

**Cases, Rates and Case Fatality of Invasive Group A Streptococcal Disease
in Five-County Denver Metropolitan Area[^] by Age Group, 2009**

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Provisional Data

group A streptococcus	Cases (Rate)		Deaths	
	No.	(Rate)	No.	(% of cases)
Age Group (years)				
<1	3	(8.2)	0	.
1	5	(13.5)	0	.
2-4	4	(3.5)	0	.
5-17	7	(1.5)	0	.
18-34	9	(1.5)	0	.
35-49	31	(5.4)	3	(9.6)
50-64	30	(6.4)	2	(6.6)
65+	34	(14.6)	8	(23.5)
Total	123	(4.9)	13	(10.5)

Rates are computed using 2009-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[^], 2009***

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Provisional Data

Site of Isolation	No.*	(% of cases)
Blood	90	(73.1)
Wound**	11	(8.9)
Joint	10	(8.1)
Pleural fluid	5	(4.0)
Bone	3	(2.4)
CSF	2	(1.6)
Peritoneal fluid	2	(1.6)
Internal body site	2	(1.6)
Muscle	1	(0.8)

**** GAS was isolated from one site in 105 cases and multiple sites in 18 cases (Total cases=123)
GAS was isolated only from blood in 76 cases (61.8%)***

*****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[^], 2009**

Provisional Data

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
<=17	Bacteremia only	4	(21.0)
	Bacteremic pneumonia	1	(5.2)
	Cellulitis	5	(26.3)
	Abscess	3	(15.7)
	Septic arthritis	1	(5.2)
	Osteomyelitis	1	(5.2)
	Necrotizing fasciitis	1	(5.2)
	Other	3	(15.7)
18-49	Bacteremia only	11	(27.5)
	Meningitis	1	(2.5)
	Otitis media	1	(2.5)
	Bacteremic pneumonia	5	(12.5)
	Cellulitis	10	(25.0)
	Peritonitis	2	(5.0)
	Pericarditis	1	(2.5)
	Septic arthritis	5	(12.5)
	Osteomyelitis	1	(2.5)
	Streptococcal Toxic Shock	3	(7.5)
	Necrotizing fasciitis	2	(5.0)
	Other	5	(12.5)
	Empyema	1	(2.5)
	Septic shock**	4	(10.0)
	Unknown	1	(2.5)
50+	Bacteremia only	17	(26.5)
	Meningitis	1	(1.5)
	Otitis media	1	(1.5)
	Bacteremic pneumonia	10	(15.6)
	Cellulitis	19	(29.6)
	Abscess	1	(1.5)

(Continued)

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

****This syndrome was added for 2009 data collection.**

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

**Syndromes Associated with Invasive Group A Streptococcal Disease, by Age Group:
Denver Metropolitan Area[^], 2009**

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Provisional Data

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
50+	Septic arthritis	4	(6.2)
	Osteomyelitis	2	(3.1)
	Streptococcal Toxic Shock	1	(1.5)
	Necrotizing fasciitis	4	(6.2)
	Other	4	(6.2)
	Endocarditis	1	(1.5)
	Septic shock**	10	(15.6)
	Unknown	2	(3.1)

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

*****This syndrome was added for 2009 data collection.***

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Other infection type includes but is not limited to: lymphadenitis and sepsis***

**Underlying Conditions Associated with Invasive Group A Streptococcal Disease:
Denver Metropolitan Area[^], 2009**

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Provisional Data

Underlying Condition		No.*	(% of cases)
Age Group (years)			
<=17	None	11	(57.8)
	Immunoglobulin deficiency	1	(5.2)
	Asthma	1	(5.2)
	Heart failure/CHF	1	(5.2)
	Obesity	2	(10.5)
	Prematurity	1	(5.2)
	Chronic skin breakdown	1	(5.2)
	Other prior illness	2	(10.5)
18-49	None	13	(32.5)
	Unknown	1	(2.5)
	Current smoker	4	(10.0)
	Immunosuppressive therapy	2	(5.0)
	Asthma	2	(5.0)
	Emphysema/COPD	3	(7.5)
	Diabetes	3	(7.5)
	Renal failure/dialysis	1	(2.5)
	HIV	2	(5.0)
	AIDS	1	(2.5)
	Alcohol abuse	6	(15.0)
	Atherosclerotic cardiovascular disease	2	(5.0)
	IV drug user	2	(5.0)
	Obesity	6	(15.0)
	Other prior illness	6	(15.0)
50+	None	9	(14.0)
	Unknown	1	(1.5)
	Current smoker	5	(7.8)
	Multiple myeloma	1	(1.5)
	Immunosuppressive therapy	7	(10.9)

(Continued)

3 cases in the <=17 age group, 11 cases in the 18-49 age group, and 37 cases in the 50+ age group had >1 underlying condition

Other prior illness/malignancy includes, but is not limited to: other concurrent infection, hepatitis C, 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[^], 2009**

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Provisional Data

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	Leukemia	1	(1.5)
	Asthma	4	(6.2)
	Emphysema/COPD	12	(18.7)
	Systemic lupus erythematosus	1	(1.5)
	Diabetes	23	(35.9)
	Renal failure/dialysis	7	(10.9)
	Cirrhosis/liver failure	3	(4.6)
	Alcohol abuse	4	(6.2)
	Atherosclerotic cardiovascular disease	13	(20.3)
	Heart failure/CHF	9	(14.0)
	Cerebral vascular accident	5	(7.8)
	IV drug user	1	(1.5)
	Obesity	9	(14.0)
	Solid organ malignancy	4	(6.2)
	Other prior illness	8	(12.5)

3 cases in the ≤17 age group, 11 cases in the 18-49 age group, and 37 cases in the 50+ age group had >1 underlying condition

Other prior illness/malignancy includes, but is not limited to: other concurrent infection, hepatitis C, and cancer

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***Invasive Group A Streptococcal Disease emm Types:
Denver Metropolitan Area[^], 2009***

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group A streptococcus	No.	(% of isolates)
emm type		
01	32	(30.1)
118	14	(13.2)
12	13	(12.2)
04	11	(10.3)
11	6	(5.6)
28	5	(4.7)
87	4	(3.7)
89	4	(3.7)
05	3	(2.8)
02	3	(2.8)
76	2	(1.8)
101	1	(0.9)
06	1	(0.9)
2	1	(0.9)
33	1	(0.9)
03	1	(0.9)
73	1	(0.9)
77	1	(0.9)
22	1	(0.9)
1	1	(0.9)
Total	106	(100.0)

Based upon reference lab testing of 106 isolates (Total cases=123)

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

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