gives us an important set of new information that will help hospitals work with others to eliminate infections.
  - What's particularly helpful is understanding that some infections are acquired in health care settings, but others are not. This information helps us know what work has to be done inside hospitals, but we also have to reach out to the community and work with others.
- Hospitals are **focusing on areas where they can make the most difference** by
  - Providing physicians with the latest information about the right use of antibiotics for their patients,
  - Installing air circulation systems and isolation rooms, and
  - Using new testing methods to test patients and identify whether they're bringing an infection into a hospital.
- If patients have any concerns while they are in the hospital, they **should talk to their doctors and nurses** and ask what's being done to prevent the spread of infection. Patients are an important part of the care team and they should take an active role in their care – including asking if their caregiver has washed their hands.
- The bottom line is **if we want to eliminate drug resistant infections, we all have to work together** – hospitals, caregivers, community organizations such as schools and others. This is a never-ending battle and requires multiple approaches in order to eliminate infections.

Talking Points on Hospital Infection Reporting  
VHHA September 2007

- Virginia’s hospitals provide high quality care with skill, compassion and respect. This quality care is given to everyone who needs care.
- Hospitals take infection control and quality of care very seriously. As required by state licensure requirements and national accreditation standards, we closely monitor patients throughout their hospital stay for the quality of care they are receiving and for the possibility of infections, and we constantly examine and improve procedures and the hospital environment to improve the quality of care and to lower the risk of infection.
- Virginians deserve the best care our hospitals can provide. By voluntarily reporting infection control and quality data our hospitals can learn from one another and establish standards that will improve care throughout the health care system.
- Public reporting allows the general public to become better health care consumers and assists hospitals in identifying needed quality improvements. Through this culture of openness and accountability, hospitals, their employees and physician partners will establish stronger relationships with their patients built on trust. Hospitals will be better able to analyze the quality of care in their facilities and apply that learning to improved patient care.
- There are numerous hospital-focused efforts underway at the national and state level to improve quality of care in hospital settings, reduce the rate of infections in hospitals and to collect and provide to the public useful and meaningful information on these data.
  - The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO), which is one organization that reviews and accredits Virginia hospitals, has revised its accreditation requirements with the goal of reducing the risk of health care-associated infections.
  - The Centers for Medicare & Medicaid Services (CMS) has made available quality indicators to assist patients in making informed decisions about the quality of care delivered at hospitals. Hospitals voluntarily submit data to CMS for inclusion.
  - In the Commonwealth, Virginians Improving Patient Care and Safety (VIPCS) was created in 2000 to bring stakeholders together to address health safety issues. VHHA and its members are founding members of VIPCS, and strongly endorse and actively participate in the work of this group.
  - In 2005, the Virginia General Assembly passed a law, supported by Virginia’s hospitals and health systems, that requires hospitals to report information on certain nosocomial infections to the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network beginning in 2008. This implementation data permits reporting consistent with CDC data collection programs. Virginia experts identified this approach as the best way to produce meaningful data based on uniform measures.
  - Seventy percent of Virginia’s hospitals, representing over 80 percent of all inpatient staffed hospital beds in Virginia, participated in the 18-month Institute for Healthcare Improvement’s national “100,000 Lives Campaign.” The campaign’s goal was to implement six proven safety techniques to save 100,000 lives in our nation’s hospitals. Virginia hospitals met or exceeded all campaign targets and goals, including numbers of participating hospitals, interventions implemented, mentor-designated hospitals and lives saved.
  - An even greater number of Virginia’s hospitals – 72 percent – are participating in the new IHI 24-month “5 Million Lives Campaign. These hospitals, including two critical access hospitals, are incorporating six more life saving interventions that improve patient safety and reduce physical harm due to medical care.

- Public reporting allows the general public to become better health care consumers and assists hospitals in identifying needed quality improvements. Through this culture of openness and accountability, hospitals and their employees will establish stronger relationships with their patients built on trust. Hospitals will be better able to analyze the quality of care in their facilities and apply that learning to improved patient care.
- Detail hospital/health system-specific efforts underway to decrease hospital infections.

