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State-Specific Pregnancy and Birth Rates Among Teenagers — United States, 1991–1992

Pregnancy and childbearing rates for teenagers remain high in the United States despite well-documented associated adverse health, social, and economic consequences for many of these teenagers and their children. In 1990, approximately 835,000 (10%) teenagers aged 15–19 years became pregnant and either gave birth or had an abortion (CDC, unpublished data, 1995); an estimated 95% of such pregnancies are unintended (*1*). This report presents estimates of pregnancy rates among women aged ≤19 years for each state and the District of Columbia (DC) by age group, pregnancy rates for women aged 15–19 years by race, and birth rates for women aged 15–19 years by race and by Hispanic ethnicity for 1991–1992, and compares pregnancy rates for 1991 and 1992.

The numbers of pregnancies for 1991 and 1992 were estimated as the sum of live births and legal induced abortions among women aged ≤19 years (data were analyzed for women aged <15, 15–17, 18–19, and 15–19 years); estimates of spontaneous abortions and stillbirths were not included. Births were reported by state of residence; because abortion data by residence were not available for all states, abortions were reported by state of occurrence.* Denominators for rate calculations were obtained from intercensal population estimates provided by the U.S. Bureau of the Census (*2*). Rates for 15–19-year-olds were calculated as the number of pregnancies, abortions, or births per 1000 women aged 15–17, 18–19, and 15–19 years. Because almost all pregnancies (97% of births and 94% of abortions) among girls aged <15 years occur among those aged 13–14 years (*3*; CDC, unpublished data, 1993), the number of girls aged 13–14 years was used as the denominator when calculating rates for the <15-year age group. For each state included in rate calculations, the number of women who had abortions for whom age or race information was missing and the number who gave birth for whom ethnicity information was missing were included in age, race, or ethnicity categories based on the known distributions for abortions or births in that

*For 47 reporting areas, data were provided from the central health agency (state health departments and the health departments of DC, upstate New York, and New York City). Data from upstate New York and New York City were combined to produce totals for the state. For the other five states, data were provided from hospitals and other medical facilities. The word "state" in this report refers to both states and DC except where DC is mentioned explicitly. Wisconsin and DC reported age for those who had abortions among residents only.

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state.[†] Differences in pregnancy, abortion, and birth rates for 1991 and 1992 were calculated and tested for statistical significance at $p<0.05$.

Although abortion totals were available for all states, age-specific abortion data were available from 42 states for both 1991 and 1992; race-specific data were available from 31 states for 1991 and from 34 states for 1992. Because Hispanic ethnicity information for women who had abortions was available for only 18 states for 1991 and 20 states for 1992, pregnancy rates by ethnicity are not included in this report. Information was available for birth rates by age and by race for all 50 states and DC and by ethnicity for 49 states and DC.

For both years and for all states for which data were available, pregnancy rates were higher for older teenagers than for younger teenagers. Rates for 15–19-year-olds in 1991 ranged from 54.3 per 1000 women (North Dakota) to 109.2 (Georgia) (Table 1),[§] and in 1992, from 53.7 (Wyoming) to 106.9 (Georgia). For those aged <15 years, pregnancy rates in 1991 ranged from 1.8 per 1000 (Idaho) to 10.6 (Georgia) and in 1992 from 2.0 (Idaho) to 10.9 (Mississippi).

From 1991 through 1992, pregnancy rates for 15–19-year-olds decreased significantly in 31 of the 42 states for which age-specific data were available (range: 2%–15% decrease) (Table 1). In two states, rates increased significantly. Among states with decreases in pregnancy rates, the percentage decrease was generally greater for 15–17-year-olds than for other age groups. For those aged <15 years, pregnancy rates decreased significantly in one state and increased significantly in two.

Decreases in teenage pregnancy rates were reflected in both birth and abortion rates. More states had decreases in abortion rates than had decreases in birth rates, and the decreases generally were greater for abortion rates than for birth rates. For the 50 states and DC, birth rates for 15–19-year-olds decreased significantly in 20 states: by <5% in 11 states and by 5%–9% in nine states. Abortion rates decreased significantly in 31 of the 42 states for which data were available: rates decreased by <5% in two states, 5%–9% in six states, 10%–14% in eight states, and 15%–27% in 15 states.

Except in one state in 1992, pregnancy rates and birth rates by state for 15–19-year-olds were higher for blacks than for whites (Tables 2 and 3). Among states with decreases in pregnancy rates, the percentage decrease generally was greater for whites than for blacks. Birth rates generally were higher for Hispanics than for non-Hispanics in both 1991 and 1992.

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Editorial Note: The estimates in this report indicate pregnancy rates for women aged 15–19 years decreased in 1992 from 1991 in many states; these changes were reflected in both abortion and birth rates. As a result, the national birth rate for 15–19-year-olds decreased by 2% in 1992 following a 24% increase from 1986 through 1991 (*4*). In

[†]Reasons for the exclusion of rates in some states are listed in the tables; the following hierarchy was used to determine whether data were excluded: 1) abortion data by age or race or birth data by Hispanic ethnicity were not reported by state; 2) <20 births or pregnancies or <1000 women were in the group; and 3) for >15% of the abortion data, age or race of the women was unknown.

[§]DC is not included in these comparisons because it is an urban area, and pregnancy rates are generally higher in urban areas than in states.

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TABLE 1. Pregnancy rates for women aged ≤19 years,* by age group and state, and percentage change† for 15–19-year-olds — United States, 1991–1992

State	1991				1992				% Change§ 1991–1992
	<15	15–17	18–19	15–19	<15	15–17	18–19	15–19	15–19
Alabama	8.9	63.2	143.1	97.0	9.1	60.8	139.4	93.2	*– 3.9*
Alaska	¶	¶	¶	¶	¶	¶	¶	¶	¶
Arizona	5.5	66.3	163.5	106.2	5.5	64.5	163.1	103.5	*– 2.5*
Arkansas	7.2	60.2	152.0	98.2	7.0	56.0	141.1	90.7	*– 7.6*
California	¶	¶	¶	¶	¶	¶	¶	¶	¶
Colorado	4.4	53.3	123.7	82.3	4.6	52.1	122.1	79.8	*– 3.1*
Connecticut	¶	¶	¶	¶	¶	¶	¶	¶	¶
Delaware	¶	¶	¶	¶	¶	¶	¶	¶	¶
District of Columbia	33.8	¶	¶	226.1	30.6	¶	¶	208.4	*– 7.9*
Florida	¶	¶	¶	¶	¶	¶	¶	¶	¶
Georgia	10.6	72.9	158.4	109.2	10.6	69.6	159.9	106.9	*– 2.1*
Hawaii	6.4	56.7	133.1	89.0	6.6	56.4	126.6	86.4	– 3.0
Idaho	1.8	35.0	107.2	63.9	2.0	32.7	101.7	59.7	*– 6.7*
Illinois	¶	¶	¶	¶	¶	¶	¶	¶	¶
Indiana	4.0	43.2	119.4	75.3	4.0	42.4	115.7	72.2	*– 4.1*
Iowa	¶	¶	¶	¶	¶	¶	¶	¶	¶
Kansas	3.6	48.1	127.3	80.1	4.9	53.7	139.1	87.0	*8.7*
Kentucky	6.3	58.0	130.8	88.3	6.0	52.1	125.6	81.7	*– 7.4*
Louisiana	8.7	60.3	136.3	92.0	8.7	62.1	137.8	92.6	0.7
Maine	2.2	38.8	99.8	64.6	2.1	31.9	88.6	55.2	*–14.7*
Maryland	7.7	52.2	116.8	79.6	7.2	51.3	113.8	76.9	*– 3.5*
Massachusetts	4.8	44.8	109.4	74.0	4.9	42.4	106.3	69.5	*– 6.0*
Michigan	5.5	50.5	127.4	82.9	5.1	48.1	125.6	79.7	*– 3.8*
Minnesota	3.1	33.7	96.7	59.5	3.1	31.7	91.5	55.2	*– 7.3*
Mississippi	10.3	74.5	147.8	105.5	10.9	71.1	143.8	100.8	*– 4.5*
Missouri	5.4	49.2	129.8	82.6	4.7	47.0	124.6	78.0	*– 5.6*
Montana	2.7	42.9	126.3	75.6	3.6	43.4	112.5	70.2	*– 7.1*
Nebraska	3.2	40.9	109.9	69.4	3.3	35.4	105.2	63.4	*– 8.7*
Nevada	6.0	65.9	170.4	108.9	7.3	65.5	166.1	106.0	– 2.6
New Hampshire	¶	¶	¶	¶	¶	¶	¶	¶	¶
New Jersey	5.7	47.3	113.2	74.6	5.8	44.0	107.6	69.7	*– 6.5*
New Mexico	4.5	66.1	158.2	103.0	4.9	66.9	155.0	101.8	– 1.2
New York	7.9	62.6	137.8	94.4	8.5	64.8	143.3	96.6	*2.3*
North Carolina	9.0	73.0	155.7	108.8	8.5	68.2	155.6	104.6	*– 3.8*
North Dakota	2.2	28.2	93.9	54.3	**	26.8	97.9	54.2	– 0.3
Ohio	4.5	48.1	125.8	80.9	4.5	44.3	118.7	74.6	*– 7.7*
Oklahoma	¶	¶	¶	¶	¶	¶	¶	¶	¶
Oregon	4.7	53.9	143.4	89.5	4.0	48.8	132.3	81.0	*– 9.5*
Pennsylvania	5.9	49.1	111.7	75.9	6.3	46.5	107.8	71.7	*– 5.6*
Rhode Island	6.2	53.1	132.4	89.4	6.2	49.6	141.3	88.1	– 1.4
South Carolina	7.5	62.0	137.7	94.6	7.6	57.7	130.3	88.0	*– 7.0*
South Dakota	**	33.0	94.0	57.5	**	36.1	96.1	59.4	3.3
Tennessee	8.0	65.8	151.0	102.0	7.9	58.8	144.3	94.0	*– 7.8*
Texas	6.8	65.3	160.1	104.3	6.5	65.7	160.2	103.7	– 0.7
Utah	2.2	33.3	97.8	59.4	2.5	31.5	93.9	55.6	*– 6.3*
Vermont	2.9	47.7	117.3	78.0	2.9	38.6	112.0	68.7	*–12.0*
Virginia	6.5	53.2	125.7	84.8	6.1	49.2	119.8	79.0	*– 6.8*
Washington	5.2	56.3	143.3	91.7	4.3	54.3	132.1	85.1	*– 7.2*
West Virginia	2.8	36.0	102.8	63.9	3.2	38.9	106.2	66.1	3.4
Wisconsin	3.9	38.2	103.6	64.9	3.9	35.3	100.1	60.8	*– 6.3*
Wyoming	**	29.6	106.4	59.3	**	27.0	97.1	53.7	*– 9.5*

* Per 1000 women in the appropriate age group (13–14 years for <15-years age group). Pregnancy rate was not calculated when age information was missing for >15% of women who had abortions.
† Percentage change in rate from 1991 to 1992.
§ Italic type indicates that the difference is statistically significant at p<0.05.
¶ Pregnancy rate or percentage change could not be calculated because the state did not provide abortion data by age.
** Pregnancy rate is not shown for groups with <20 pregnancies or <1000 women.

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conjunction with a continuing decrease in abortions (*5*), this change may signify a turning point in pregnancy trends among teenagers.

Changes in pregnancy rates for women aged 15–19 years may reflect shifts in the proportion of those who have had sexual intercourse and the proportion who use contraception effectively. The percentage of women in this age group who were sexually experienced remained stable from 1990 through 1993, while the percentage of sexually experienced teenagers who used condoms increased, and the percentage using oral contraceptives remained stable (*6*). The finding that significant decreases in pregnancy rates occurred both in states with relatively low 1991 rates and states with relatively high rates suggests that potential exists for all states to achieve lower rates of pregnancy among this age group. School-based programs that focus on the risks of unprotected sexual intercourse and assist students in developing

TABLE 2. Pregnancy rates for 15–19-year-olds*, by race† and state — United States, 1991–1992

State	1991		1992		State	1991		1992	
	White	Black	White	Black		White	Black	White	Black
Alabama	77.2	139.1	73.4	134.7	Missouri	65.1	193.0	60.9	186.0
Alaska	§	§	§	§	Montana	68.9	**	61.8	**
Arizona	¶	¶	102.3	150.6	Nebraska	§	§	§	§
Arkansas	83.4	153.3	76.7	142.6	Nevada	106.0	168.6	101.9	171.2
California	§	§	§	§	New Hampshire	§	§	§	§
Colorado	¶	¶	¶	¶	New Jersey	52.4	178.1	41.2	179.7
Connecticut	§	§	§	§	New Mexico	101.4	132.7	102.2	100.8
Delaware	§	§	§	§	New York	76.1	173.2	77.3	175.9
District of Columbia	§	§	§	§	North Carolina	86.5	163.2	83.3	155.3
Florida	§	§	§	§	North Dakota	47.5	**	47.8	**
Georgia	82.2	165.1	79.6	162.9	Ohio	¶	¶	¶	¶
Hawaii	70.3	**	64.7	**	Oklahoma	§	§	§	§
Idaho	63.9	**	59.4	**	Oregon	88.5	200.9	79.4	181.7
Illinois	§	§	§	§	Pennsylvania	58.0	214.9	53.5	211.5
Indiana	66.3	161.2	62.9	156.7	Rhode Island	80.7	214.5	78.0	211.8
Iowa	§	§	§	§	South Carolina	74.2	129.5	68.6	119.6
Kansas	73.1	177.2	77.8	211.9	South Dakota	46.4	**	46.5	**
Kentucky	82.2	155.0	75.5	149.9	Tennessee	85.6	168.4	77.4	162.4
Louisiana	66.3	131.4††	65.3	133.7††	Texas	98.2	152.3	98.2	148.8
Maine	64.4	**	54.9	**	Utah	58.4	**	54.2	**
Maryland	55.6	136.3	51.0	137.1	Vermont	77.9	**	68.4	**
Massachusetts	§	§	§	§	Virginia	69.2	143.8	62.9	139.4
Michigan	§	§	§	§	Washington	¶	¶	¶	¶
Minnesota	¶	¶	47.3	218.1	West Virginia	62.9	100.3	64.6	116.5
Mississippi	¶	¶	71.9	135.1	Wisconsin	49.7	241.3	45.3	226.9
					Wyoming	§	§	§	§

*Per 1000 women.
†Pregnancy rates for women of races other than white or black are not presented because the composition of this category varied widely by state, and abortion information was not available on the race breakdown of "others" for each state.
§Pregnancy rate could not be calculated because the state did not provide abortion data by age or by race.
¶Pregnancy rate was not calculated because age or race information was missing for >15% of women who had abortions.
**Pregnancy rate is not shown for groups with <20 pregnancies or <1000 women.
††Rate is for all races other than white.

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appropriate values, self-efficacy, and negotiation skills appear to be effective in postponing initiation of sexual activity and in decreasing rates of unprotected intercourse (*7*). Some community-based programs emphasize development of self-esteem and orientation toward the future and provide sex education and family-planning services; such programs may be effective in decreasing rates of unprotected intercourse and potentially can reach teenagers who are not enrolled in school.

Pregnancy and birth rates did not decrease equally for all groups of teenagers. For example, pregnancy rates for those aged <15 years decreased significantly in only one state. In addition, percentage decreases in pregnancy rates for 15–19-year-olds were greater for whites than for blacks; consequently, both pregnancy and birth rates remained higher for blacks than whites. In addition, birth rates remained higher for Hispanics than for non-Hispanics. Differences in these rates by race and ethnicity may reflect differences in factors such as income, education levels, sexual activity, reproductive preferences, contraceptive use, and access to health care. Analysis of these factors could identify reasons for the differences in rates and suggest possible interventions to reduce these rates.

The estimation in this report of pregnancy rates for teenagers was limited by the lack of complete abortion data for some states. In addition, pregnancy totals based on births and legal induced abortions reported to CDC may underestimate the actual number of pregnancies. In 1990, approximately 835,000 live births and abortions among 15–19-year-olds were reported in the United States to CDC (CDC, unpublished data, 1995). In contrast, a recent analysis using alternative methodology and including fetal losses estimated approximately 1 million pregnancies among 15–19-year-olds in the United States during 1990 (*8,9*).

Accurate monitoring of pregnancy trends requires complete reporting of age, race, and Hispanic ethnicity for those who have abortions as well as those who give birth. Birth patterns cannot be used to estimate trends in pregnancy because the ratio of pregnancies to births varies by state, age, race, and ethnicity. Therefore, efforts by states to collect complete abortion data are essential for evaluating the progress of pregnancy-prevention programs for teenagers.

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TABLE 3. Birth rates for 15–19-year-olds,* by race,† Hispanic ethnicity,§ and state — United States, 1991–1992

State	1991					1992				
	Race		Ethnicity			Race		Ethnicity		
	White	Black	Hispanic	Non-Hispanic	Total¶	White	Black	Hispanic	Non-Hispanic	Total¶
Alabama	56.4	110.9	45.5	74.1	**73.9**	55.2	108.9	65.6	72.6	**72.5**
Alaska	53.2	**	**	64.9	**65.4**	49.9	**	**	63.7	**63.9**
Arizona	77.1	131.1	131.4	62.6	**80.7**	79.9	112.0	135.4	62.0	**81.7**
Arkansas	66.8	127.5	**	79.8	**79.8**	62.8	122.0	**	75.3	**75.5**
California	79.3	100.1	122.3	48.8	**74.7**	79.3	94.6	123.5	46.6	**74.0**
Colorado	55.2	120.7	117.3	45.5	**58.2**	55.9	108.4	121.3	44.8	**58.4**
Connecticut	32.9	98.2	143.2	29.4	**40.4**	32.4	94.5	139.4	28.2	**39.4**
Delaware	40.5	137.1	**	59.2	**61.1**	41.4	122.9	**	57.2	**59.6**
District of Columbia	9.2	149.5	106.6	114.8	**114.4**	26.4	130.8	**	115.1	**116.1**
Florida	52.4	134.8	60.7	70.2	**68.8**	50.7	126.5	57.9	67.8	**66.3**
Georgia	55.8	119.0	88.3	76.1	**76.3**	54.9	115.2	97.0	74.1	**74.5**
Hawaii	40.7	**	118.8	52.2	**58.7**	32.8	**	99.0	48.4	**53.5**
Idaho	53.9	**	122.1	49.1	**53.9**	51.3	**	127.7	46.3	**51.7**
Illinois	46.0	145.1	103.4	60.2	**64.8**	45.2	144.6	106.6	58.4	**63.6**
Indiana	53.4	128.1	64.8	60.3	**60.5**	51.4	125.9	70.0	58.4	**58.7**
Iowa	40.3	135.9	86.3	41.9	**42.6**	38.4	137.7	89.1	39.9	**40.8**
Kansas	50.0	127.0	94.5	53.3	**55.4**	49.7	137.4	97.0	53.5	**55.7**
Kentucky	64.9	114.4	**	69.1	**68.9**	60.7	112.1	**	64.8	**64.7**
Louisiana	51.7	117.1	24.3	77.3	**76.1**	51.3	118.4	22.5	77.8	**76.5**
Maine	43.4	**	**	43.6	**43.5**	39.9	**	**	39.8	**39.8**
Maryland	36.4	97.4	46.9	54.5	**54.3**	32.0	95.5	59.1	50.4	**50.7**
Massachusetts	33.2	97.7	134.6	30.4	**37.8**	33.1	97.0	128.1	30.5	**38.0**
Michigan	43.1	129.2	95.1	57.8	**59.0**	41.6	124.6	90.3	55.5	**56.5**
Minnesota	30.6	160.9	108.4	36.0	**37.3**	29.5	162.6	110.0	34.6	**36.0**
Mississippi	58.8	117.9	**	86.0	**85.6**	57.2	116.1	**	84.6	**84.2**
Missouri	51.7	145.7	64.5	64.5	**64.5**	50.5	143.9	62.9	63.2	**63.2**
Montana	39.5	**	**	46.1	**46.7**	38.0	**	**	45.7	**46.2**
Nebraska	37.0	129.9	103.7	40.3	**42.4**	35.8	125.6	99.8	38.9	**41.1**
Nevada	69.9	138.4	114.0	69.0	**75.3**	65.6	137.2	122.8	62.7	**71.4**
New Hampshire	33.6	**	††	††	**33.3**	31.1	**	††	††	**31.3**
New Jersey	28.9	101.5	84.4	35.3	**41.6**	26.1	103.2	78.1	33.3	**39.2**
New Mexico	77.8	103.2	99.5	62.8	**79.8**	79.5	75.6	102.5	61.2	**80.3**
New York	39.0	77.6	87.5	38.3	**46.0**	39.0	73.8	85.0	37.6	**45.3**
North Carolina	53.5	111.3	97.2	70.2	**70.5**	53.4	107.7	132.1	68.8	**69.5**
North Dakota	28.8	**	**	35.5	**35.6**	30.6	**	**	36.5	**37.3**

Ohio	49.8	133.4	83.2	60.1	**60.5**	47.2	132.4	74.9	57.7	**58.0**
Oklahoma	63.4	127.8	92.7	71.3	**72.1**	63.1	116.4	91.2	69.1	**69.9**
Oregon	54.2	117.3	129.3	50.6	**54.9**	52.2	113.6	134.1	48.6	**53.2**
Pennsylvania	36.3	131.1	129.8	44.5	**46.9**	34.6	127.3	131.9	42.6	**45.2**
Rhode Island	39.1	129.6	119.7	40.3	**45.4**	40.1	131.1	128.0	41.2	**47.5**
South Carolina	54.6	104.3	62.7	73.0	**72.9**	52.2	99.7	66.2	70.3	**70.3**
South Dakota	35.5	**	**	47.5	**47.5**	34.9	**	**	48.1	**48.3**
Tennessee	62.1	127.7	45.4	75.4	**75.2**	58.5	124.1	70.5	71.4	**71.4**
Texas	74.5	115.5	110.5	62.9	**78.9**	75.1	113.4	112.2	61.5	**78.9**
Utah	47.8	**	100.9	45.1	**48.2**	45.4	**	107.4	42.8	**46.3**
Vermont	39.4	**	**	39.5	**39.2**	35.6	**	**	35.8	**35.6**
Virginia	41.5	98.3	61.2	53.2	**53.5**	39.5	97.6	63.2	51.4	**51.8**
Washington	52.6	96.2	127.9	48.6	**53.7**	49.3	91.6	136.4	45.1	**50.9**
West Virginia	57.3	80.1	**	58.0	**57.8**	55.5	77.4	**	56.1	**56.0**
Wisconsin	31.8	178.1	94.6	42.3	**43.7**	29.8	167.1	94.7	40.5	**42.1**
Wyoming	52.0	**	75.3	52.4	**54.2**	47.5	**	79.1	47.1	**49.6**

*Per 1000 women.
†Birth rates for women of races other than white or black are not presented because the composition of this category varied widely by state.
§Hispanic ethnicity is independent of race; Hispanics and non-Hispanics may be of any race.
¶Total includes all women aged 15–19 years.
**Birth rate is not shown for groups with <20 births or <1000 women.
††Birth rate could not be calculated because the state did not provide birth data by ethnicity.

Pregnancy and Birth Rates — Continued

9. Ventura SJ, Taffel SM, Mosher WD, et al. Trends in pregnancies and pregnancy rates: estimates for the United States, 1980–92. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, 1995. (Monthly vital statistics report; vol 43, no. 11, suppl).

Syringe Exchange Programs — United States, 1994–1995

As of December 1994, approximately one third (35.3%) of the 435,319 cases of acquired immunodeficiency syndrome (AIDS) reported among adults to CDC were associated with injecting-drug use (*1*). In addition, injection of illegal drugs is the risk behavior most frequently associated with heterosexual and perinatal transmission of human immunodeficiency virus (HIV) in the United States. The goal of syringe exchange programs (SEPs) is to reduce HIV transmission associated with drug injection by providing sterile syringes in exchange for used, potentially HIV-contaminated syringes. This report presents data from a recent survey of U.S. SEPs about their activities during January 1994–April 1995 and compares the findings with those of a 1993 survey (*2*).*

In April 1995, the North American Syringe Exchange Network (NASEN), in collaboration with the U.S. Conference of Mayors and Beth Israel Medical Center (New York City), mailed questionnaires to the directors of each of the 68 U.S. SEPs that were members of NASEN. Directors of SEPs from which a completed questionnaire was not returned within 3 weeks were contacted by telephone. Data collected included information about the SEP operations, legal status, services offered, number of syringes exchanged in 1994, and outreach efforts.

