

***Cases, Rates and Case Fatality of Invasive Group A Streptococcal Disease
in Five-County Denver Metropolitan Area^ by Age Group, 2008***

1

group A streptococcus	Cases (Rate)		Deaths	
	No.	(Rate)	No.	(% of cases)
Age Group (years)				
<1	4	(10.9)	0	.
1	3	(8.1)	0	.
2-4	4	(3.5)	1	(25.0)
5-17	9	(2.0)	0	.
18-34	13	(2.3)	0	.
35-49	33	(5.7)	4	(12.1)
50-64	34	(7.7)	4	(11.7)
65+	41	(18.3)	9	(21.9)
Total	141	(5.8)	18	(12.7)

***Rates are computed using 2008-based population estimates, State Demography Office - DOLA
^ Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Sites from which Invasive group A streptococcus was Isolated:
Denver Metropolitan Area[^], 2008***

2

Site of Isolation	No.*	(% of cases)
Blood	106	(75.1)
Wound**	10	(7.0)
Joint	8	(5.6)
Pleural fluid	7	(4.9)
Bone	5	(3.5)
Internal body site	4	(2.8)
Peritoneal fluid	1	(0.7)
Muscle	1	(0.7)

**** GAS was isolated from one site in 129 cases and multiple sites in 12 cases (Total cases=141)
GAS was isolated only from blood in 96 cases (68.1%)***

*****Wound is included when accompanied by necrotizing fasciitis and/or toxic shock syndrome***

[^] Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties

**Syndromes Associated with Invasive Group A Streptococcal Disease, by Age Group:
Denver Metropolitan Area[^], 2008**

3

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
<=17	Bacteremia only	8	(40.0)
	Bacteremic pneumonia	3	(15.0)
	Cellulitis	1	(5.0)
	Abscess	2	(10.0)
	Peritonitis	1	(5.0)
	Septic arthritis	1	(5.0)
	Other	5	(25.0)
18-49	Bacteremia only	16	(34.7)
	Bacteremic pneumonia	8	(17.3)
	Cellulitis	12	(26.0)
	Abscess	1	(2.1)
	Septic arthritis	3	(6.5)
	Osteomyelitis	3	(6.5)
	Necrotizing fasciitis	6	(13.0)
	Other	9	(19.5)
	Endocarditis	1	(2.1)
	Empyema	2	(4.3)
	Unknown	2	(4.3)
50+	Bacteremia only	15	(20.0)
	Bacteremic pneumonia	11	(14.6)
	Cellulitis	23	(30.6)
	Abscess	2	(2.6)
	Peritonitis	1	(1.3)
	Septic arthritis	6	(8.0)
	Osteomyelitis	2	(2.6)
	Necrotizing fasciitis	8	(10.6)
	Other	20	(26.6)
	Endocarditis	1	(1.3)
	Empyema	1	(1.3)

*** Some cases had more than one syndrome**

**[^] Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties
Other infection type includes but is not limited to: lymphadenitis, bursitis, and septic shock**

**Underlying Conditions Associated with Invasive Group A Streptococcal Disease:
Denver Metropolitan Area[^], 2008**

4

Underlying Condition		No.*	(% of cases)
Age Group (years)			
<=17	None	15	(75.0)
	Asthma	2	(10.0)
	Other malignancy	1	(5.0)
	Other prior illness	2	(10.0)
18-49	None	13	(28.2)
	Unknown	1	(2.1)
	Current smoker	11	(23.9)
	Immunosuppressive therapy	1	(2.1)
	Asthma	1	(2.1)
	Emphysema/COPD	1	(2.1)
	Diabetes	8	(17.3)
	Renal failure/dialysis	2	(4.3)
	HIV	1	(2.1)
	AIDS	1	(2.1)
	Cirrhosis/liver failure	1	(2.1)
	Alcohol abuse	9	(19.5)
	Heart failure/CHF	1	(2.1)
	IV drug user	1	(2.1)
	Obesity	7	(15.2)
	Other prior illness	7	(15.2)
50+	None	16	(21.3)
	Unknown	2	(2.6)
	Current smoker	7	(9.3)
	Immunosuppressive therapy	3	(4.0)
	Asthma	2	(2.6)
	Emphysema/COPD	10	(13.3)
	Diabetes	26	(34.6)
	Renal failure/dialysis	8	(10.6)
	Cirrhosis/liver failure	3	(4.0)
	Alcohol abuse	5	(6.6)
	Atherosclerotic cardiovascular disease	14	(18.6)

(Continued)

15 cases in the 18-49 age group and 34 cases in the 50+ age group had >1 underlying condition
Other prior illness/malignancy includes, but is not limited to: hepatitis C, seizure disorder, and cancer
[^] **Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties**

***Underlying Conditions Associated with Invasive Group A Streptococcal Disease:
Denver Metropolitan Area[^], 2008***

5

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	Heart failure/CHF	5	(6.6)
	Cerebral vascular accident	3	(4.0)
	Obesity	6	(8.0)
	Other malignancy	4	(5.3)
	Other prior illness	13	(17.3)

***15 cases in the 18-49 age group and 34 cases in the 50+ age group had >1 underlying condition
Other prior illness/malignancy includes, but is not limited to: hepatitis C, seizure disorder, and cancer
[^] Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Invasive Group A Streptococcal Disease emm Types:
Denver Metropolitan Area[^], 2008***

6

group A streptococcus	No.	(% of isolates)
emm type		
01	24	(21.0)
118	13	(11.4)
28	11	(9.6)
12	9	(7.8)
89	9	(7.8)
11	7	(6.1)
03	4	(3.5)
76	4	(3.5)
77	4	(3.5)
73	3	(2.6)
04	3	(2.6)
ST-5144	3	(2.6)
22	3	(2.6)
02	2	(1.7)
87	2	(1.7)
33	2	(1.7)
68	1	(0.8)
90	1	(0.8)
83	1	(0.8)
59	1	(0.8)
58	1	(0.8)
NT	1	(0.8)
48	1	(0.8)
06	1	(0.8)
101	1	(0.8)
09	1	(0.8)
05	1	(0.8)
Total	114	(100.0)

Based upon reference lab testing of 114 isolates (Total cases=141)

Testing performed by the Centers for Disease Control and Prevention: Atlanta, GA

[^]Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties