

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 transmission 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 normally sterile sites.

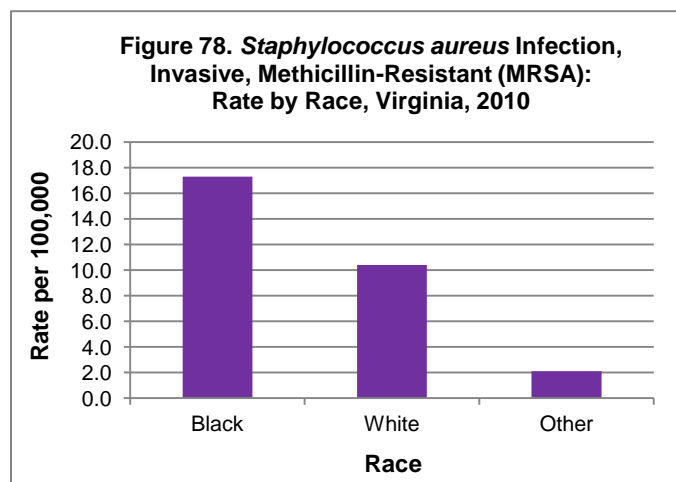
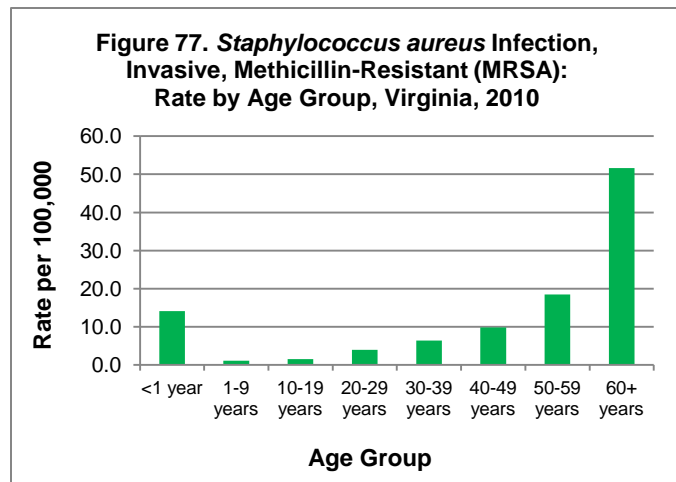
Signs/Symptoms: Invasive infections may affect the blood, bone, lung, and lining of the brain and spinal cord and may cause fever, difficulty breathing, chills, pain and other syndrome-specific signs and symptoms. Non-invasive skin and soft tissue infections commonly cause swelling, tenderness, and redness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

Prevention: In the community, preventive measures include practicing proper hygiene and wound care and washing hands regularly and thoroughly with soap and water. In healthcare settings, control measures include adhering to appropriate infection control, including management of catheters or other medical equipment, and practicing prudent use of antibiotics.

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

The 1,201 cases of invasive MRSA infection reported in 2010 represent a 6% increase over the number of cases reported in 2009 and a 21% decrease from the 1,524 cases reported in 2008, the first full reporting year for invasive MRSA infection in Virginia.

With the exception of the <1 year age group, both the number of cases and the incidence rate increased with age. The 60 year and older age group experienced both the highest number of cases and highest incidence rate in 2010 (709 cases, 51.6 per 100,000) followed by the 50-59 year age group (194 cases, 19.0 per 100,000) and infants (15 cases, 18.5 per 100,000) (Figure 77). Twenty-seven percent of cases were missing race data; however, among cases with race information, incidence in the black population (17.3 per 100,000) was nearly twice the rate in the white population (10.4 per 100,000), and almost nine times the rate in the “other” race population (2.1 per 100,000) (Figure 78). Although the



cause is unknown, this racial disparity in invasive MRSA infections has also been observed nationally. In Virginia, incidence was higher in males than in females (16.7 and 12.5 per 100,000, respectively). By region, the central region had the highest incidence rate (22.9 per 100,000), followed closely by the southwest region (22.2 per 100,000). The other regions had rates ranging from 5.9 to 17.3 per 100,000. Onset of invasive MRSA infections was evenly distributed throughout the year.

One MRSA outbreak was reported in 2010 and involved 12 infants in a medical facility. Among those with invasive MRSA infections reported in 2010, 2% (26) were reported to have died from these infections. This is a decrease in the case-fatality rate from the previous year when 4% of those reported with invasive MRSA infections died from the infection. Of the reported deaths in 2010, 88.5% occurred in adults aged 60 years and older and 60% of the fatalities were among females.