

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

Agent: *Staphylococcus aureus* (bacteria) that have 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.

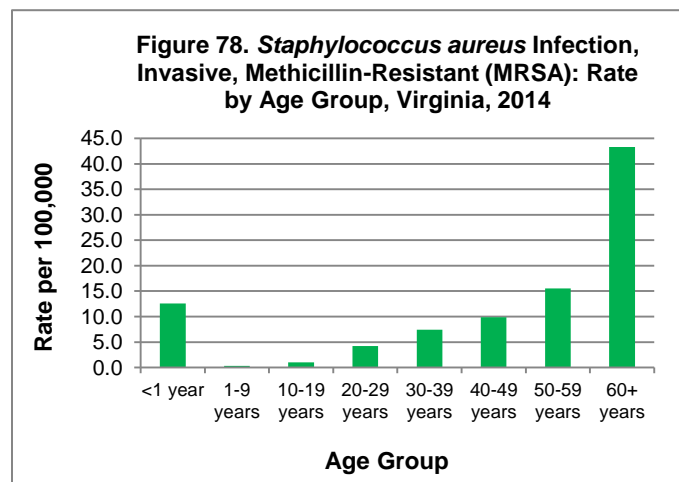
Prevention: In the community, preventive measures include practicing proper hygiene and wound care and cleaning hands regularly and thoroughly with soap and water or alcohol-based hand sanitizer. In healthcare settings, control measures include adhering to appropriate infection prevention practices, 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) do not have to be reported to the health department. Reporting of this condition became effective in Virginia on October 26, 2007.

Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA): 2014 Data Summary	
Number of Cases:	1,134
5-Year Average Number of Cases:	1,234.0
% Change from 5-Year Average:	-8%
Incidence Rate per 100,000:	13.7

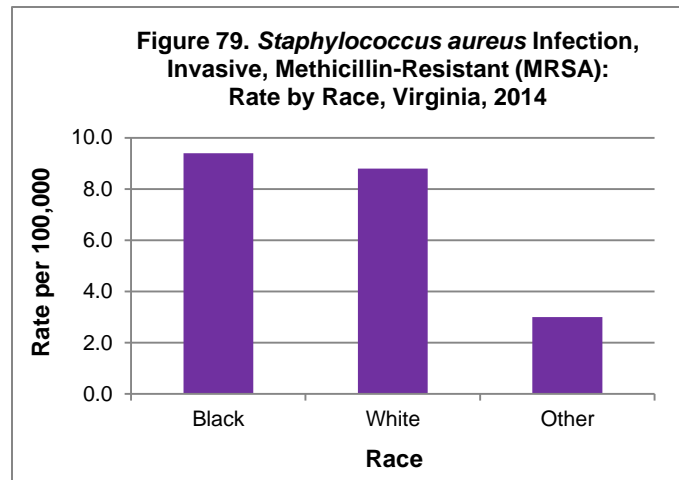
The 1,134 cases of invasive MRSA infection reported in Virginia in 2014 represent a 9% decrease from the 1,247 cases reported in 2013, and a 26% decrease from the 1,524 cases reported in 2008, the first full reporting year for invasive MRSA infection in Virginia.

With the exception of children less than one year of age, incidence rates increased as age increased in 2014 (Figure 78). Consistent with previous years, persons 60 years and older experienced both the highest number of cases and highest



incidence rate (681 cases, 43.3 per 100,000), followed by the 50-59 year age group (180 cases, 15.5 per 100,000). Children less than one year of age had the third highest incidence rate (13 cases, 12.6 per 100,000). Children 1-9 years age had the lowest number of cases and lowest incidence of all age groups in 2014 (3 cases, 0.3 per 100,000).

Race was not provided for 38% of cases. Among cases with a known race, incidence rates in the black population (9.4 per 100,000) were slightly higher than



incidence in the white population (8.8 per 100,000) (Figure 79). This represents the second consecutive year that incidence among the black population was not substantially higher than incidence among the white population. Racial disparities in invasive MRSA have been noted nationally, with the black population having two-fold the incidence rate of the white population. It is unclear why Virginia saw little difference in incidence between these two populations in 2014 and 2013. Perhaps, a larger proportion of cases with no reported race are black and thus not being included in the analysis. In Virginia, incidence was higher in males compared to females (15.5 and 12.0 per 100,000, respectively).

The southwest region had the highest incidence rate (24.3 per 100,000) and the northern region had the lowest (6.1 per 100,000). Incidence is typically higher in the western half of the state. Incidence rates by locality can be viewed in the map below. In general, invasive MRSA infections occurred throughout the year with little seasonal variation.

One invasive MRSA outbreak was reported in 2014. This outbreak occurred in a nursing home in the northwest region and involved three nursing home residents. The facility instituted numerous control measures that prevented additional cases.

Twenty-eight (2%) of the persons reported with an invasive MRSA infection in 2014 died. The median age of those who died was 67, with a range in age from 16 to 93 years. Seventy-one percent of the deaths occurred in adults age 60 years and older. The case-fatality rate was slightly higher in females than males (3% and 2%, respectively).

Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA), Incidence Rate by Locality, Virginia, 2014