In the April 1995 survey, 60 (88%) SEPs provided data (47 [78%] by mail and 13 [22%] by telephone). These 60 SEPs reported operating in 46 cities in 21 states†. Forty-two (70%) of the SEPs were located in five states (California, New York, Washington, Connecticut, and Hawaii); in nine cities, at least two SEPs reported operating. In the 1993 survey, a total of 33 SEPs reported operating in 29 cities in 12 states (*2*).

The 55 SEPs operating in 1994 reported exchanging approximately 8 million new, sterile syringes for used syringes during January–December 1994 (median: 39,014 syringes per SEP; mean: 145,914). The seven most active SEPs (i.e., those that exchanged ≥500,000 syringes; two SEPs in New York City and one each in Chicago; Philadelphia; San Francisco; and Seattle and Tacoma, Washington) exchanged nearly 5.5 million syringes, representing 68% of all syringes exchanged by SEPs in 1994 (Table 1). The San Francisco SEP reported exchanging the largest number of syringes (1.5 million) in 1994. Some SEPs reported exchanging relatively small numbers of syringes in 1994: 31 SEPs (56%) exchanged ≤55,000 syringes each while 12 SEPs (22%) exchanged <10,000 syringes each. In comparison, approximately 2.4 million syringes were exchanged by U.S. SEPs in 1992 (*2*).

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*Single copies of this report will be available until September 22, 1996, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231 or (301) 217-0023.

†California (18 SEPs), New York (nine), Washington (eight), Connecticut (four), Hawaii (three), Illinois and Minnesota (two each), and one each in Alaska, Colorado, Indiana, Louisiana, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New Mexico, Oregon, Pennsylvania, Texas, and Wisconsin.

Syringe Exchange Programs — Continued

TABLE 1. Number and percentage of syringe exchange programs (SEPs) and number and percentage of new syringes provided by SEPs, by size of program — United States, 1994

	SEPs		Total syringes exchanged	
Size of SEP*	No.	(%)	No.	(%)
< 10,000	12	(22)	20,057	(<1)
10,000– 55,000	19	(35)	472,771	(6)
55,001–499,999	17	(31)	2,075,511	(26)
≥500,000	7	(13)	5,456,915	(68)
Total	**55**	**(100)**	**8,025,254**	**(100)**

*Based on number of syringes exchanged during 1994.

In addition to syringe exchange, services provided by SEPs included provision of latex condoms (45 SEPs), HIV counseling and testing (23), tuberculin skin testing (12), primary health care (10), and directly observed tuberculosis therapy (six). Most (45 [85%] of 53) SEPs reported counseling injecting-drug users (IDUs) to follow medical hygiene standards when injecting illegal drugs (i.e., prepare the injection site with an alcohol swab; use a new, sterile needle and syringe for each injection; avoid reuse of syringes [even by the same person]; use clean [ideally sterile] water to prepare drugs for injection; and return used syringes to the SEP for safe disposal).

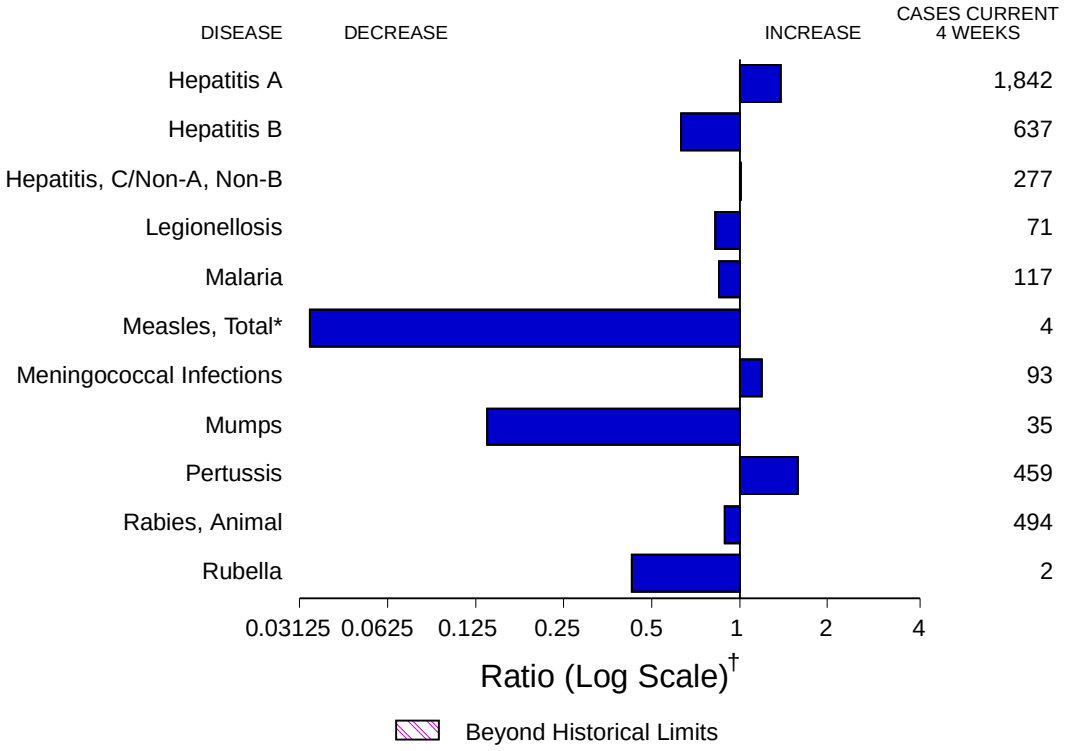
In both the 1993 and 1995 surveys, the legal status of SEPs was categorized as legal, illegal-but-tolerated, and illegal/underground. An SEP was defined as legal if it operated in a state that had no law requiring a prescription to purchase a hypodermic syringe (i.e., a "prescription law") or had an exemption to the state prescription law allowing the SEP to operate; illegal-but-tolerated if the program operated in a state with a prescription law and had received a formal vote of support or approval from a local elected body (e.g., a city council); and illegal/underground if the program operated in a state with a prescription law but had no formal support from local elected officials. Of the 60 SEPs in the 1995 survey, a total of 33 (55%) reported that they were legal; 19 (32%), illegal-but-tolerated; and eight (13%), illegal/underground.

