



Infectious Disease Epidemiology Report

Methicillin-Resistant *Staphylococcus aureus* (MRSA) – Maine, 2010



Introduction

Staphylococcus aureus, often referred to as "staph," are bacteria commonly carried on the skin or in the nose of healthy people. Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of staph bacteria that is resistant to certain antibiotics called beta-lactams. These antibiotics include methicillin and other more common antibiotics such as oxacillin, penicillin, and amoxicillin.

In the community, most MRSA infections are skin infections. These infections may appear as pustules or boils which often are red, swollen, painful, or have pus or other drainage. They commonly occur at sites of visible skin trauma, such as cuts and abrasions, and areas of the body covered by hair (e.g., back of neck, groin, buttock, armpit, beard area of men).

More severe or potentially life-threatening MRSA infections occur most frequently among patients in healthcare settings who have contracted invasive MRSA. Patients in healthcare facilities may have weakened immune systems, undergo procedures (such as surgery) or have catheters inserted into the skin. These conditions make it easier for MRSA to get into the body. Invasive MRSA is defined as invasive when it is isolated from a normally sterile site (blood, cerebrospinal fluid, pleural fluid, etc.). Common invasive MRSA infections include surgical wound infections, urinary tract infections, bloodstream infections, and pneumonia. Symptoms vary by infection location.

Methods

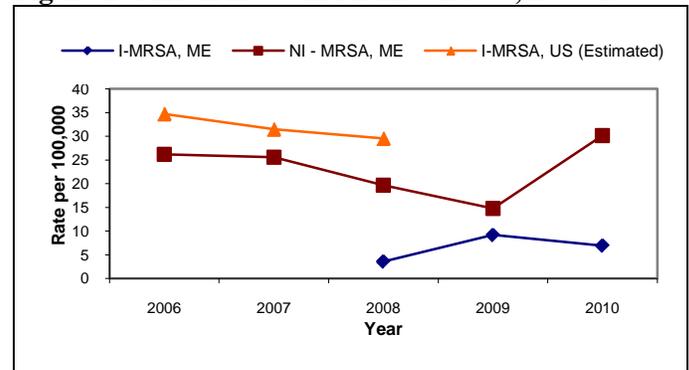
Invasive MRSA is reportable in Maine. For surveillance purposes, reported cases are classified as confirmed and probable based on clinical symptoms and laboratory testing interpreted using established criteria as determined by the federal Centers for Disease Control and Prevention.

Maine CDC also receives reports of non-invasive MRSA infections. The reporting of these infections is not required by law and is therefore most likely underrepresentative of the burden of disease among Maine residents. Not all facilities and laboratories in Maine report non-invasive MRSA to the Maine CDC

Results

During 2010, a total of 91 confirmed cases of invasive MRSA were reported to Maine CDC. This represents a state case rate of 6.9 cases per 100,000 persons. During the same time period, 396 cases of non-invasive MRSA were also reported to the Maine CDC for a state rate of 30.1 cases per 100,000 persons. Invasive MRSA reporting started April, 2008, therefore data for 2008 does not include a full year. This most likely accounts for the low rate of reported invasive MRSA in 2008.

Figure 1: MRSA Rates in Maine and US, 2006-10



* I-MRSA = Invasive MRSA, NI-MRSA= Non-Invasive MRSA

Fifty-seven percent of invasive MRSA cases and 52% of non-invasive MRSA case reported in Maine were among males. The median age was 39 years, with a range from 0 to 99 years among those with non-invasive MRSA. Among those with invasive MRSA the median age was 63 years, with a range of 2 to 97 years.

Table 1: MRSA Infections by Type and Age Range, Maine 2010

Age Range	Invasive MRSA		Non-Invasive MRSA	
	No.	%	No.	%
0-9 yr	3	3.3	40	10.1
10-19 yr	3	3.3	45	11.4
20-29 yr	2	2.2	60	15.2
30-39 yr	5	5.5	65	16.4
40-49 yr	10	11.0	60	15.2
50-59 yr	18	19.8	52	13.1
60-69 yr	17	18.7	27	6.8
70-79 yr	16	17.6	21	5.3
80+ yr	17	18.7	26	6.6
Total	91	100	396	100

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In 2010, invasive MRSA was reported in residents from 13 counties in Maine and non-invasive MRSA was reported for residents in 15 counties. The rate of reported invasive MRSA was highest in residents of Lincoln County (20.4 cases per 100,000 residents). The rate of reported non-invasive MRSA was highest among residents of Cumberland County (77.7 cases per 100,000 residents). Cumberland accounted for largest proportion of invasive MRSA cases (27.5%) and over half of the reported cases of non-invasive MRSA in the state (54.4%).

Table 2: MRSA Infections by Type and County of Residence, Maine 2010

County	Invasive MRSA		Non-Invasive MRSA	
	No.	Rate	No.	Rate
Androscoggin	2	1.9	10	9.4
Aroostook	5	7.0	6	8.5
Cumberland	25	9.0	215	77.7
Franklin	3	10.1	1	3.4
Hancock	-	-	2	3.8
Kennebec	17	14.1	29	24.0
Knox	3	7.4	8	19.7
Lincoln	7	20.4	5	14.5
Oxford	6	10.7	14	25.1
Penobscot	-	-	26	17.5
Piscataquis	-	-	-	-
Sagadahoc	5	13.9	16	44.4
Somerset	6	11.8	17	33.4
Waldo	2	5.2	3	7.8
Washington	1	3.1	4	12.5
York	9	4.5	39	19.3
Total	91	6.9	395	30.1

*One non-invasive MRSA case was missing county data and exclude from this table

Discussion

Maine CDC began routine surveillance of all invasive MRSA cases in 2008 when it was added to the list of notifiable conditions. Maine surveillance data indicates that the rate of cases appear to be slightly decreasing. The cases of non-invasive MRSA reported show a marked increase, but this should be viewed with caution since the reporting of cases are not required and are inconsistently reported by facilities and providers.

The most significant risk factor for MRSA infection is open or broken skin (such as a wound or surgical site); however, MRSA infections can occur on areas of the skin where there is no obvious wound or break in the skin.

Measures to reduce MRSA transmission:

1. Appropriate wound care: Cover wounds with clean, dry bandages
2. Do not attempt to treat an MRSA skin infection by yourself; doing so could worsen or spread it to others.
3. Hand hygiene: Appropriate hand hygiene such as washing with soap and water or using an alcohol-based hand rub can prevent the spread of MRSA.
4. Clean environment: Use disinfectant effective against Staphylococcus aureus
5. Avoid sharing personal items: Towels, washcloths, razors, and clothing should not be shared
6. Inform a healthcare provider: Tell your healthcare provider if you had contact with someone with MRSA
7. Avoid contact with others: Avoid contact sports and other skin-to-skin contact until your infection has healed

Invasive MRSA and all outbreaks of MRSA must be reported to Maine CDC by calling 1-800-821-5821 or faxing to 1-800-293-7534. For more information contact your healthcare provider or local health center.

Additional information about MRSA infections is available at:

The Maine CDC website:

<http://www.maine.gov/dhhs/boh/ddc/epi/airborne/mrsa.shtml>

The Federal CDC website: <http://www.cdc.gov/mrsa/>

Prevention of MRSA Infections:

<http://www.cdc.gov/mrsa/prevent/index.html>