

# **Hepatitis A in Colorado**

## **Surveillance Report**



---

**Colorado Department  
of Public Health  
and Environment**

**Office of the Chief Medical Officer**  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530

**December 1999**

## Executive Summary

- The reported annual incidence of Hepatitis A in Colorado from 1988 to 1998 was 15.1 cases per 100,000 population (Table 1), compared to the national rate of 10.8 per 100,000 during a similar time period (1987-1997; Figure 2).
- Hepatitis A rates have been steadily decreasing in Colorado from 25.3 per 100,000 in 1992 to 8.6 per 100,000 in 1998 and a projected 5.9 per 100,000 in 1999 (Figure 1).
- By gender, hepatitis A rates in Colorado from 1988-1998 have been higher in males than females (Figure 3). By age group, overall rates have been highest in the 5-9 year age group followed by the 20-39 year age group (Table 1).
- The age distribution of hepatitis A in Colorado has changed substantially from 1988-1998 (Figure 4). In 1992, the 5-14 year age group had the highest rate, whereas, in 1998 the 20-39 year age group had the highest rate which was at least twice that for all other age groups. In comparison, nationally, the 5-14 year age group remained with the highest rate through 1997 (Figure 5).
- In 1998, male and female hepatitis A rates were similar for age groups under age 20, whereas, male rates were substantially higher for ages  $\geq 20$  (Figure 6). Males  $\geq 20$  years of age comprised about 60 percent of reported hepatitis A cases in Colorado in 1998.
- Based on limited race/ethnicity data, hepatitis A rates in Colorado have been highest in Hispanics followed by American Indians, with rates in Whites, Blacks, and Asians being similar (Table 2). Almost 95 percent of cases reported with race/ethnicity information during 1989-1993, however, have been either White or Hispanic. Nationally, rates of hepatitis A are also substantially higher in Hispanics compared to Whites, Blacks, and Asians (Figure 7).
- The distribution of age group-specific rates of hepatitis A in Colorado varies by race/ethnicity (Table 2). In Hispanics and American Indians, the highest rates are in the 5-14 year age group, whereas, in Whites and Blacks, the highest rates are in the 20-39 year age group.

- Eight Colorado counties had average annual hepatitis A rates  $\geq 20$  per 100,000 during 1988-1998 (Table 4; Figure 8). However, six of these are rural counties with small numbers of cases. Denver County accounted for 33 percent of reported cases during this time period.
- Denver County, for which more complete race/ethnicity and sexual preference data are available through the Sentinel Counties Hepatitis Project, had highest hepatitis A rates in the 5-9 year age group from 1994-1998, followed by the 20-39 year age group (Table 5). Persons ages  $\geq 20$  years, however, comprised more than 70 percent of reported cases.
- The age distribution of hepatitis A in Denver County has changed substantially from 1994-1998 (Figure 9). In 1994, the 5-14 year age group had the highest rate, whereas, in 1998 the 20-39 year age group had the highest rate which was more than twice that of any other age group.
- By race/ethnicity, the highest hepatitis A rates in Denver from 1994-1998 were in Hispanics and American Indians, followed by Whites (Table 6). More than 90 percent of reported cases, however, were either Hispanic or White. Among Whites, Blacks, and American Indians, the 20-39 year age group had the highest rates, whereas, in Hispanics, the 5-14 year age group had the highest rate.
- The proportion of Denver hepatitis A cases which are men who have sex with men (MSM) has steadily increased since 1988 (Figure 10). Most recently, MSM comprised 41 percent of all Denver hepatitis A cases and 55 percent of male cases in 1998.

## CONTENTS

- Table 1: Average Annual Rates of Hepatitis A, Colorado, 1988-1998 and 1994-1998
- Figure 1: Hepatitis A Rates, Colorado, 1983-1999
- Figure 2: Incidence of Reported Cases of Hepatitis A in Selected States With Consistently Elevated Rates - 1966-1997
- Figure 3: Hepatitis A Rates by Sex, Colorado, 1988-1998
- Figure 4: Hepatitis A Rates by Age Group and Year, Colorado, 1988-1998
- Figure 5: Rates of Reported Hepatitis A, by Age - United States, 1983-1997
- Figure 6: Hepatitis A Rates by Age Group and Sex, Colorado, 1998
- Table 2: Average Annual Rates of Hepatitis A by Race/Ethnicity & Age Group, Colorado, 1989-1993
- Table 3: Colorado Population by Race/Ethnicity and Age Group, 1998
- Figure 7: Rates of Reported Hepatitis A, by Race/Ethnicity - United States, 1994
- Table 4: Average Annual Hepatitis A Rates by County, Sex & Age Group, Colorado, 1988-1998
- Figure 8: Average Annual Rates of Hepatitis A by County, Colorado, 1988-1998
- Table 5: Average Annual Rates of Hepatitis A, Denver, 1994-1998
- Figure 9: Hepatitis A Rates by Age Group and Year, Denver, 1994-1998
- Table 6: Average Annual Rates of Hepatitis A by Race/Ethnicity & Age Group, Denver, 1994-1998
- Table 7: Denver Population by Race/Ethnicity and Age Group, 1998
- Figure 10: Percent MSM Hepatitis A Cases by Year, Denver, 1988-1998
- (Page 20): Current Hepatitis A Vaccine Strategies
- Table 8: Population Eligible for Hepatitis A Vaccine through Vaccines for Children Program by Age Group and County, Colorado, 1997