Reported by: D Paone, EdD, DC Des Jarlais, PhD, J Clark, Q Shi, MS, A Orris, Beth Israel Medical Center; M Krim, PhD, M Reinfeld, American Foundation for AIDS Research; SR Friedman, PhD, National Development and Research Institutes, New York. D Purchase, H Smith, North American Syringe Exchange Network, Tacoma, Washington. P Jones, US Conference of Mayors, Washington, DC. P Lurie, MD, Univ of California, San Francisco. Div of HIV/AIDS Prevention, National Center for Prevention Svcs, CDC.

Editorial Note: Practices associated with injection of heroin, cocaine, methamphetamine, and other drugs can be linked to transmission of HIV, hepatitis B virus (HBV), and hepatitis C virus (HCV) (*1,3*). During intravenous injection, IDUs usually draw blood into the needle and syringe to verify the needle is in a vein. If that blood contains HIV, HBV, HCV, or other bloodborne pathogens, subsequent use of the syringe by another drug injector may result in transmission of these pathogens (*4*). To assist in reducing transmission of HIV, HBV, HCV, and other bloodborne pathogens (*5*), SEPs provide new, sterile syringes for IDUs and collect used, blood-contaminated syringes. In addition, nearly all SEPs provide alcohol swabs, latex condoms, and counseling services to clients, and many assist clients in obtaining health and social

(Continued on page 691)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending September 16, 1995, with historical data — United States



*The large apparent decrease in the number of reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.
†Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending September 16, 1995 (37th Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Psittacosis	50
Brucellosis	64	Rabies, human	1
Cholera	11	Rocky Mountain Spotted Fever	400
Congenital rubella syndrome	4	Syphilis, congenital, age < 1 year†	132
Diphtheria	-	Tetanus	20
*Haemophilus influenzae**	852	Toxic shock syndrome	132
Hansen Disease	92	Trichinosis	24
Plague	6	Typhoid fever	220
Poliomyelitis, Paralytic	-		

