

**Cases, Rates and Case Fatality of Invasive Group A Streptococcal Disease
in Five-County Denver Metropolitan Area^ by Age Group, 2013**

Group A streptococcus	Cases (Rate)		Deaths	
	No.	(Rate)	No.	(% of cases)
Age Group (years)				
<1	1	(3.0)	0	.
1	4	(11.7)	0	.
2-4	4	(3.8)	0	.
5-17	4	(0.8)	0	.
18-34	14	(2.2)	0	.
35-49	17	(3.1)	1	(5.8)
50-64	40	(8.3)	2	(5.0)
65+	28	(10.1)	6	(21.4)
Total	112	(4.4)	9	(8.0)

*Rates are computed using 2012-based population estimates, State Demography Office - DOLA
^ Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties*

***Rates of Invasive Group A Streptococcal Disease by County
Denver Metropolitan Area[^], 2013***

Group A streptococcus	Cases (Rate)	
	No.	(Rate)
ADAMS	19	(4.1)
ARAPAHOE	23	(3.8)
DENVER	39	(6.1)
DOUGLAS	9	(3.0)
JEFFERSON	22	(4.0)

***Rates are computed using 2012-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[^], 2013***

Site of Isolation	No.*	(% of cases)
Blood	73	(65.1)
Joint	12	(10.7)
Other invasive site	10	(8.9)
Bone	9	(8.0)
Pleural fluid	6	(5.3)
Muscle	3	(2.6)
Peritoneal fluid	2	(1.7)
Internal body site	1	(0.8)
Wound**	1	(0.8)

****Not mutually exclusive; GAS was isolated from one site in 107 cases and multiple sites in 5 cases (Total cases=112)***

GAS was isolated only from blood in 68 cases (60.7%)

*****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[^], 2013***

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
<=17	Abscess (not skin)	5	(38.4)
	Bacteremia only	3	(23.0)
	Cellulitis	2	(15.3)
	Septic arthritis	2	(15.3)
	Other syndrome	2	(15.3)
	Pneumonia	1	(7.6)
	Osteomyelitis	1	(7.6)
18-49	Bacteremia only	2	(6.4)
	Cellulitis	8	(25.8)
	Septic arthritis	7	(22.5)
	Other syndrome	6	(19.3)
	Pneumonia	5	(16.1)
	Osteomyelitis	3	(9.6)
	Septic shock	7	(22.5)
	Necrotizing fasciitis	5	(16.1)
	Toxic shock syndrome	3	(9.6)
	Peritonitis	1	(3.2)

(Continued)

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

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***Syndromes Associated with Invasive Group A Streptococcal Disease, by Age Group
Denver Metropolitan Area[^], 2013***

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
18-49	Endocarditis	1	(3.2)
	Empyema	1	(3.2)
50+	Abscess (not skin)	2	(2.9)
	Bacteremia only	16	(23.5)
	Cellulitis	25	(36.7)
	Septic arthritis	6	(8.8)
	Other syndrome	4	(5.8)
	Pneumonia	10	(14.7)
	Osteomyelitis	7	(10.2)
	Septic shock	16	(23.5)
	Necrotizing fasciitis	5	(7.3)
	Peritonitis	1	(1.4)
	Endocarditis	1	(1.4)
	Empyema	1	(1.4)
	Unknown	1	(1.4)

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

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

***Underlying Conditions Associated with Invasive Group A Streptococcal Disease
Denver Metropolitan Area[^], 2013***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
<=17	None	9	(69.2)
	Unknown	1	(7.6)
	Asthma	1	(7.6)
	Premature birth	1	(7.6)
18-49	None	8	(25.8)
	Asthma	1	(3.2)
	Current smoker	11	(35.4)
	Diabetes	6	(19.3)
	Emphysema/COPD	2	(6.4)
	Organ transplant	2	(6.4)
	AIDS	1	(3.2)
	CVA/Stroke	1	(3.2)
	Immunosuppressive therapy	1	(3.2)
	Renal Failure/Dialysis	1	(3.2)
	Organ malignancy	1	(3.2)

(Continued)

0% of cases in the <=17 age group, 19% of cases in the 18-49 age group, and 31% of cases in the 50+ age group had >1 underlying condition

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

***Underlying Conditions Associated with Invasive Group A Streptococcal Disease
Denver Metropolitan Area[^], 2013***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	None	12	(17.6)
	Asthma	3	(4.4)
	Current smoker	12	(17.6)
	Diabetes	21	(30.8)
	Emphysema/COPD	7	(10.2)
	Organ transplant	1	(1.4)
	CVA/Stroke	2	(2.9)
	Immunosuppressive therapy	6	(8.8)
	Renal Failure/Dialysis	3	(4.4)
	Organ malignancy	4	(5.8)
	Atherosclerotic Cardiovascular Disease	6	(8.8)
	Heart failure/CHF	6	(8.8)
	HIV	1	(1.4)
	Leukemia	1	(1.4)

0% of cases in the <=17 age group, 19% of cases in the 18-49 age group, and 31% of cases in the 50+ age group had >1 underlying condition

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

***Invasive Group A Streptococcal Disease emm Types
Denver Metropolitan Area[^], 2013***

Group A streptococcus	No.	(% of isolates)
emm type		
01	25	(25.2)
89	9	(9.0)
28	8	(8.0)
12	8	(8.0)
77	8	(8.0)
118	5	(5.0)
75	5	(5.0)
87	4	(4.0)
04	4	(4.0)
03	4	(4.0)
06	3	(3.0)
11	3	(3.0)
02	2	(2.0)
22	2	(2.0)
68	1	(1.0)
ST-G485	1	(1.0)
238	1	(1.0)

(Continued)

***Based upon reference lab testing of 99 isolates (Total cases=112)
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA
[^]Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Invasive Group A Streptococcal Disease emm Types
Denver Metropolitan Area[^], 2013***

Group A streptococcus	No.	(% of isolates)
emm type		
09	1	(1.0)
92	1	(1.0)
59	1	(1.0)
81	1	(1.0)
ST-G652	1	(1.0)
211	1	(1.0)
Total	99	(100.0)

***Based upon reference lab testing of 99 isolates (Total cases=112)
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA
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