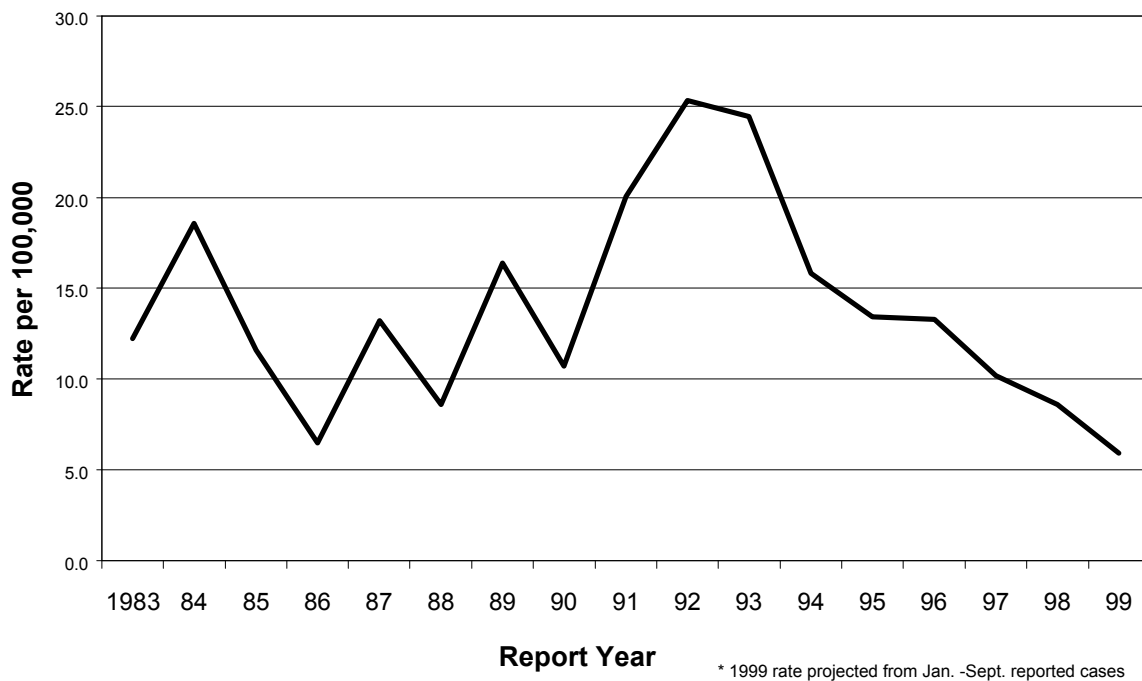
**Table 1. Average Annual Rates of Hepatitis A, Colorado, 1988-1998 and 1998**

	1988-1998		1998	
	Average Cases per Year	Rate per 100,000*	Cases	Rate per 100,000**
Total	541	15.1	345	8.6
Male	315	17.7	242	12.1
Female	224	12.4	102	5.0
Age Group (0-1)	5	4.8	6	5.3
(2-4)	28	16.6	10	5.8
(5-9)	71	25.9	26	8.6
(10-14)	46	17.7	9	3.1
(15-19)	36	14.4	17	5.7
(20-39)	251	21.1	165	13.6
(40+)	98	7.4	111	6.8

\* 1993 population estimates (derived in 1997) from Colorado Division of Local Government were used to calculate average annual rates.

\*\* 1998 population estimates (derived in 1997) from Colorado Division of Local Government were used to calculate rates.

Figure 1. **Hepatitis A Rates, Colorado, 1983-1999\***



**Figure 2 is not included in the web-based version of this report. This figure may be found at: [www2.cdc.gov/mmwr/mmwr\\_rr.html](http://www2.cdc.gov/mmwr/mmwr_rr.html) in the report: “Prevention of Hepatitis A Through Active or Passive Immunization” published October 1, 1999 (Vol 48, No. RR-12).**

