

***Cases, Rates and Case Fatality of Invasive Pneumococcal Disease  
in Five-County Denver Metropolitan Area^ by Age Group, 2011***

Streptococcus pneumoniae	Cases (Rate)		Deaths	
	No.	(Rate)	No.	(% of cases)
Age Group (years)				
<1	6	(17.6)	0	.
1	2	(5.9)	0	.
2-4	13	(12.3)	0	.
5-17	13	(2.9)	0	.
18-34	18	(2.9)	0	.
35-49	39	(7.1)	3	(7.6)
50-64	87	(18.5)	3	(3.4)
65+	77	(29.7)	10	(12.9)
<b>Total</b>	255	(10.2)	16	(6.2)

***Rates are computed using 2011-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<sup>^</sup>, 2011***

Streptococcus pneumoniae	Cases (Rate)	
	No.	(Rate)
ADAMS	47	(10.4)
ARAPAHOE	60	(10.2)
DENVER	90	(14.4)
DOUGLAS	15	(5.1)
JEFFERSON	43	(7.9)

***Rates are computed using 2011-based population estimates, State Demography Office - DOLA  
<sup>^</sup> Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Sites from which Invasive Streptococcus pneumoniae was Isolated  
Denver Metropolitan Area^, 2011***

<b>Site of Isolation</b>	<b>No.*</b>	<b>(% of cases)</b>
<b>Blood</b>	239	(93.7)
<b>Pleural fluid</b>	12	(4.7)
<b>CSF</b>	11	(4.3)
<b>Internal body site</b>	5	(1.9)
<b>Joint</b>	3	(1.1)
<b>Peritoneal fluid</b>	2	(0.7)
<b>Pericardial fluid</b>	1	(0.3)

***\*Not mutually exclusive; S. pneumoniae was isolated from one site in 238 cases and multiple sites in 17 cases (Total cases=255)***

***S. pneumoniae was isolated only from blood in 222 cases (87.1%)***

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

***Syndromes Associated with Invasive Pneumococcal Disease, by Age Group  
Denver Metropolitan Area<sup>^</sup>, 2011***

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
<=17	Pneumonia	15	(44.1)
	Other syndrome	7	(20.5)
	Meningitis	6	(17.6)
	Otitis media	6	(17.6)
	Bacteremia only	3	(8.8)
	Unknown	2	(5.8)
	Abscess (not skin)	1	(2.9)
	Empyema	1	(2.9)
	Septic shock	1	(2.9)
18-49	Pneumonia	46	(80.7)
	Other syndrome	4	(7.0)
	Meningitis	4	(7.0)
	Bacteremia only	1	(1.7)
	Abscess (not skin)	2	(3.5)
	Empyema	3	(5.2)
	Septic shock	9	(15.7)

(Continued)

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

***<sup>^</sup> Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Syndromes Associated with Invasive Pneumococcal Disease, by Age Group  
Denver Metropolitan Area<sup>^</sup>, 2011***

Clinical Syndrome		No.*	(% of cases)
Age Group (years)			
18-49	Peritonitis	3	(5.2)
	Endocarditis	3	(5.2)
	Cellulitis	1	(1.7)
	Pericarditis	1	(1.7)
	Septic arthritis	1	(1.7)
50+	Pneumonia	126	(76.8)
	Other syndrome	5	(3.0)
	Meningitis	6	(3.6)
	Bacteremia only	18	(10.9)
	Unknown	4	(2.4)
	Empyema	10	(6.0)
	Septic shock	18	(10.9)
	Endocarditis	1	(0.6)
	Septic arthritis	3	(1.8)
	Epiglottitis	3	(1.8)
	Osteomyelitis	1	(0.6)

*\* Some cases had more than one syndrome*

*<sup>^</sup> Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties*

***Underlying Conditions Associated with Invasive Pneumococcal Disease  
Denver Metropolitan Area<sup>^</sup>, 2011***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
<=17	None	19	(55.8)
	Asthma	4	(11.7)
	Premature birth	3	(8.8)
	Immunoglobulin deficiency	2	(5.8)
	Unknown	1	(2.9)
	Complement deficiency	1	(2.9)
	Immunosuppressive therapy	1	(2.9)
	Leukemia	1	(2.9)
18-49	None	13	(22.8)
	Asthma	9	(15.7)
	Unknown	1	(1.7)
	Immunosuppressive therapy	2	(3.5)
	Current smoker	21	(36.8)
	Alcohol abuse	10	(17.5)
	HIV	7	(12.2)
	AIDS	4	(7.0)