## **Facts on Methicillin-Resistant *Staphylococcus aureus* (MRSA) VHHA October 2007**

### What is MRSA?

- *Staphylococcus aureus* (“staph”) is a type of bacterium that, like other kinds of bacteria, frequently live on the skin and in the nose without causing health problems. Staph bacteria can cause infection when they enter the skin through a cut or sore. Infection can also occur when the bacteria move inside the body through a catheter or breathing tube. The infection can be minor or local, such as a pimple or boil, or more serious.
- Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of staph that causes serious infections since it has developed resistance to many antibiotics, including methicillin and other more commonly used antibiotics like penicillin and amoxicillin.
- There are two types of MRSA:
  - MRSA that is acquired within a health care setting is classified as a type of health care-associated infection (HAI) and is more specifically called health care-associated methicillin-resistant *Staphylococcus aureus* (HA-MRSA). HA-MRSA occurs most frequently among patients who undergo invasive medical procedures or who have weakened immune systems and includes surgical wound infections, urinary tract infections, bloodstream infections and pneumonia.
  - MRSA that is acquired in healthy persons outside the health care setting is called community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA). Many such infections have occurred among athletes who share equipment or personal items and among children in daycare facilities who are in very close contact with one another throughout the day. Although CA-MRSA occurs in persons who have no contact with a health care facility, patients with CA-MRSA who are admitted to a health care facility can be the source of organisms that can be spread to other hospitalized patients.
  - MRSA infections have risen sharply in recent years. In 1972, MRSA accounted for only two percent of all staph HAIs reported to the Centers of Disease Control and Prevention (CDC) in the U.S. Recent (2006) data show that MRSA now accounts for 50-70 percent of staph HAIs, <http://www.cdc.gov/ncidod/dhqp/pdf/ar/mdroGuideline2006.pdf>
  - A more recent (2007) CDC study shows that within MRSA infections, 85 percent are HA-MRSA whereas 15 percent are CA-MRSA. Within HA-MRSA infections, 27 percent originated in hospitals while 58 percent began outside a hospital but with some recent exposure to the health care system. With these data, researchers estimate that 94,360 invasive MRSA infections occurred in the U.S. in 2005 and that 18,650 of them, nearly one in five, were associated with death, <http://jama.ama-assn.org/cgi/content/full/298/15/1763>.

### What causes MRSA Infections, and what is causing the explosion of MRSA cases?

The answers to these questions are not entirely known or clear, but potential leading causes include:

- Unnecessary antibiotic use. For decades, antibiotics have been prescribed for colds, flu and other viral illnesses that do not require or respond to antibiotics. Additionally, antibacterials/antimicrobials have been put into all kinds of hand/body soaps, laundry detergents, dish/dishwasher soaps, all-purpose cleaning agents.
- Antibiotics in food. Antibiotics are routinely given to cattle, pigs and chickens.
- Bacterial mutation. Bacteria that survive treatment with one antibiotic may develop resistance to the effects of that drug and similar drugs.

### What are the risk factors for MRSA?

#### HA-MRSA:

- A current or recent hospitalization;
- Residing in a long-term care facility;
- Invasive procedures;
- Recent or long-term antibiotic use.

#### CA-MRSA:

- Young age: Incomplete development of immune system;
- Participation in contact sports;
- Sharing athletic equipment, towels, razors;
- Having a weakened immune system, such as persons with HIV/AIDS or following chemotherapeutic treatment;
- Living in crowded or unsanitary conditions, such as prisons.

### What are the symptoms?

- Staph skin infections normally cause a red, swollen and painful area on the skin, like a pimple or boil. Other symptoms include a skin abscess, drainage of pus or other fluids from the site, low-grade fever, or warmth around the infected area.
- More serious staph infections include rash, shortness of breath, higher-grade fever, chills, chest pain, fatigue, muscle aches, malaise or headache. Most serious staph infections may include cellulitis, endocarditis, toxic shock syndrome or blood poisoning.