Figure 3. **Hepatitis A Rates by Sex, Colorado, 1988-1998**

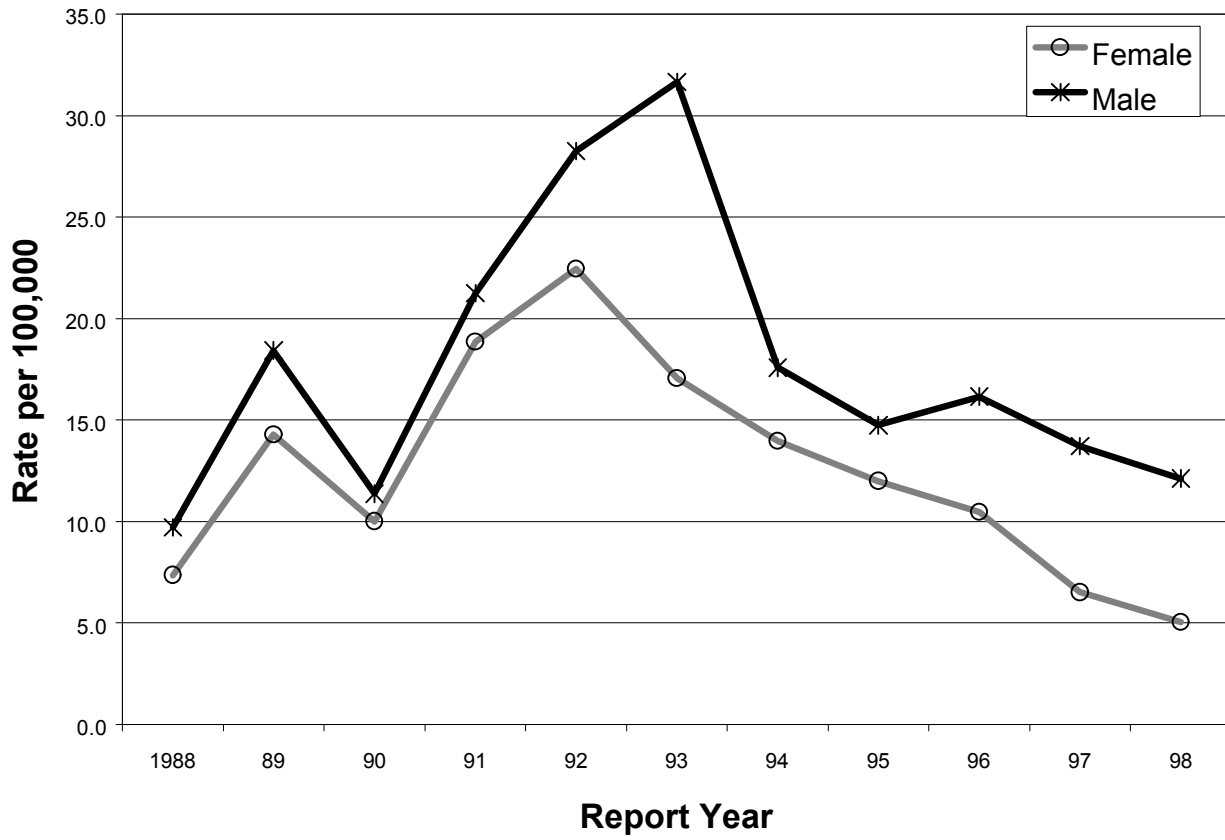
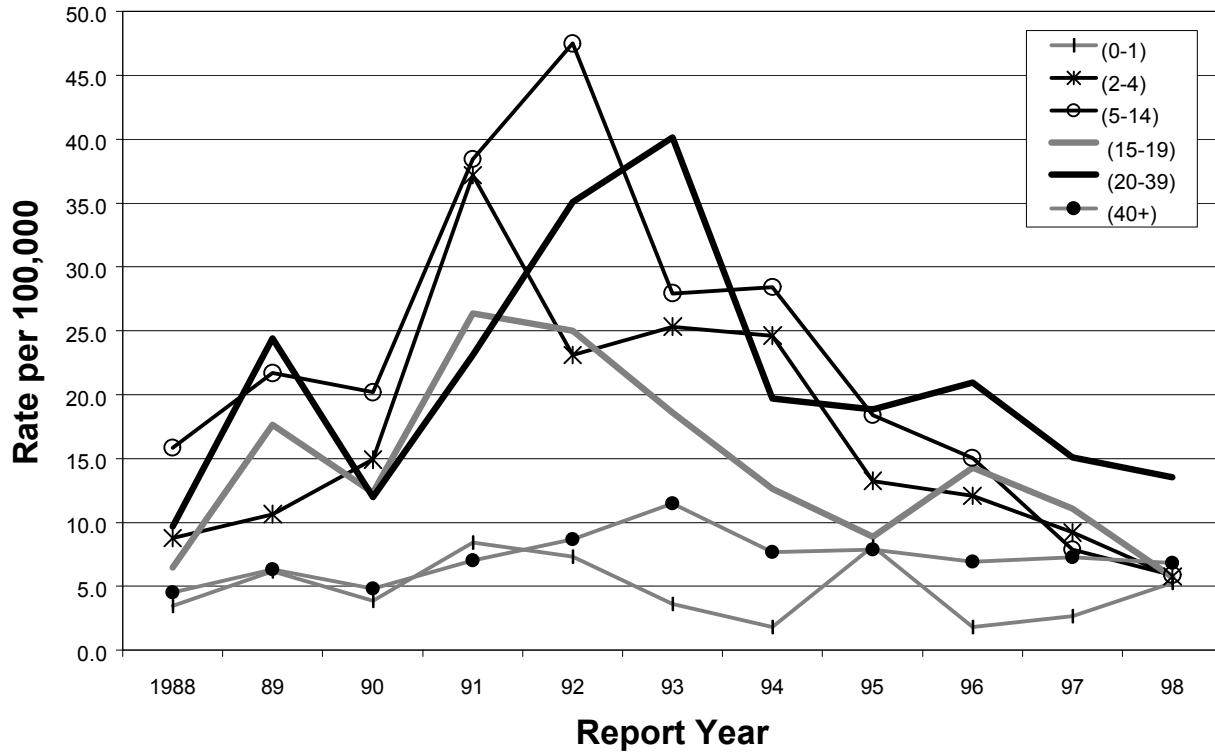