(Continued)

***6% of cases in the <=17 age group, 35% of cases in the 18-49 age group, and 48% of cases in the 50+ age group had >1 underlying condition***

***<sup>^</sup> Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Underlying Conditions Associated with Invasive Pneumococcal Disease  
Denver Metropolitan Area<sup>^</sup>, 2011***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
18-49	Organ malignancy	3	(5.2)
	Diabetes	2	(3.5)
	IV drug use	2	(3.5)
	Atherosclerotic Cardiovascular Disease	1	(1.7)
	Cirrhosis/liver failure	1	(1.7)
	Heart failure/CHF	1	(1.7)
	Renal Failure/Dialysis	1	(1.7)
	Lupus	1	(1.7)
50+	None	16	(9.7)
	Asthma	14	(8.5)
	Unknown	1	(0.6)
	Immunosuppressive therapy	12	(7.3)
	Leukemia	4	(2.4)
	Current smoker	46	(28.0)
	Alcohol abuse	15	(9.1)
	HIV	7	(4.2)

(Continued)

*6% of cases in the <=17 age group, 35% of cases in the 18-49 age group, and 48% of cases in the 50+ age group had >1 underlying condition*

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***Underlying Conditions Associated with Invasive Pneumococcal Disease  
Denver Metropolitan Area<sup>^</sup>, 2011***

Underlying Condition		No.*	(% of cases)
Age Group (years)			
50+	AIDS	4	(2.4)
	Organ malignancy	16	(9.7)
	Diabetes	32	(19.5)
	Atherosclerotic Cardiovascular Disease	20	(12.1)
	Cirrhosis/liver failure	6	(3.6)
	Heart failure/CHF	15	(9.1)
	Renal Failure/Dialysis	6	(3.6)
	Lupus	3	(1.8)
	Emphysema/COPD	56	(34.1)
	CVA/Stroke	6	(3.6)
	Multiple myeloma	5	(3.0)
	Organ transplant	3	(1.8)
	Hodgkins disease	2	(1.2)
	Deaf/Hearing loss	1	(0.6)
Nephrotic syndrome	1	(0.6)	
Splenectomy/asplenia	1	(0.6)	

***6% of cases in the <=17 age group, 35% of cases in the 18-49 age group, and 48% of cases in the 50+ age group had >1 underlying condition***

***<sup>^</sup> Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

***Invasive Pneumococcal Disease Serotypes  
Denver Metropolitan Area<sup>^</sup>, 2011***

<b>Streptococcus pneumoniae</b>	<b>No.</b>	<b>(% of isolates)</b>
<b>Type</b>		
<b>07F</b>	61	(25.7)
<b>003</b>	27	(11.3)
<b>19A</b>	26	(10.9)
<b>22F</b>	24	(10.1)
<b>008</b>	12	(5.0)
<b>09N</b>	10	(4.2)
<b>06C</b>	10	(4.2)
<b>35B</b>	9	(3.7)
<b>15A</b>	8	(3.3)
<b>33F</b>	7	(2.9)
<b>12F</b>	5	(2.1)
<b>23A</b>	4	(1.6)
<b>23B</b>	4	(1.6)
<b>11A</b>	3	(1.2)
<b>35F</b>	3	(1.2)
<b>17F</b>	3	(1.2)
<b>031</b>	3	(1.2)

(Continued)

***Based upon reference lab testing of 237 isolates (Total cases=255)  
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA  
<sup>^</sup>Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties***

*Invasive Pneumococcal Disease Serotypes  
Denver Metropolitan Area<sup>^</sup>, 2011*

<b>Streptococcus pneumoniae</b>	<b>No.</b>	<b>(% of isolates)</b>
<b>Type</b>		
<b>09V</b>	2	(0.8)
<b>NT</b>	2	(0.8)
<b>16F</b>	2	(0.8)
<b>10A</b>	2	(0.8)
<b>034</b>	2	(0.8)
<b>15C</b>	2	(0.8)
<b>15B</b>	1	(0.4)
<b>038</b>	1	(0.4)
<b>07C</b>	1	(0.4)
<b>19F</b>	1	(0.4)
<b>013</b>	1	(0.4)
<b>037</b>	1	(0.4)
<b>Total</b>	237	(100.0)

*Based upon reference lab testing of 237 isolates (Total cases=255)  
Testing performed by the Centers for Disease Control and Prevention, Atlanta, GA  
<sup>^</sup>Emerging Infections Program area: Adams, Arapahoe, Denver, Douglas, and Jefferson counties*