



SEVERE *STAPHYLOCOCCUS AUREUS* INFECTION IN PREVIOUSLY HEALTHY PERSONS

CRUDE DATA	
Number of Cases	27
Annual Incidence	
LA County ^a	0.28
California	N/A
United States	N/A
Age at Diagnosis	
Mean	46
Median	48
Range	1 - 90 years

^aCases per 100,000 population.

DESCRIPTION

Staphylococcus aureus is a well known bacterial cause of skin infections, causing boils, abscesses, and cellulitis. Infection can result in severe illness, including invasive skin and soft-tissue infection, necrotizing fasciitis, musculoskeletal infection like pyomyositis and osteomyelitis, severe pneumonia, empyema, necrotizing pneumonia, disseminated infections with septic emboli, bacteremia, sepsis syndrome, and death. Statewide surveillance of severe *S. aureus* infections in previously healthy persons began in February 2008. For surveillance purposes, severe *S. aureus* infection in a previously healthy person is defined as isolation of *S. aureus* from either a sterile or non-sterile site in a patient that has died or has been admitted to the hospital intensive care unit (ICU). In addition, the patient must be previously healthy, (i.e., no hospitalizations, surgery, dialysis, residence in long-term care, or percutaneous device/indwelling catheter within the past year).

Staphylococcus aureus is one of the most common bacterial causes of skin infections that result in a visit to a doctor or the hospital. However, most of these infections do not result in ICU admission or death. Therefore, the data presented in this report underestimate all disease caused by this organism in Los Angeles County (LAC).

2009 TRENDS AND HIGHLIGHTS

- Cases aged 65 years and older had the highest rate (0.6 per 100,000) followed by cases aged 45-54 years and 55-64 years both groups of which had a rate of 0.4 cases per 100,000 (Figure 1).
- Blacks and whites had the highest rates of severe *S. aureus* infection at 0.4 cases per 100,000. Asians had the lowest rate at 0.1 cases per 100,000 (Figure 2).
- Service Planning Areas (SPAs) 1 and 6 had the highest rates of severe *S. aureus* infection at 0.8 and 0.9 cases per 100,000, respectively (Figure 3).
- The number of cases of severe *S. aureus* infection peaked during the month of February (Figure 4).
- The percentage of *S. aureus* infections resistant to methicillin was 59% (Figure 5).
- Diabetes and intravenous drug use were reported more than any other risk factors (Table 1).
- Severe *S. aureus* cases presented most often with pneumonia, wound infections, and skin infections (Table 2).
- Forty-one percent of cases were reported by only three hospitals in LAC. Thus, it is suspected that there has been significant underreporting of severe *S. aureus* infections in LAC.



**Reported Severe *Staphylococcus Aureus* Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2005-2009**

	2005			2006			2007			2008 (N=25)			2009 (N=27)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000
Age Group															
<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	4.0	0.7	0	0.0	0.0
1-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0.0	0.0	1	3.7	0.2
5-14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	8.0	0.1	2	7.4	0.1
15-34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	4.0	0.0	5	18.5	0.2
35-44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	8.0	0.1	3	11.1	0.1
45-54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	28.0	0.5	6	22.2	0.4
55-64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	16.0	0.4	4	14.8	0.4
65+	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	32.0	0.8	6	22.2	0.6
Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0.0		0	0.0	
Race/Ethnicity															
Asian	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	12.0	0.2	1	3.7	0.1
Black	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	16.0	0.5	3	11.1	0.4
Hispanic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5	20.0	0.1	12	44.4	0.3
White	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13	52.0	0.4	11	40.7	0.4
Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0.0	0.0	0	0.0	0.0
Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0.0		0	0.0	
SPA															
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	8.0	0.5	3	11.1	0.8
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5	20.0	0.2	2	7.4	0.1
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	32.0	0.5	4	14.8	0.3
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	4.0	0.1	3	11.1	0.2
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	12.0	0.5	1	3.7	0.2
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	8.0	0.2	9	33.3	0.9
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	4.0	0.1	2	7.4	0.1
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	12.0	0.3	2	7.4	0.2
Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0.0		1		

*Rates calculated based on less than 19 cases or events are considered unreliable.



Figure 1. Incidence Rates of Severe *S. aureus* Infection by Age Group LAC, 2009 (N=27)

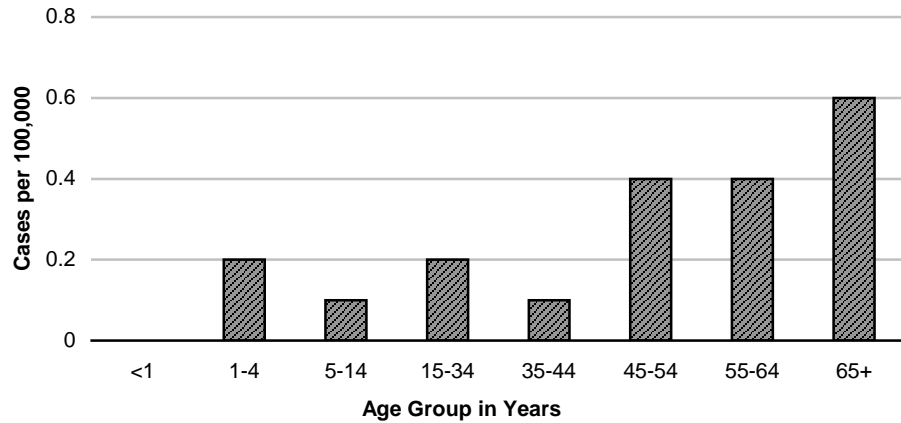


Figure 2. Severe *S. aureus* Infection Incidence Rates by Race/Ethnicity LAC, 2009 (N=27)

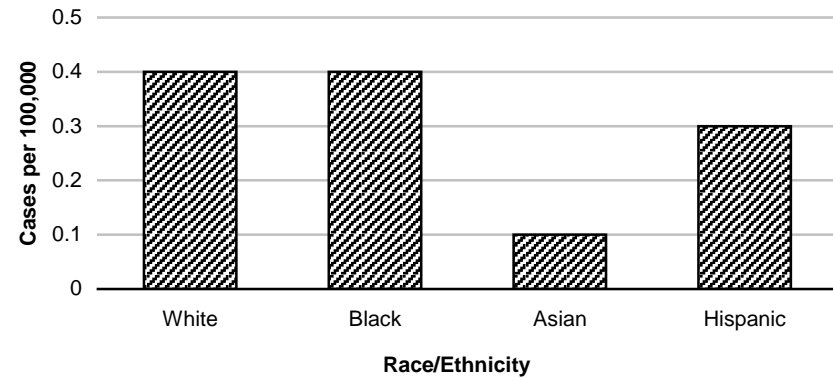


Figure 3. Incidence Rates of Severe *S. aureus* Infection by SPA LAC, 2009 (N=27)

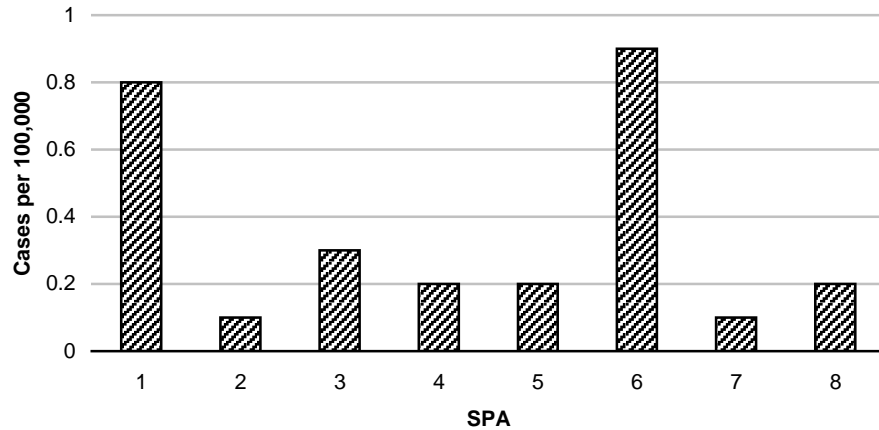


Figure 4. Reported Severe *S. aureus* Cases by Month of Onset LAC, 2009 (N=27)

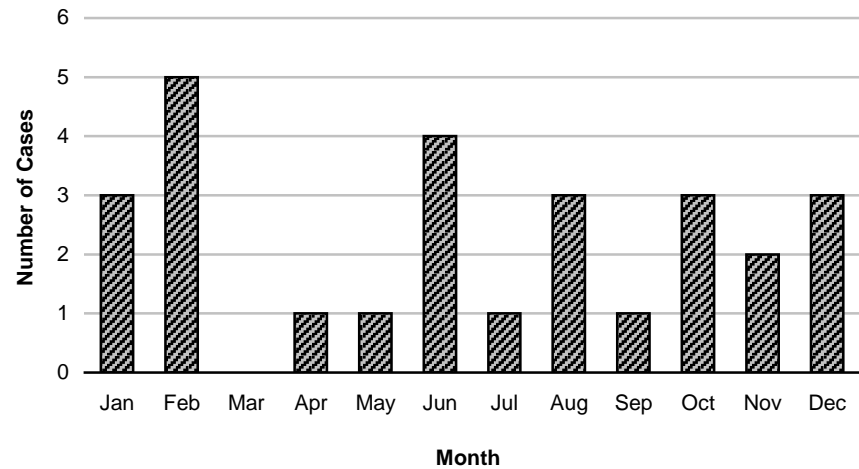
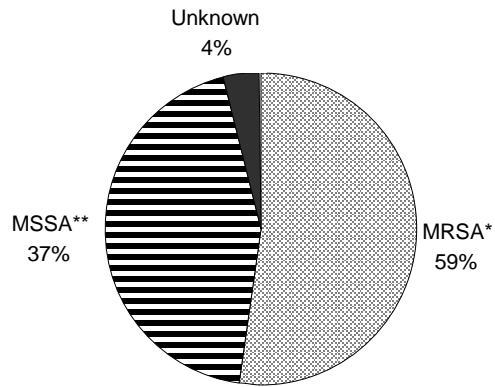




Figure 5. Percent Cases of Severe *S. aureus* Infection by Type LAC, 2009 (N=27)



*MRSA=Methicillin Resistance *Staphylococcus aureus*
 **MSSA=Methicillin Sensitive *Staphylococcus aureus*

Table 2. Frequency and Percentage of Severe *S. aureus* Clinical Syndromes, LAC, 2009

Syndrome	Number	Percent*
Pneumonia	12	44
Bacteremia (without focus)	3	11
Wound Infection	5	19
Skin Infection	5	19
Meningitis	3	11
Septic Arthritis	1	4
Osteomyelitis	1	4
Bursitis	0	0
Endocarditis	2	7

*Overlapping syndromes will total over 100%.

Table 1. Percentage of Severe *S. aureus* Risk Factors – Based on Date of Onset Between 1/1/08-12/31/2009

	2008	2009
	N = 25	N = 27
	%**	%**
Diabetes	28	15
Current Smoker	28	7
Emphysema	20	0
Alcohol Abuse	16	0
Asthma	16	4
Intravenous Drug Use	8	15
HIV/AIDS	4	4
Malignancy	4	4
Other	24	41
None	16	22

*Persons with unknown risk factor information excluded.
 **Overlapping risk factors will total over 100%.