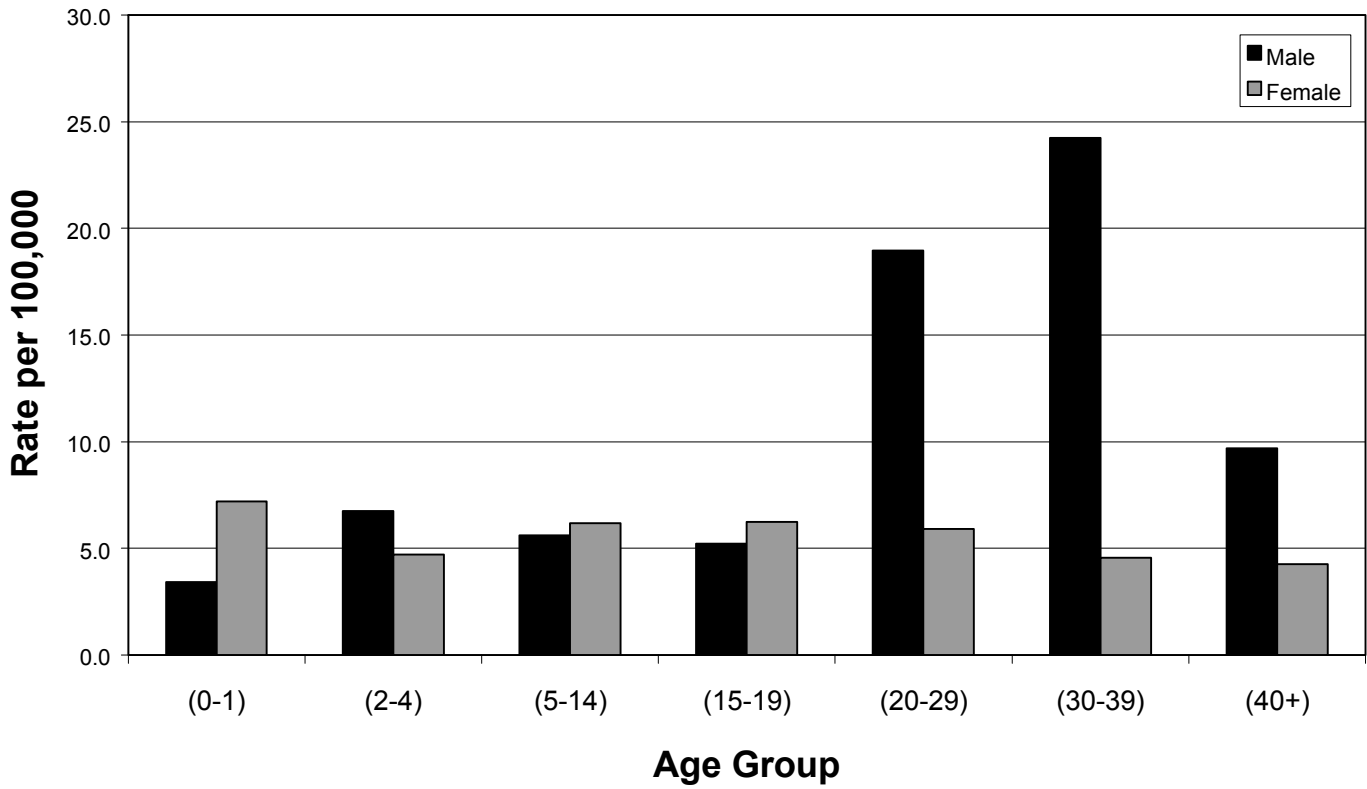


Figure 4. **Hepatitis A Rates by Age Group and Year  
Colorado, 1988-1998**



**Figure 5 is not included in the web-based version of this report. This figure may be found at: [www2.cdc.gov/mmwr/mmwr\\_rr.html](http://www2.cdc.gov/mmwr/mmwr_rr.html) in the report: “Prevention of Hepatitis A Through Active or Passive Immunization” published October 1, 1999 (Vol 48, No RR-12).**

Figure 6. **Hepatitis A Rates by Age Group and Sex  
Colorado, 1998**



**Table 2. Average Annual Rates\* of Hepatitis A by Race/Ethnicity\*\* & Age Group Colorado, 1989-1993\*\*\***

	Average Cases/Year	Total Rate	Ages (0-1)	Ages (2-4)	Ages (5-14)	Ages (15-19)	Ages (20-39)	Ages (40+)
White	232	8.5	2.3	6.8	8.4	5.5	14.9	4.2
Black	15	10.4	3.5	11.8	10.7	10.9	14.9	4.3
Hispanic	201	47.6	10.9	69.3	104.0	58.9	43.9	6.5
Am. Indian	6	18.7	0	10.2	53.9	0	19.1	4.6
Asian	5	7.1	9.2	11.7	13.2	3.7	7.3	3.3

\* Rates per 100,000 population. 1991 population estimates (derived in 1997) from Colorado Division of Local Government were used to calculate average annual rates.

\*\* Race/ethnicity data are reported from a combination of active surveillance (patient interviews) in Denver County, and from hospitals and physicians in the rest of the state

\*\*\* Race/ethnicity is missing for 31% of reported cases during this time period, whereas, for other years the rate of missing race/ethnicity data is substantially higher.

**Table 3. Colorado Population by Race/Ethnicity and Age Group, 1998\***

	Total	Ages (0-1)	Ages (2-4)	Ages (5-14)	Ages (15-19)	Ages (20-39)	Ages (40+)
White	3,197,152	84,018	130,367	452,348	230,203	931,425	1,368,789
Black	170,248	5,782	8,539	29,058	13,320	58,836	54,713
Hispanic	525,496	20,744	29,608	94,118	44,501	182,197	154,329
Am. Indian	40,751	1,074	1,575	6,509	3,340	14,475	13,781
Asian	82,657	2,358	3,449	12,373	6,024	29,723	28,729
Total	4,016,300	113,981	173,535	594,407	297,396	1,216,655	1,620,326

\* 1998 population estimates (derived in 1997) from Colorado Division of Local Government.

**Figure 7 is not included in the web-based version of this report. This figure may be found at: [www2.cdc.gov/mmwr/mmwr\\_rr.html](http://www2.cdc.gov/mmwr/mmwr_rr.html) in the report: “Prevention of Hepatitis A Through Active or Passive Immunization” published October 1, 1999 (Vol 48, No. RR-12).**

**Table 4. Average Annual Hepatitis A Rates\* by County, Sex & Age Group\*\*, Colorado, 1988-1998**

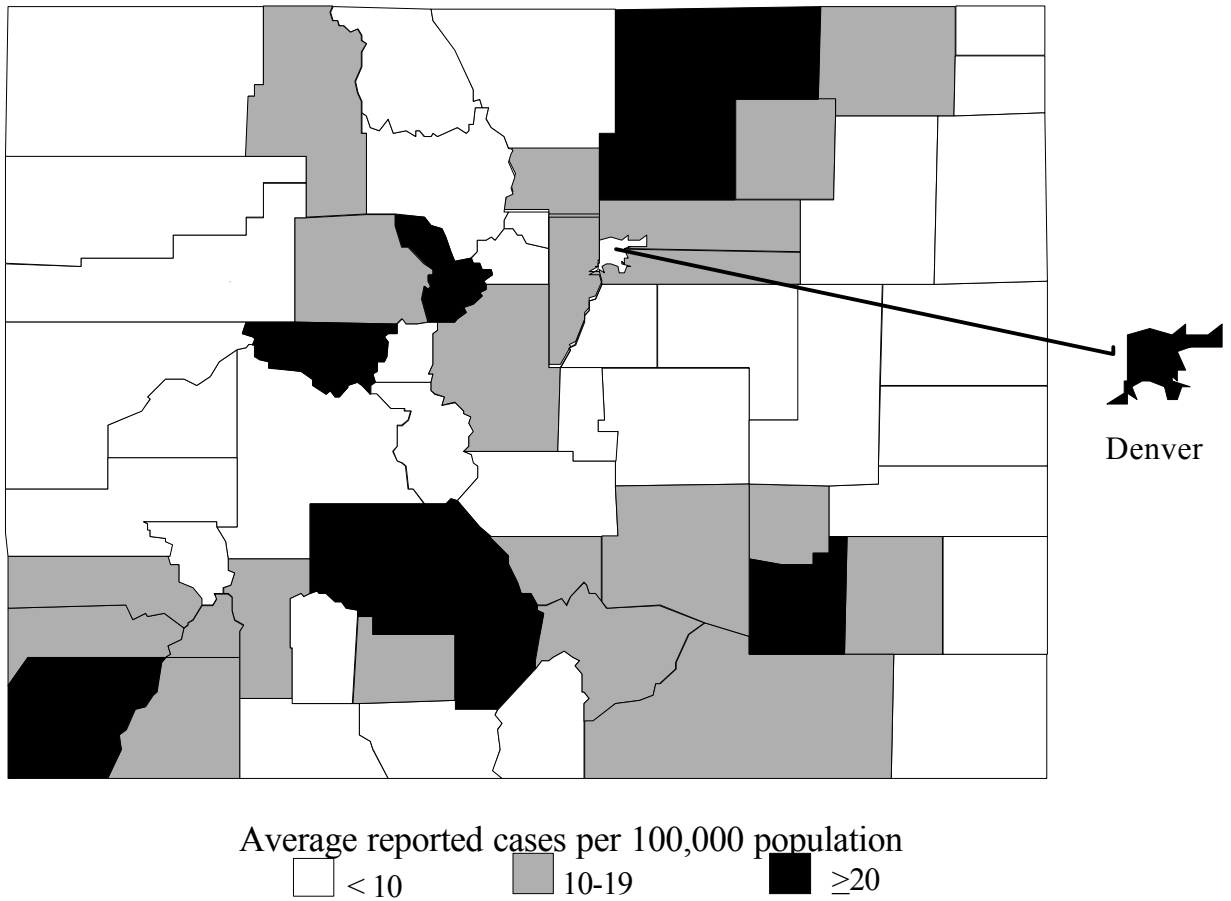
County	Avg. cases per yr.	TOT Rate	Male Rate	Fem. Rate	Ages (0-1)	Ages (2-4)	Ages (5-14)	Ages (15-19)	Ages (20-39)	Ages (40+)
<b>Denver Metro (population=1,765,107)</b>										
Adams	40	14.2	16.2	12.6	0.9	12.9	20.9	14.7	19.7	6.9
Arapahoe	43	10.0	11.4	9.1	3.5	7.3	8.2	7.2	15.7	7.0
Denver	177	36.0	47.3	25.1	10.6	40.4	71.7	39.0	52.6	10.9
Douglas	7	9.0								
Jefferson	47	10.0	11.8	8.4	3.4	7.8	9.6	10.3	15.4	6.3
<b>Other Fr Range (population=1,152,785)</b>										
Boulder	29	11.9	14.1	10.1	6.7	17.5	10.3	7.8	16.3	8.6
El Paso	35	8.0								
Larimer	16	7.9								
Pueblo	19	15.3	16.7	14.0	2.6	5.3	27.9	16.4	25.6	5.8
Weld	42	29.7	30.6	29.3	2.0	38.2	63.8	35.5	32.3	11.9
<b>Other Metro (population=100,269)</b>										
Mesa	8	7.9								
<b>Rural (population=561,750)</b>										
Alamosa	4	30.2	32.6	27.8	18.5	74.8	74.8	36.8	14.1	15.8
Archuleta	.1	1.5								
Baca	.2	4.2								
Bent	.6	11.7								
Chaffee	.5	3.3								
Cheyenne	.2	7.7								
Clear Creek	.4	4.5								
Conejos	.4	4.8								
Costilla	0	0								
Crowley	.5	11.0								
Custer	.3	11.5								
Delta	1	5.1								
Dolores	.2	12.6								
Eagle	3	11.3								
Elbert	.4	3.1								
Fremont	3	7.8								
Garfield	3	9.3								
Gilpin	.3	8.1								
Grand	.5	5.3								
Gunnison	1	9.7								

