

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

Streptococcus pneumoniae	Cases (Rate)		Deaths	
	No.	(Rate)	No.	(% of cases)
Age Group (years)				
<1	4	(12.0)	0	.
1	.	.	0	.
2-4	4	(3.8)	0	.
5-17	5	(1.1)	0	.
18-34	18	(2.9)	0	.
35-49	39	(7.1)	2	(5.1)
50-64	110	(22.9)	12	(10.9)
65+	84	(30.4)	9	(10.7)
Total	264	(10.4)	23	(8.7)

***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 Pneumococcal Disease by County
Denver Metropolitan Area[^], 2013***

Streptococcus pneumoniae	Cases (Rate)	
	No.	(Rate)
ADAMS	57	(12.4)
ARAPAHOE	42	(7.0)
DENVER	100	(15.7)
DOUGLAS	11	(3.6)
JEFFERSON	54	(9.8)

***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 Streptococcus pneumoniae was Isolated
Denver Metropolitan Area^, 2013***

Site of Isolation	No.*	(% of cases)
Blood	250	(94.6)
CSF	12	(4.5)
Pleural fluid	5	(1.8)
Joint	3	(1.1)
Peritoneal fluid	2	(0.7)

****Not mutually exclusive; S. pneumoniae was isolated from one site in 254 cases and multiple sites in 10 cases (Total cases=264)***

S. pneumoniae was isolated only from blood in 240 cases (90.9%)

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

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

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
<=17	Bacteremia only	5	(38.4)
	Pneumonia	4	(30.7)
	Meningitis	2	(15.3)
	Otitis media	1	(7.6)
	Other syndrome	1	(7.6)
	Empyema	1	(7.6)
	Unknown	1	(7.6)
18-49	Bacteremia only	8	(14.0)
	Pneumonia	42	(73.6)
	Meningitis	3	(5.2)
	Otitis media	2	(3.5)
	Other syndrome	2	(3.5)
	Empyema	2	(3.5)
	Unknown	1	(1.7)
	Septic shock	7	(12.2)
	Abscess (not skin)	1	(1.7)

(Continued)

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

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

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

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
18-49	Puerperal sepsis	1	(1.7)
50+	Bacteremia only	27	(13.9)
	Pneumonia	144	(74.2)
	Meningitis	8	(4.1)
	Other syndrome	4	(2.0)
	Empyema	9	(4.6)
	Unknown	4	(2.0)
	Septic shock	32	(16.4)
	Peritonitis	4	(2.0)
	Septic arthritis	4	(2.0)
	Cellulitis	2	(1.0)
Endocarditis	2	(1.0)	

** Some cases had more than one syndrome*

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

***Underlying Conditions Associated with Invasive Pneumococcal Disease
Denver Metropolitan Area[^], 2013***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
<=17	None	5	(38.4)
	Immunosuppressive therapy	2	(15.3)
	Unknown	1	(7.6)
	Bone marrow transplant	1	(7.6)
	Hodgkins disease	1	(7.6)
	Premature birth	1	(7.6)
	Organ malignancy	1	(7.6)
	Organ transplant	1	(7.6)
18-49	None	7	(12.2)
	Organ malignancy	1	(1.7)
	Current smoker	35	(61.4)
	HIV	8	(14.0)
	Emphysema/COPD	7	(12.2)
	AIDS	4	(7.0)
	Diabetes	4	(7.0)
	Asthma	2	(3.5)

(Continued)

23% of cases in the <=17 age group, 37% of cases in the 18-49 age group, and 43% 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 Pneumococcal Disease
Denver Metropolitan Area[^], 2013***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
18-49	Cirrhosis/liver failure	2	(3.5)
	Heart failure/CHF	2	(3.5)
	Atherosclerotic Cardiovascular Disease	1	(1.7)
	CVA/Stroke	1	(1.7)
	CSF leak	1	(1.7)
	Lupus	1	(1.7)
50+	None	13	(6.7)
	Immunosuppressive therapy	11	(5.6)
	Unknown	6	(3.0)
	Hodgkins disease	6	(3.0)
	Organ malignancy	22	(11.3)
	Organ transplant	1	(0.5)
	Current smoker	67	(34.5)
	HIV	9	(4.6)
	Emphysema/COPD	53	(27.3)
	AIDS	6	(3.0)

(Continued)

23% of cases in the <=17 age group, 37% of cases in the 18-49 age group, and 43% 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 Pneumococcal Disease
Denver Metropolitan Area[^], 2013***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	Diabetes	40	(20.6)
	Asthma	16	(8.2)
	Cirrhosis/liver failure	9	(4.6)
	Heart failure/CHF	9	(4.6)
	Atherosclerotic Cardiovascular Disease	14	(7.2)
	CVA/Stroke	8	(4.1)
	Lupus	2	(1.0)
	Leukemia	6	(3.0)
	Renal Failure/Dialysis	5	(2.5)
	Splenectomy/asplenia	2	(1.0)
	Multiple myeloma	1	(0.5)

23% of cases in the <=17 age group, 37% of cases in the 18-49 age group, and 43% of cases in the 50+ age group had >1 underlying condition

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

***Invasive Pneumococcal Disease Serotypes
Denver Metropolitan Area[^], 2013***

Streptococcus pneumoniae	No.	(% of isolates)
Type		
003	34	(14.1)
22F	27	(11.2)
12F	24	(9.9)
008	17	(7.0)
19A	15	(6.2)
07F	14	(5.8)
35B	12	(4.9)
33F	11	(4.5)
09N	10	(4.1)
06C	10	(4.1)
11A	9	(3.7)
004	6	(2.4)
020	6	(2.4)
23A	6	(2.4)
35F	5	(2.0)
15A	4	(1.6)
10A	4	(1.6)

(Continued)

***Based upon reference lab testing of 241 isolates (Total cases=264)
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA
[^]Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

*Invasive Pneumococcal Disease Serotypes
Denver Metropolitan Area[^], 2013*

Streptococcus pneumoniae	No.	(% of isolates)
Type		
17F	4	(1.6)
07C	4	(1.6)
15B	4	(1.6)
23B	4	(1.6)
15C	3	(1.2)
16F	2	(0.8)
000	1	(0.4)
09V	1	(0.4)
15B/C	1	(0.4)
034	1	(0.4)
28A	1	(0.4)
19F	1	(0.4)
Total	241	(100.0)

*Based upon reference lab testing of 241 isolates (Total cases=264)
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA
[^]Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties*