Vaccine Preventable Diseases in Colorado

Surveillance Report: 2006



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Table of Contents

<u>Introduction</u>	Page 3
Table 1. Reported Cases of Vaccine Preventable Diseases, Colorado, 2002-2006	Page 3
Table 2. Reported Cases and Rates of Vaccine Preventable Diseases, Colorado and	
United States, 2006	Page 3
Diphtheria	Page 4
<u>Haemophilus influenzae</u>	Page 4
Table 3. Reported Invasive <i>Haemophilus influenzae</i> Cases, Rates and Case Fatality	
by Age Group, Colorado, 2006	Page 4
Hepatitis	Page 5
Figure 1. Acute Hepatitis A and B Rates, Colorado, 2001-2006	Page 5
Hepatitis A	Page 6
Table 4. Reported Hepatitis A Cases and Rates by Age Group & Gender, Colorado, 2006	Page 6
Acute Hepatitis B	Page 7
Table 5. Reported Acute Hepatitis B Cases and Rates by Age Group & Gender,	_
Colorado, 2006	Page 7
<u>Influenza</u>	Page 7
Measles	Page 8
Meningococcal Disease	Page 8-9
Table 6. Reported Invasive Meningococcal Disease Cases, Rates and Case Fatality	Č
by Age Group, Colorado, 2006	Page 8
Table 7. Reported Meningococcal Disease Cases by Serogroup, Colorado, 2006	Page 9
Table 8. Reported Meningococcal Disease Cases 11-21 Years of Age by Immunization Status	C
and Serogroup, Colorado 2006	Page 9
Mumps	Page 10-11
Figure 2. Reported Cases of Mumps, Colorado, 2002-2006	Page 10
Table 9. Reported Mumps Cases and Rates by Age Group, Colorado, 2006	Page 10
Table 10. Reported Mumps Cases by Age Group and Vaccination Status, Colorado, 2006	Page 11
<u>Pertussis</u>	Page 11-16
Figure 3. Reported Pertussis Rates, Colorado and United States, 1990-2006	Page 11
Table 11. Reported Pertussis Cases and Rates by County, Colorado, 2002-2006	Page 12-13
Table 12. Reported Pertussis Cases and Rates by Age Group, Colorado, 2006	Page 14
Figure 4. Immunization Status of Reported Pertussis Cases	C
by Selected Age Groups, Colorado, 2006	Page14
Table 13. Reported Pertussis-related Hospitalizations by Age Group, Colorado, 2006	Page 15
Table 14. Classification of Reported Pertussis Cases, Colorado, 2006	Page 16
Pneumococcal Disease	Page 17-18
Table 15. Reported Invasive Pneumococcal Disease Cases, Rates and Case Fatality	C
by Age Group, Colorado, 2006	Page 17
Table 16. Invasive Pneumococcal Disease Cases Less Than 5 Years of Age	C
by Serotype and Immunization Status, Denver Metro Area, Colorado, 2006	Page 17
Figure 5. Invasive Pneumococcal Disease Rates by Year & Age for Children < 5 Years:	C
Denver Metro Area, Colorado, 2006	Page 18
Polio_	Page 18
Rubella	Page 18
Tetanus	Page 18
<u>Varicella</u>	Page 19
Table 17. Reported Varicella Cases and Rates by Age Group, Colorado, 2006	Page 19
Table 18. Reported Varicella Cases by Severity of Disease and Vaccine Status,	=
Colorado, 2006	Page 19

INTRODUCTION

This report highlights 2006 surveillance data for vaccine preventable diseases in Colorado. Colorado rates in this report were calculated as cases per 100,000 population using 2006-based population final estimates from the Demography Section, Colorado Division of Local Government.

	Table 1. Reported Cases of Vaccine Preventable Diseases*, Colorado, 2001 - 2006									
Report Year	Invasive H. flu	Hepatitis A	Acute Hepatitis B	Meningococcal Disease	Mumps	Pertussis	Invasive Pneumococcal Disease	Tetanus	Varicella [§]	
2001	38	88	99	38	3	389	317	1	NA	
2002	36	75	81	24	2	464	391	0	NA	
2003	39	59	80	27	1	368	366	0	NA	
2004	44	51	59	15	3	1185	332	3	2040 [§]	
2005	42	49	63	19	6	1383	421	1	1797	
5-Year	39.8	64.4	76.4	24.6	3.0	757.8	365.4	1.0	1918.5	

During 2002-2006 one case of rubella (2003) and two cases of measles (2004 and 2006) were reported. No congenital rubella, diphtheria, or polio cases were reported during 2002-2006.

51

710

422

1503

22

44

51

35

Average

2006

Table 2. Reported Cases and Rates of Selected Vaccine Preventable Diseases [¶] , Colorado and United States, 2006							
Colo	rado	United	States*				
Cases	Rate§	Cases	Rate				
51	1.1	2,436	0.8				
44	0.9	3,579	1.2				
35	0.7	4,713	1.6				
1	0.02	55	0.02				
22	0.5	1,194	0.4				
51	1.1	6,584	2.2				
710	14.8	15,632	5.3				
r	Cases 51 44 35 1 22 51 710	Cases Rate§ 51 1.1 44 0.9 35 0.7 1 0.02 22 0.5 51 1.1	Cado and United States, 2006 Cases Rate [§] Cases 51 1.1 2,436 44 0.9 3,579 35 0.7 4,713 1 0.02 55 22 0.5 1,194 51 1.1 6,584 710 14.8 15,632				

[¶] National rates of invasive pneumococcal disease and varicella are not available.

Varicella became a reportable disease January 30, 2004.

[§] Per 100,000 population. *Source, MMWR 2007;56:857-860. Rate per 100,000. Rates calculated using the US population from MMWR 2007;56:853.

DIPTHERIA

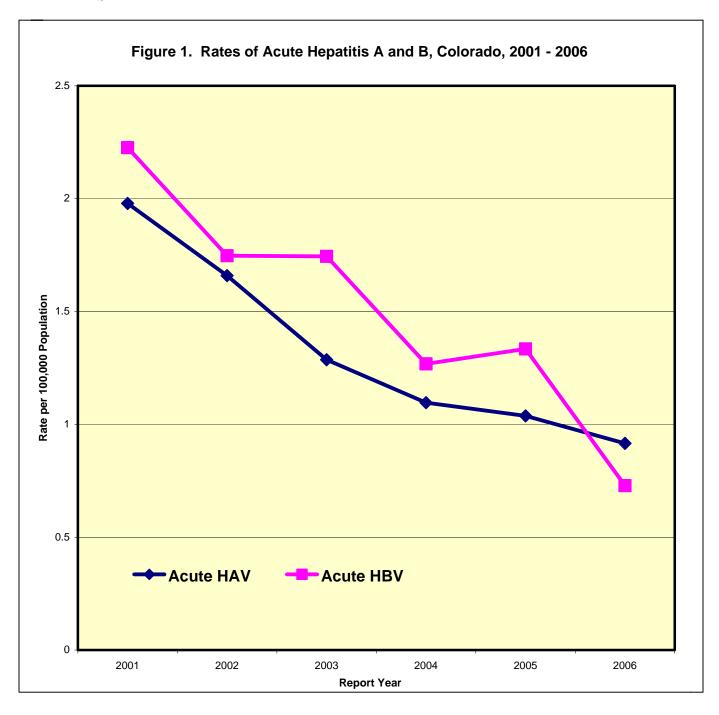
No diphtheria cases were reported in Colorado or the United States during 2006. The last case of diphtheria reported in Colorado was in 1985.

HAEMOPHILUS INFLUENZAE

Table 3. Reported Invasive <i>Haemophilus influenzae</i> Cases [§] , Rates and Case Fatality by Age Group, Colorado, 2006							
AGE GROUP	ACE CROUP DEATHS						
(Years)	CASES [§]	RATE*	Number	Percent of Cases			
<1	3	4.3	1	33.3			
1 – 4	5	1.8	0	0			
5 – 9	0	0.0	0	0			
10 – 14d	2	0.6	0	0			
15 – 19	2	0.6	0	0			
20 – 39	7	0.5	0	0			
40 – 59	10	0.7	2	20.0			
60 – 79	12	2.2	0	0			
≥ 80	10	8.4	7	70.0			
TOTAL 51 1.1 10 19.6							
None of the cases were serePer 100,000 population.	otype b (i.e., Hib).						

Additional invasive H. flu disease statistics are available on the CDPHE web page at: www.cdphe.state.co.us/dc/eip/index.html.

HEPATITIS



HEPATITIS A

Table 4. Reported Hepatitis A Cases and Rates* by Age Group & Gender, Colorado 2006								
Age	M	ale	Fen	nale	To	otal		
Group (years)	Cases	Rate	Cases	Rate	Cases	Rate		
< 1	0	0.0	0	0.0	0	0.0		
1-4	2	1.4	0	0.0	2	0.7		
5-9	1	0.6	0	0.0	1	0.3		
10-14	0	0.0	1	0.6	1	0.3		
15-19	2	1.1	0	0.0	2	0.6		
20-39	19	2.6	5	0.8	24	1.7		
≥ 40	5	0.5	9	0.8	14	0.7		
Total	29	1.2	15	0.6	44	0.9		
* Per 100,000 pop	ulation.							

ACUTE HEPATITIS B

Table 5. Reported Acute Hepatitis B Cases and Rates* by Age Group & Gender, Colorado, 2006								
Age	M	ale	Fen	nale	То	tal		
Group (years)	Cases	Rate	Cases	Rate	Cases	Rate		
< 15	0	0.0	0	0.0	0	0.0		
15-19	0	0.0	0	0.0	0	0.0		
20-29	5	1.5	3	1.0	8	1.2		
30-39	9	2.5	2	0.6	11	1.6		
40-49	6	1.6	1	0.3	7	0.9		
50-59	5	1.6	1	0.3	6	1.0		
≥ 60	0	0.0	3	0.8	3	0.5		
Total	25	1.1	10	0.4	35	0.7		
* Per 100,000 pop	oulation.							

INFLUENZA

See "Influenza Surveillance Summary, Colorado 2006 - 2007" at: http://www.cdphe.state.co.us/dc/Influenza/Summary Season0607.pdf.

MEASLES

There was one measles case reported in Colorado during 2006. The case, an unimmunized 13-month-old child, had traveled to India during their exposure period. During the previous five years (2001 - 2005), one measles case was reported (2004).

MENINGOCOCCAL DISEASE

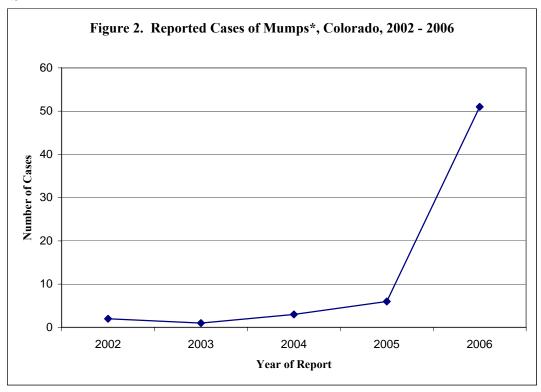
Table 6. Reported Meningococcal Disease Cases, Rates and Case Fatality by Age Group, Colorado, 2006							
AGE			DI	EATHS			
GROUP (Years)	CASES	RATE*	Number	Percent of Cases			
<1	3	4.3	0	0			
1 – 4	1	0.4	0	0			
5-9	0	0.0	0	0			
10 – 14	0	0.0	0	0			
15 – 19	4	1.1	0	0			
20 – 29	5	0.7	0	0			
30 – 39	1	0.1	18	100.0			
40 – 59	1	0.1	0	0			
60 – 79	6	1.1	0	0			
≥ 80	1	0.8	0	0			
TOTAL	22	0.5	1	4.5			
* Per 100, 000 population. § The one reported meningoco	ecal fatality had serogro	oup Y.					

Table 7. Reported Meningococcal Disease Cases by Serogroup*, Colorado, 2006							
Serogroup	Serogroup Cases Percent of cases						
В	2	10.5					
С	3	15.8					
Y	13	68.4					
W-135	0	0					
Not Groupable	1	5.3					
Total 19 100							
*Serogroup was unknown for 3 (13.6%) of cases.							

Table 8. Reported Meningococcal Cases 11 – 21 Years of Age by Immunization Status* and Serogroup, Colorado, 2006							
Age Group		Immunization Status					
(Years)	Immunized (Serogroup)	Unimmunized (Serogroup)	Unknown (Serogroup)				
11 – 18	0	2 (2 Y)	1 (Not tested)				
19 – 21	1 (C)	3 (2 Y, 1 C)	0				
TOTAL	1 (C)	5 (4 Y, 1C)	1 (Not tested)				
*Meningococcal vacci	ine contains serogroups A, C, Y and V	V-135.					

Additional invasive meningococcal disease statistics are available on the CDPHE web page at: www.cdphe.state.co.us/dc/eip/index.html.

MUMPS



^{*} There were 6,584 mumps cases reported in the United States during 2006. Many of the US cases were part of a multistate mumps outbreak centered in the Midwest. Mumps surveillance in CO was increased as a result of the multistate outbreak.

Table 9. Reported Mumps Cases and Rates by Age Group, Colorado, 2006						
Age Group (Years)	Cases	Percent	Rate [*]			
<1	0	0	0.0			
1 – 4	7	13.7	2.5			
5 – 9	10	19.6	3.1			
10 – 14	4	7.8	1.2			
15 – 19	3	5.9	0.9			
20 – 29	6	11.8	0.9			
30 – 39	3	5.9	1.3			
40 - 59	15	29.4	1.1			
60+	3	5.9	0.4			
TOTAL	51	100.0	1.1			
* Per 100,000 popula	ition.					

Table 10. Reported Mumps Cases by Age Group and Vaccination Status, Colorado, 2006							
Age	Numb	er of Doses	of Mumps V	accine	Total		
Group	0	1	2	Unknown	- Total		
<1	0	0	0	0	0		
1 – 4	3	3	0	1	7		
5-9	2	2	5	1	10		
10 – 14	1	0	3	0	4		
15 – 19	0	0	3	0	3		
20 – 39	1	2	1	5	9		
≥ 40	6	1	0	11	18		
TOTAL	13	8	12	18	51		

PERTUSSIS

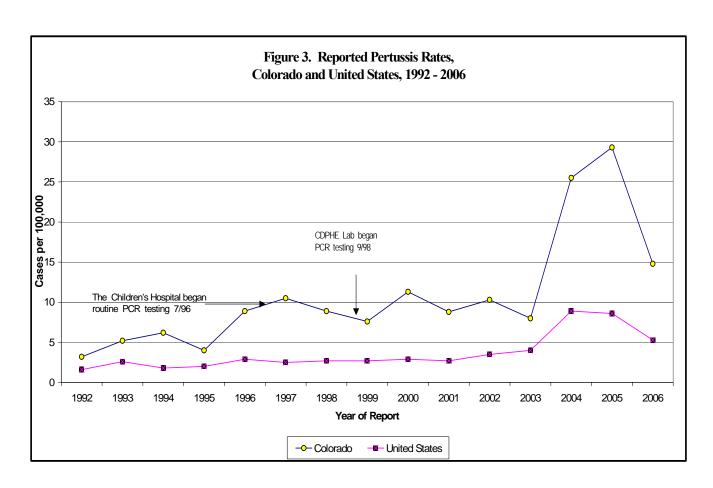


Table 11. Reported Pertussis Cases and Rates* by County,
Colorado, 2002 – 2006

Number of Cases by Year of Report

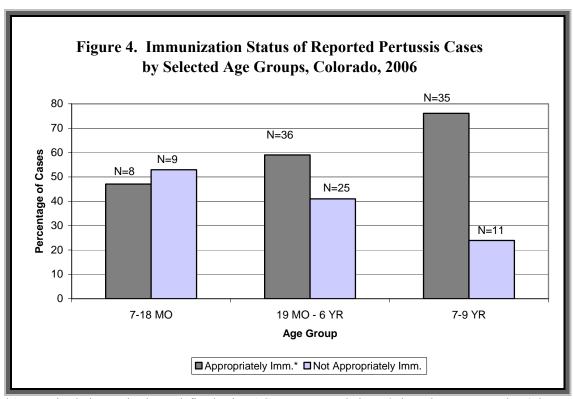
Average

County	Number of Cases by Year of Report					Average Annual	Average Annual
County	2002	2003	2004	2005	2006	# cases	Annual Rate*
Adams	44	24	128	119	69	76.8	19.7
Alamosa	1	0	6	1	1	1.8	11.5
Arapahoe	74	59	102	169	68	94.4	17.9
Archuleta	0	0	0	4	0	0.8	*
Bent	0	0	1	0	0	0.2	*
Boulder	31	47	175	115	74	88.4	31.0
Broomfield	10	6	23	16	11	13.2	29.6
Chaffee	0	2	1	9	2	2.8	16.6
Cheyenne	0	1	1	7	0	1.8	83.2
Clear Creek	0	4	3	5	2	2.8	29.5
Conejos	1	0	3	0	0	0.8	*
Costilla	0	1	2	0	0	0.6	*
Delta	6	1	26	5	17	11.0	36.6
Denver	84	39	78	175	40	83.2	14.6
Dolores	0	0	0	2	0	0.4	*
Douglas	10	27	43	55	29	32.8	13.7
Eagle	0	1	1	2	5	1.8	3.8
El Paso	6	15	35	62	18	27.2	4.9
Elbert	5	6	1	12	1	5.0	22.3
Fremont	3	1	3	5	0	2.4	5.1
Garfield	0	0	1	15	12	5.6	11.4
Gilpin	1	0	5	4	4	2.8	57.1
Grand	0	21	10	7	0	7.6	54.5
Huerfano	1	0	0	0	0	0.2	*
Jefferson	122	67	160	287	168	160.8	30.2
Kiowa	0	1	0	0	0	0.2	*
Kit Carson	0	0	1	0	1	0.4	*
Table 11. continues on	next page						

Table 11. (Continued) Pertussis Cases and Rates* by County, Colorado, 2002-2006							
County	Number of Cases by Year of Report					Average Annual	Average Annual
	2002	2003	2004	2005	2006	# cases	Rate*
La Plata	0	3	37	32	51	34.6	73.3
Lake	0	0	0	1	0	0.2	*
Larimer	35	8	140	80	29	58.4	21.7
Logan	0	0	2	21	1	4.8	22.0
Mesa	8	3	112	81	9	42.6	33.3
Moffat	0	0	2	0	0	0.4	*
Montezuma	0	0	0	12	10	4.4	17.7
Montrose	0	1	1	3	15	4.0	10.8
Morgan	1	0	4	1	1	1.4	4.9
Otero	0	0	19	1	0	4.0	20.3
Ouray	0	0	4	0	10	2.8	67.0
Park	0	0	0	2	0	0.4	*
Phillips	1	0	0	0	0	0.2	*
Pitkin	0	0	3	1	2	1.2	7.4
Prowers	0	0	3	11	0	2.8	20.0
Pueblo	5	2	27	17	5	11.2	7.5
Rio Blanco	0	0	0	4	0	0.8	*
Rio Grande	1	6	2	4	0	2.6	19.7
Routt	2	0	1	1	1	1.0	4.6
Saguache	4	1	0	0	0	1.0	15.3
San Miguel	0	0	1	0	2	0.6	*
Sedgwick	0	2	0	0	0	0.4	*
Summit	1	1	0	0	1	0.6	*
Teller	0	0	0	10	1	2.2	9.9
Washington	0	0	0	2	0	0.4	*
Weld	7	18	18	23	50	23.2	10.7
TOTAL	464	368	1185	1383	710	822.0	17.9

^{*} Average annual rates were not calculated for counties with < 5 pertussis cases during the five-year period. Caution should be used when interpreting rates based on small number of cases. Rates were calculated using 2004 population figures from the 2006-based population projections from the Demography Section, Colorado Division of Local Government. The following counties reported 0 pertussis cases from 2002-2006: Baca, Crowley, Custer, Gunnison, Hinsdale, Jackson, Las Animas, Lincoln, Mineral, San Juan, and Yuma.

Table 12. Reported Cases and Rates of Pertussis by Age Group, Colorado, 2006							
Age Group (Years) Cases Percent Rate*							
<1	43	6.1	61.7				
1 – 4	51	7.2	18.1				
5 – 9	67	9.4	20.4				
10 – 14	145	20.4	44.7				
15 – 19	104	14.6	29.5				
20 – 29	59	8.3	8.8				
30 – 39	52	7.3	7.3				
40 – 59	149	21.0	10.6				
≥ 60	40	5.6	5.9				
TOTAL	710	100.0	14.8				
* Per 100,000 population.							



^{*}Appropriately immunized was defined using ACIP recommendations; 3 doses by age 7 months, 4 doses by age 19 months, and 5 doses by age 7 years or 4 doses by age 7 years if 4th dose was given at age 4 or older.

by Age Group, Colorado, 2006 Hospitalized Age Group Cases Number **Percent** < 6 Months 36 18 50.0 **6 – 11 Months** 7 2 28.6 1 1 – 4 Years 51 2.0 5 – 9 Years 0 67 0 10 - 14 Years 145 2 1.4 15 - 19 Years 104 1 1.0 2 20 - 29 Years 59 3.4 30 - 39 Years 52 1 1.9 2 40 - 59 Years 149 1.3 6 60+ Years 40 15.0 4.9 **TOTAL** 710 35

Table 13. Reported Pertussis-related Hospitalizations*

^{*} During 2006, there were 17 (2.4%) cases of x-ray-confirmed pneumonia (of which 7 [41.2%] were hospitalized) and no reported cases of pertussis-associated seizures, encephalopathy, or death in Colorado.

Table 14. Classification of Reported Pertussis Cases, Colorado, 2006							
CASE CLASSIFICATION	Number	Percent					
<u>Confirmed</u> §: PCR Positive	426	60.0					
<u>Confirmed</u> §: Epidemiologically—linked to a PCR Positive Case	108	15.2					
Probable [¶] : Physician Diagnosed Case	85	12.0					
Probable [¶] : Serology Positive Only	85	12.0					
Probable: Outbreak Situation*	6	0.8					
TOTAL	710	100					

[§] Confirmed = Laboratory confirmed cases (culture positive or PCR positive and meet clinical case definition) or epidemiologically linked to a laboratory confirmed case and meet the clinical case definition. There were no culture positive cases reported during 2006. Clinical Case Definition is a cough illness lasting at least 14 days with one of the following: paroxysms of coughing, inspiratory "whoop", or post-tussive vomiting, without other apparent cause (as reported by a health care professional).

[¶] Probable = Meets the clinical case definition, is not laboratory-confirmed, and is not epideimiologically linked to a laboratory confirmed case.

^{*} In outbreak settings a case may be defined as a cough illness lasting ≥ 2 weeks.

PNEUMOCOCCAL DISEASE

Table 15. Reported Invasive Pneumococcal Disease Cases, Rates and Case Fatality by Age Group, Colorado, 2006						
AGE GROUP	CASES RATE*			THS Paragraph of		
(Years)	CASES	MIL	Number	Percent of Cases		
< 1	20	28.7	3	15.0		
1 – 4	35	12.4	1	2.9		
5-9	10	3.1	0	0		
10 – 14	2	0.6	0	0		
15 – 19	4	1.1	1	25.0 [§]		
20 – 29	17	2.5	0	0		
30 – 39	29	4.1	1	3.4		
40 – 59	141	10.1	13	9.2		
60 – 79	110	19.7	8	7.2		
80 +	54	45.6	9	16.7		

*Per 100,000 population.

TOTAL

§ Case-fatality based on a small number of cases. There were no reported deaths in the 15-19 year old age group during 2002-2005.