County	Avg. cases per yr.	TOT Rate	Male Rate	Fem. Rate	Ages (0-1)	Ages (2-4)	Ages (5-14)	Ages (15-19)	Ages (20-39)	Ages (40+)
Hinsdale	.1	16.9								
Huerfano	.9	14.2								
Jackson	.1	5.3								
Kiowa	0	0								
Kit Carson	.3	3.8								
Lake	.5	8.5								
La Plata	4	12.2								
Las Animas	2	11.3								
Lincoln	.2	3.0								
Logan	2	14.1								
Mineral	0	0								
Moffat	.5	4.6								
Montezuma	7	33.7	33.6	33.7	27.6	45.1	83.3	27.5	34.9	11.2
Montrose	2	7.0								
Morgan	3	10.9								
Otero	9	44.3	42.6	45.0	0.0	38.6	148.1	17.8	49.1	11.1
Ouray	0	0								
Park	1	13.7								
Phillips	.3	6.2								
Pitkin	3	22.9	27.6	20.5	0.0	0.0	18.8	17.6	31.5	19.4
Prowers	.5	4.1								
Rio Blanco	.6	9.7								
Rio Grande	2	17.8								
Routt	2	12.2								
Saguache	1	31.0	14.3	48.4	0.0	35.1	80.7	71.4	33.0	0.0
San Juan	.1	17.0								
San Miguel	.7	15.4								
Sedgwick	0	0								
Summit	4	31.0	33.4	28.2	20.2	104.9	30.5	14.6	30.0	24.2
Teller	1	7.9								
Washington	.1	1.7								
Yuma	.6	6.9								

\* 1993 population estimates (derived in 1997) from Colorado Division of Local Government were used to calculate average annual rates.

\*\* Age group- and sex-specific rates are presented only for counties with average annual Hepatitis A rates  $\geq 20/100,000$  or for counties with average annual rates between 10-20/100,00 and an average of  $\geq 5$  cases per year.

Figure 8. **Average Annual Rates of Hepatitis A by County  
Colorado, 1988-1998**





**Table 5. Average Annual Rates of Hepatitis A, \* Denver, 1994-1998**

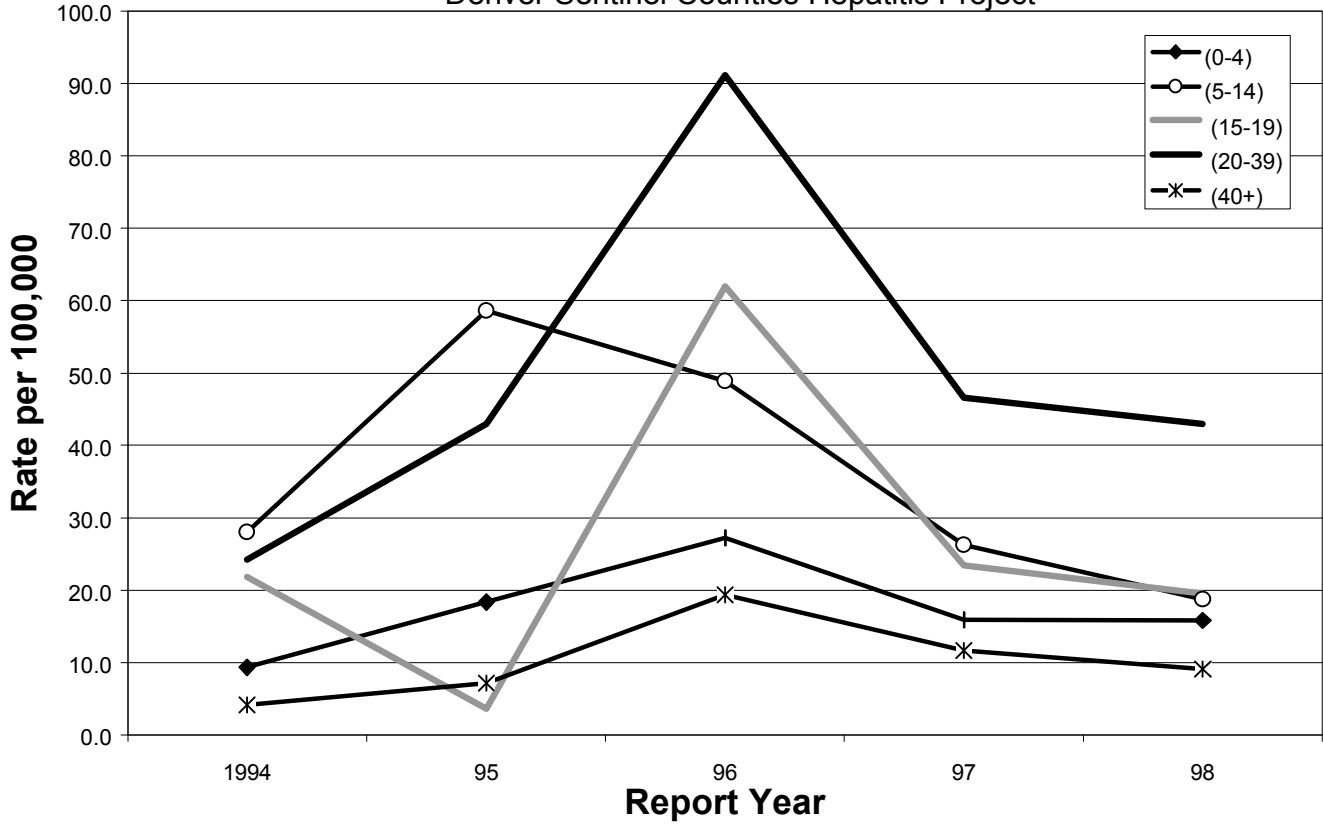
	1994-1998	
	Average Cases per Year	Rate per 100,000**
Total	138	27.8
Male	100	41.5
Female	38	14.9
Age Group (0-4)	8	21.1
(5-9)	17	55.3
(10-14)	8	26.5
(15-19)	8	25.6
(20-39)	77	47.8
(40+)	21	9.9

\* Cases reported to the Denver Sentinel Counties Hepatitis Project.

\*\* 1996 population estimates by county, race, and Hispanic origin from the U.S. Census Bureau were used to calculate average annual rates.

Figure 9. **Hepatitis A Rates by Age Group and Year**  
**Denver, 1994-1998**

Denver Sentinel Counties Hepatitis Project



**Table 6. Average Annual Rates of Hepatitis A\* by Race/Ethnicity\*\* & Age Group  
Denver, 1994-1998**

	Average Cases/Year	Total Rate***	Ages (0-4)	Ages (5-14)	Ages (15-19)	Ages (20-39)	Ages (40+)
White	73	25.4	8.3	17.6	22.0	49.0	12.8
Black	7	9.8	3.8	6.7	7.0	22.9	3.0
Hispanic	50	43.0	41.2	89.3	41.8	51.7	4.8
Am. Indian	3	40.0	60.8	29.0	0	86.2	0
Asian	1	4.0	0	9.1	0	7.2	0
Total	138	27.8	21.1	41.5	25.6	47.8	9.9

\* Cases reported to the Denver Sentinel Counties Hepatitis Project.

\*\* Race/ethnicity data were ascertained through patient interviews and are 97% complete.

\*\*\* Rates per 100,000 population. 1996 population estimates by county, race, and Hispanic origin from the U.S. Census Bureau were used to calculate average annual rates.

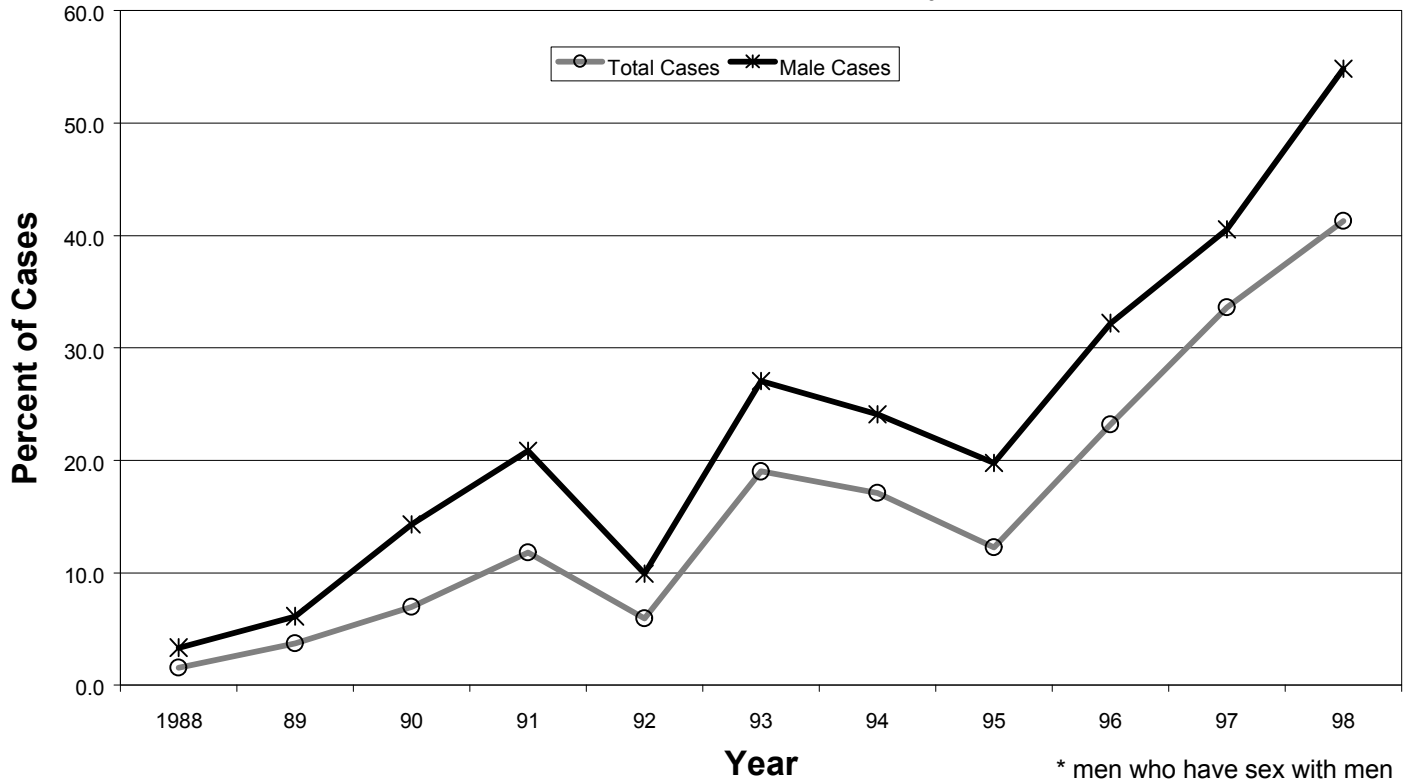
**Table 7. Denver Population by Race/Ethnicity and Age Group, 1998\***