### How is MRSA contracted?

- MRSA is generally associated with health care institutions, particularly hospitals. But cases of community-associated MRSA are presenting to hospital emergency departments and outpatient clinics in increasing numbers.
- Transmission of HA-MRSA can occur from skin-to-skin contact with someone who has MRSA on their skin or in an open wound or sore, by hands of health care personnel who have had contact with another patient with MRSA, by contact with items such as computer keyboards or surfaces such as bedrails and door handles that have MRSA on them and through insertion of catheters or breathing tubes that bypass the body's natural defenses.
- The risk of spread of CA-MRSA is highest where people with poor hygiene are associating in close quarters, such as prisons, homeless shelters, locker rooms and daycare centers.

### How serious is MRSA?

- Even with treatment, MRSA infections are difficult to cure because our armamentarium of drugs is becoming ineffective.
- The MRSA death rate has been estimated to be more than 2.5 times higher than death from *Staphylococcus aureus* bacteria that are susceptible to methicillin.
- The mortality rate among patients with MRSA bloodstream infection is estimated to be as high as 23 percent.
- MRSA infections can lead to longer hospital stays, on average 10 days longer than if a patient had not become infected.
- Costs of a MRSA HAI are estimated to be \$35,367 compared with \$13,973 for a non-MRSA HAI. According to the CDC, HAIs lead to more than 4.5 billion in excess health care costs, with MRSA being the lead cause of these infections.

- In a recent (2006) study in Pennsylvania, patients with MRSA were four times as likely to die, had hospital stays more than 2.5 times longer, and were charged three times as much for their hospitalization when compared to patients without MRSA.

#### How to prevent MRSA?

- Good first steps toward preventing minor, major and serious infections are:
  - Practicing good hand hygiene;
  - Not sharing personal items such as equipment, towels, razors;
  - Keeping wounds clean and covered;
  - Cleaning of high-traffic/high-congregation areas;
  - Seeking immediate medical attention if you have a red, painful skin infection.
- In health care institutions, many HAIs can be prevented by system-wide adoption of MRSA elimination strategies. The Association for Professionals in Infection Control and Epidemiology (APIC), an international organization representing more than 11,000 infection control experts, issued the guidelines for elimination of MRSA transmission. The bundle of strategies includes:
  - MRSA risk assessment. As the first step in any MRSA prevention program, the risk assessment identifies high risk areas for MRSA within the health care facility to guide the development of a plan for MRSA surveillance, screening, prevention and control.
  - MRSA surveillance program. Is based on risk assessment data and outlines specific activities (e.g., laboratory tests) and procedures that are designed to identify MRSA cases.
  - Hand hygiene. The cornerstone of any infection prevention and control program, hand hygiene plays an integral role in reducing the transmission of organisms. All health care facilities should require adherence to established CDC hand hygiene guidelines.
  - Contact precautions. Separating MRSA patients from other patients and the use of gloves and gowns and other precautions to avoid transfer of microorganisms to other patients or environments.
  - Environmental and equipment cleaning and decontamination. Procedures to avoid contamination through equipment or the environment. In general, items that are close to patients (e.g., bedrails, bedside equipment, in-room computer keyboards) present a greater risk for contamination with MRSA than walls and floors.
  - Targeted active surveillance cultures. Testing of patients at high-risk for MRSA colonization or infection. "High-risk" groups may include:
    - Long-term care residents;
    - Patients with recent or frequent hospitalizations;
    - Dialysis patients;
    - Athletes;
    - History of incarceration;
    - History of IV drug use.
  - Cultural transformation. For an infection control program to be successful, the culture of the health care organization needs to support and require compliance with known infection control practices. This requires clinical and administrative commitment as well as adequate resources. To accomplish a successful program, APIC recommends participation and support at all levels.
  - Involving hospital administration. Leadership on the part of hospital administration is crucial to any infection prevention program, including MRSA elimination.
- Along with APIC, the following leading infection control, epidemiology organizations and the Virginia Department of Health provide further strategies to prevent, control and manage MRSA within health care facilities:

- The Society for Healthcare Epidemiology of America (SHEA),  
<http://www.journals.uchicago.edu/ICHE/journal/issues/v24n5/5374/5374.web.pdf>.
- The Infectious Diseases Society of America Emerging Infections Network (IDSA-EIN),  
<http://www.journals.uchicago.edu/cgi-bin/resolve?id=doi:10.1086/502517>.
- Virginia Department of Health, <http://www.vdh.state.va.us/>.