

***Cases, Rates and Case Fatality of Invasive Group A Streptococcal Disease
in Five-County Denver Metropolitan Area^ by Age Group, 2012***

Group A streptococcus	Cases (Rate)		Deaths	
	No.	(Rate)	No.	(% of cases)
Age Group (years)				
<1	2	(6.0)	1	(50.0)
1	2	(5.8)	0	.
2-4	6	(5.7)	0	.
5-17	7	(1.5)	1	(14.2)
18-34	12	(1.9)	0	.
35-49	24	(4.3)	0	.
50-64	35	(7.2)	2	(5.7)
65+	27	(9.7)	2	(7.4)
Total	115	(4.5)	6	(5.2)

***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[^], 2012***

Group A streptococcus	Cases (Rate)	
	No.	(Rate)
ADAMS	21	(4.5)
ARAPAHOE	32	(5.3)
DENVER	28	(4.4)
DOUGLAS	10	(3.3)
JEFFERSON	24	(4.3)

***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[^], 2012***

Site of Isolation	No.*	(% of cases)
Blood	79	(68.6)
Joint	12	(10.4)
Other invasive site	9	(7.8)
Bone	6	(5.2)
Wound**	6	(5.2)
Muscle	4	(3.4)
Internal body site	4	(3.4)
CSF	2	(1.7)
Pleural fluid	2	(1.7)
Peritoneal fluid	2	(1.7)

****Not mutually exclusive; GAS was isolated from one site in 105 cases and multiple sites in 10 cases (Total cases=115)***

GAS was isolated only from blood in 70 cases (60.9%)

*****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[^], 2012***

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
<=17	Abscess (not skin)	6	(35.2)
	Other syndrome	6	(35.2)
	Pneumonia	3	(17.6)
	Cellulitis	2	(11.7)
	Septic arthritis	2	(11.7)
	Bacteremia only	1	(5.8)
	Meningitis	1	(5.8)
	Osteomyelitis	1	(5.8)
	Necrotizing fasciitis	1	(5.8)
	Septic shock	1	(5.8)
18-49	Abscess (not skin)	3	(8.3)
	Other syndrome	2	(5.5)
	Pneumonia	5	(13.8)
	Cellulitis	11	(30.5)
	Septic arthritis	6	(16.6)
	Bacteremia only	5	(13.8)
	Osteomyelitis	3	(8.3)

(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[^], 2012***

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
18-49	Necrotizing fasciitis	2	(5.5)
	Septic shock	7	(19.4)
	Peritonitis	2	(5.5)
	Toxic shock syndrome	2	(5.5)
	Puerperal sepsis	1	(2.7)
	Empyema	1	(2.7)
	Unknown	1	(2.7)
50+	Other syndrome	4	(6.4)
	Pneumonia	9	(14.5)
	Cellulitis	17	(27.4)
	Septic arthritis	7	(11.2)
	Bacteremia only	19	(30.6)
	Meningitis	2	(3.2)
	Osteomyelitis	7	(11.2)
	Necrotizing fasciitis	2	(3.2)
	Septic shock	9	(14.5)

(Continued)

** Some cases had more than one 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[^], 2012*

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
50+	Empyema	2	(3.2)
	Unknown	2	(3.2)

** 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[^], 2012***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
<=17	None	11	(64.7)
	Asthma	3	(17.6)
	Unknown	1	(5.8)
18-49	None	18	(50.0)
	Asthma	2	(5.5)
	Current smoker	10	(27.7)
	Alcohol abuse	3	(8.3)
	CVA/Stroke	2	(5.5)
	Heart failure/CHF	2	(5.5)
	Cirrhosis/liver failure	1	(2.7)
	Diabetes	1	(2.7)
	HIV	1	(2.7)
	Immunosuppressive therapy	1	(2.7)
	IV drug use	1	(2.7)
	Organ malignancy	1	(2.7)

(Continued)

0% of cases in the <=17 age group, 17% of cases in the 18-49 age group, and 40% 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[^], 2012***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	None	6	(9.6)
	Asthma	4	(6.4)
	Unknown	1	(1.6)
	Current smoker	9	(14.5)
	Alcohol abuse	3	(4.8)
	CVA/Stroke	3	(4.8)
	Heart failure/CHF	4	(6.4)
	Cirrhosis/liver failure	2	(3.2)
	Diabetes	23	(37.0)
	Immunosuppressive therapy	3	(4.8)
	IV drug use	1	(1.6)
	Organ malignancy	5	(8.0)
	Atherosclerotic Cardiovascular Disease	6	(9.6)
	Emphysema/COPD	6	(9.6)
	Renal Failure/Dialysis	3	(4.8)
Hodgkins disease	2	(3.2)	

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0% of cases in the <=17 age group, 17% of cases in the 18-49 age group, and 40% of cases in the 50+ age group had >1 underlying condition

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***Underlying Conditions Associated with Invasive Group A Streptococcal Disease
Denver Metropolitan Area[^], 2012***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	Multiple myeloma	2	(3.2)
	Chronic skin breakdown	1	(1.6)
	Leukemia	1	(1.6)

0% of cases in the <=17 age group, 17% of cases in the 18-49 age group, and 40% 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[^], 2012***

Group A streptococcus	No.	(% of isolates)
emm type		
01	20	(19.0)
12	14	(13.3)
28	11	(10.4)
02	9	(8.5)
118	8	(7.6)
06	7	(6.6)
89	7	(6.6)
11	7	(6.6)
04	4	(3.8)
81	4	(3.8)
87	2	(1.9)
59	2	(1.9)
73	1	(0.9)
76	1	(0.9)
34	1	(0.9)
94	1	(0.9)
09	1	(0.9)

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***Based upon reference lab testing of 105 isolates (Total cases=115)
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[^], 2012***

Group A streptococcus	No.	(% of isolates)
emm type		
90	1	(0.9)
102	1	(0.9)
58	1	(0.9)
03	1	(0.9)
68	1	(0.9)
Total	105	(100.0)

***Based upon reference lab testing of 105 isolates (Total cases=115)
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA
[^]Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***