	Total	Ages (0-4)	Ages (5-14)	Ages (15-19)	Ages (20-39)	Ages (40+)
White	280,136	13,935	22,022	12,362	88,866	142,951
Black	73,682	4,887	12,414	6,265	20,569	29,547
Hispanic	122,170	15,219	23,147	11,355	36,866	35,583
Am. Indian	6,993	636	1,379	614	2,217	2,147
Asian	16,074	1,623	2,408	1,262	5,703	5,078
Total	499,055	36,300	61,370	31,858	154,221	215,306

\* 1998 population estimates by county, race, and Hispanic origin from the U.S. Census Bureau.

Figure 10. **Percent MSM\* Hepatitis A Cases by Year**  
**Denver, 1988-1998**

Denver Sentinel Counties Hepatitis Project



## Current Hepatitis A Vaccine Strategies

- C On December 27, 1996, the Advisory Committee on Immunization Practices (ACIP) of the U.S. Public Health Service recommended the vaccination of children and young adults in communities with intermediate and high rates of hepatitis A infection. Based on a review of Colorado data from 1990-1996, the Colorado Department of Public Health and Environment (CDPHE) made hepatitis A vaccine available in January, 1999 through the Vaccines for Children (VFC) Program. VFC serves children who are uninsured or underinsured and seeking services in a federally qualified health center.
- Hepatitis A vaccine is available to all VFC eligible clients ages 2 through 18 years in Denver, Weld, Adams, Boulder, Jefferson, and Arapahoe counties. Later, Mesa county met the intermediate risk threshold of 10 cases per/100,000 population due to an outbreak. Other counties may administer the vaccine to VFC-eligible clients ages 2 through 18 years in the following categories: persons with chronic liver disease; persons with clotting factor disorders; males who have sex with males (MSM); and intravenous drug users.
  - CDPHE also recommends administration of VFC hepatitis A vaccine for children in situations of ongoing transmission within a defined “setting” or “social network” (e.g. school, child care, extended family).
  - Table 8 describes the population that currently meets the ACIP guidelines for communities at “intermediate risk” of hepatitis A. The table indicates counties currently included in the VFC program for hepatitis A vaccine and those that CDPHE is proposing to add to the VFC program. Currently, the seven counties covered by the VFC program include 58% of Colorado’s children. Under the new proposal, the counties covered by the VFC program would include an additional 13% of Colorado’s children. The exact proportion of children in a county who are VFC eligible, however, is unknown. CDPHE estimates that this proportion ranges from 50%-80%.
  - Currently, there is not a dependable federal or state funded mechanism for providing hepatitis A vaccine to at-risk adults. These adults include: travelers to developing countries, persons with chronic liver disease; persons with clotting factor disorders; males who have sex with males; and intravenous drug users. CDPHE is encouraging vaccination of these individuals through public/private partnerships.
  - CDPHE provides a limited supply of hepatitis A vaccine to the three Denver metro local health departments for administration to contacts of hepatitis A cases who are likely to be efficient transmitters if they become infected (e.g. MSM).

**Table 8. Population Eligible for Hepatitis A Vaccine through Vaccines for Children Program by Age Group and County, Colorado, 1997\***

<b>Current VFC Counties</b>			
<b>County</b>	<b>Ages 2-4 years**</b>	<b>Ages 5-19 years</b>	<b>Total Estimated Population</b>
Adams	15216	74705	89921
Arapahoe	19398	101370	120768
Boulder	9985	57480	67465
Denver	26296	102377	128673
Jefferson	19785	107999	127784
Mesa	4303	25090	29393
Weld	7312	37688	45000
<b>TOTALS</b>	<b>102,294</b>	<b>506,709</b>	<b>609,003</b>
<b>Proposed New VFC Counties</b>			
Alamosa	743	4223	4966
Bent	217	1175	1392
Crowley	149	878	1027
Custer	131	692	823
Dolores	65	387	452
Eagle	1607	7193	8800
Hinsdale	23	127	150
Huerfano	243	1568	1811
LaPlata	1506	9833	11339
LasAnimas	575	3366	3941
Logan	800	4134	4934
Montezuma	1035	5661	6696
Morgan	1419	6469	7888
Otero	973	5008	5981
Park	515	2822	3337

Pitkin	461	2261	2722
Pueblo	5463	29511	34974
Rio Grande	521	2950	3471
Routt	608	3902	4510
Saguache	293	1489	1782
San Juan	22	140	162
San Miguel	198	1163	1361
Summit	763	3635	4398
<b>TOTAL</b>	<b>18,330</b>	<b>98,587</b>	<b>116,917</b>
<b>TOTAL COLORADO POPULATION</b>	<b>172,406</b>	<b>872,533</b>	<b>1,044,939</b>

\* 1997 population estimates (derived in 1997) from Colorado Division of Local Government

\*\* estimated as 75% of ages 1-4 population