8.8

36

8.5

Table 16. Reported Invasive Pneumococcal Disease Cases Less Than 5 Years of Age by Vaccine Serotype and Immunization Status, Denver Metro Area[¶], Colorado, 2006

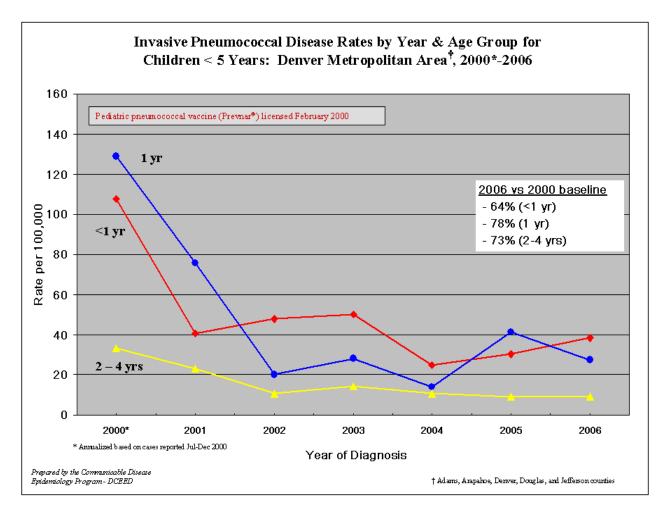
Serotype	Number of Cases	Vaccinated Prior to Onset (1+ doses)	Not Vaccinated Prior to Onset	Unknown Vaccine History	
Vaccine Serotype*	3	2	1	0	
Not in Vaccine [†]	25	18	3	4	
Not typed	7	5	1	1	
TOTAL	35	25	5	5	

422

[¶] Adams, Arapahoe, Denver, Douglas, and Jefferson counties.

* Serotypes included in the Pneumococcal Conjugate Vaccine (4, 6B, 9V, 14, 18C, 19F, 23F)

† Of the 25 serotypes not included in the vaccine, 12 (48%) were serotype 19A.



Additional invasive pneumococcal disease statistics are available on the CDPHE web page at: www.cdphe.state.co.us/dc/eip/index.html.

POLIO

In the United States, the last polio case caused by wild poliovirus was identified in 1979. In 1994, the World Health Organization certified the Western Hemisphere as free of wild poliovirus.

RUBELLA

There were no rubella cases reported in Colorado during 2006. During the previous five years (2001-2005), 1 rubella case was reported (2003).

TETANUS

There were no tetanus cases reported in Colorado during 2006. The previous five-year annual average (2001 - 2005) for tetanus was one case per year.

VARICELLA

Table 17. Reported Varicella Cases [§] and Rates by Age Group, Colorado, 2006						
Age Group (Years)	Cases	Rate*				
< 1	32	2.1	45.9			
1 – 4	226	15.0	80.3			
5 – 9	775	51.6	236.5			
10 – 14	391	26.0	120.6			
15 – 19	45	3.0	12.8			
20 – 29	11	0.7	1.6			
30 – 39	13	0.9	1.8			
40 – 59	9	0.6	0.6			
≥ 60	1	0.07	0.1			
TOTAL	TOTAL 1503 100.0 31.2					
§ Of the 1,456 cases with known report sources, 893 cases (61.3%) were reported from schools.* Rate per 100,000.						

Table 18. Reported Varicella Cases by Severity of Disease* and Vaccine Status, Colorado, 2006								
Severity of	≥1 De Vac	ose of cine	Unimmunized		Unknown Immunization Status		Total Cases	
Disease	#	%	#	%	#	%	#	%
< 50 Lesions	588	63	125	33	64	33	777	52
50 – 500 Lesions	189	20	173	46	41	21	403	27
> 500 Lesions	10	1	18	5	3	1	31	2
Unknown	145	16	59	16	88	45	292	19
TOTAL	932	100	375	100	196	100	1503	100
*Of the 1503 varicella cases reported during 2006, a total of 17 (1.1%) cases were hospitalized (82% of the hospitalized cases were ≤18 years of age and 59% were 5-18 years of age). There were no varicella-associated deaths reported in 2006.								