

## **Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA)**

**Agent:** *Staphylococcus aureus* (bacteria) that has developed resistance to the class of beta-lactam antibiotics including penicillin, cloxacillin, oxacillin, nafcillin, and methicillin, as well as cephalosporins and carbapenems.

**Mode of Transmission:** Person-to-person via direct contact with colonized skin or skin lesions of an infected person, or by indirect contact with contaminated personal items or surfaces. Invasive infections occur when the bacteria penetrate to normally-sterile sites.

**Signs/Symptoms:** Invasive infections may affect the blood, bone, lung, and lining of the brain and spinal cord and may cause fever, difficulty breathing, chills, pain and other syndrome-specific signs and symptoms. Non-invasive skin and soft tissue infections most commonly cause swelling, tenderness, and redness and can manifest as abscesses, boils and other pus-filled lesions.

**Prevention:** Appropriate wound care; infection control techniques and practices such as the use of central line device ‘bundles.’

**Other Important Information:** Only invasive MRSA infections are required to be reported in Virginia and only laboratories are required to report. Asymptomatic colonization and infections from non-sterile sites (e.g., skin and soft tissue) are not reportable. Reporting of this condition was implemented through Emergency Regulation and became effective on October 26, 2007.

During the approximately nine-week reporting time frame in 2007, 253 cases of MRSA infection were reported. In 2008, the first full reporting year, 1,524 cases were reported in Virginia. The highest incidence occurred in the 60 year and older age group (66.4 per 100,000), followed by infants (28.0 per 100,000) (Figure 61). Among the remaining age groups, there was an incremental increase in rates as age increased, ranging from 1.9 to 24.0 per 100,000. Incidence in the black population (27.4 per 100,000) was more than twice the rate in the white population (13.2 per 100,000), and more than 11 times the rate in the “other” population (2.4 per 100,000) (Figure 62). Incidence was higher in males than in females (22.8 and 16.3 per 100,000, respectively). By region, the central region had the highest incidence (32.7 per 100,000), while the other regions had rates ranging from 9.2 to 27.3 per 100,000. One MRSA outbreak was reported in 2008. The outbreak occurred among six members of a school athletic team through person-to-person or contaminated surface contact. Fifty-three (3%) of the 1,524 individuals with invasive MRSA infection reported in 2008 died from these infections. Forty-four (83%) of these fatal cases were in adults aged 60 years or older.