*Of 833 cases of known age, 198 (24%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of STD Prevention, National Center for Prevention Services. This total through first quarter 1995.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending September 16, 1995, and September 17, 1994 (37th Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type						Legionellosis	
				A		B		C/NA,NB			
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	47,385	244,636	283,390	19,074	16,874	7,032	8,107	3,034	2,957	886	1,111
NEW ENGLAND	2,412	3,726	5,566	195	212	159	250	88	113	25	43
Maine	74	60	64	21	20	7	11	-	-	5	4
N.H.	72	81	78	7	16	16	17	12	9	4	-
Vt.	23	44	22	5	6	1	6	1	11	-	-
Mass.	1,014	2,026	2,224	80	83	61	148	70	73	13	27
R.I.	184	364	336	25	19	8	6	5	20	3	12
Conn.	1,045	1,151	2,842	57	68	66	62	-	-	N	N
MID. ATLANTIC	12,777	24,654	31,774	1,130	1,203	879	1,064	283	352	133	173
Upstate N.Y.	1,634	3,846	7,440	284	420	284	282	156	168	37	40
N.Y. City	6,547	8,598	12,073	553	454	275	235	1	1	3	5
N.J.	2,983	3,162	3,608	139	220	182	280	94	153	18	33
Pa.	1,613	9,048	8,653	154	109	138	267	32	30	75	95
E.N. CENTRAL	3,613	53,346	56,948	2,045	1,655	681	833	191	247	237	319
Ohio	733	15,911	15,044	1,311	595	82	121	8	17	119	151
Ind.	383	5,932	6,235	122	271	165	149	5	8	55	34
Ill.	1,525	14,682	17,578	217	421	94	222	33	65	13	29
Mich.	721	12,691	12,624	266	199	300	271	145	157	23	59
Wis.	251	4,130	5,467	129	169	40	70	-	-	27	46
W.N. CENTRAL	1,091	13,975	15,822	1,346	841	448	465	93	65	84	76
Minn.	243	2,007	2,320	141	163	44	43	2	14	2	2
Iowa	55	1,090	1,039	50	43	32	23	11	7	17	27
Mo.	476	8,000	8,708	964	422	312	347	54	17	44	25
N. Dak.	5	20	29	23	4	4	-	7	1	4	4
S. Dak.	11	124	148	37	24	2	-	1	-	1	1
Nebr.	80	697	991	34	103	22	24	6	10	9	12
Kans.	221	2,037	2,587	97	82	32	28	12	16	7	5
S. ATLANTIC	12,200	71,528	75,130	907	852	996	1,491	237	321	162	271
Del.	220	1,565	1,368	7	20	2	11	1	1	2	31
Md.	1,635	7,471	13,285	157	124	185	244	3	17	26	62
D.C.	738	3,161	5,232	17	16	15	36	-	-	4	5
Va.	965	7,620	9,403	152	119	82	92	10	20	15	6
W. Va.	77	471	557	17	11	40	29	41	23	3	3
N.C.	712	16,888	18,921	85	92	203	195	45	47	30	18
S.C.	671	8,668	9,475	35	30	37	23	17	7	29	9
Ga.	1,628	11,083	U	55	25	63	513	15	167	23	95
Fla.	5,554	14,601	16,889	382	415	369	348	105	39	30	42
E.S. CENTRAL	1,551	29,910	33,147	1,099	439	609	870	736	684	41	70
Ky.	197	3,485	3,552	30	121	46	63	15	23	9	8
Tenn.	638	9,811	10,572	892	189	484	749	719	647	23	36
Ala.	411	12,007	11,357	64	71	79	58	2	14	6	11
Miss.	305	4,607	7,666	113	58	-	-	-	-	3	15
W.S. CENTRAL	4,178	22,823	34,804	2,946	2,184	1,223	846	498	217	12	35
Ark.	186	2,287	4,892	343	148	36	22	4	6	1	6
La.	715	8,035	8,613	84	120	150	128	129	128	2	12
Okla.	196	1,496	3,526	662	220	376	96	323	43	3	11
Tex.	3,081	11,005	17,773	1,857	1,696	661	600	42	40	6	6
MOUNTAIN	1,466	6,239	7,027	2,845	3,288	552	477	323	319	87	70
Mont.	16	51	66	83	17	19	18	11	6	4	14
Idaho	37	91	64	234	244	61	65	40	63	2	1
Wyo.	10	38	56	87	21	16	20	132	113	7	3
Colo.	491	2,102	2,414	389	346	88	76	50	55	33	15
N. Mex.	123	716	708	594	807	212	150	37	42	4	3
Ariz.	392	2,334	2,279	830	1,308	83	48	31	14	9	8
Utah	98	131	186	516	372	48	58	8	13	13	6
Nev.	299	776	1,254	112	173	25	42	14	13	15	20
PACIFIC	8,097	18,435	23,172	6,561	6,200	1,485	1,811	585	639	105	54
Wash.	667	1,889	2,087	566	800	134	168	151	189	19	10
Oreg.	285	212	727	1,404	715	61	104	29	29	-	-
Calif.	6,910	15,439	19,177	4,439	4,482	1,269	1,503	373	417	81	42
Alaska	53	498	648	31	164	9	12	1	-	-	-
Hawaii	182	397	533	121	39	12	24	31	4	5	2
Guam	-	51	95	2	18	1	4	-	-	1	1
P.R.	1,851	361	358	82	47	525	254	240	129	-	-
V.I.	27	6	20	-	3	2	7	-	1	-	-
Amer. Samoa	-	19	21	6	8	-	-	-	-	-	-
C.N.M.I.	-	23	41	15	6	7	1	-	-	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention, National Center for Prevention Services, last update August 31, 1995.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 16, 1995, and September 17, 1994 (37th Week)

Reporting Area	Lyme Disease		Malaria		Measles (Rubeola)						Meningococcal Infections		Mumps	
					Indigenous		Imported*		Total					
	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	1995	Cum. 1995	1995	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	5,673	8,468	826	757	2	241	-	20	261	847	2,197	2,005	587	1,042
NEW ENGLAND	1,494	2,090	38	55	-	6	-	1	7	27	101	92	10	17
Maine	16	17	5	4	-	-	-	-	-	5	7	18	4	3
N.H.	18	17	3	3	-	-	-	-	-	1	19	8	1	4
Vt.	8	12	1	3	-	-	-	-	-	3	6	2	-	-
Mass.	128	135	11	27	-	1	-	1	2	7	37	41	2	2
R.I.	251	307	4	5	-	5	-	-	5	7	-	-	1	2
Conn.	1,073	1,602	14	13	-	-	-	-	-	4	32	23	2	6
MID. ATLANTIC	3,399	4,984	209	147	-	6	-	4	10	212	260	213	84	87
Upstate N.Y.	1,849	3,180	48	41	-	1	-	-	1	17	80	68	24	26
N.Y. City	139	12	107	51	-	2	-	3	5	14	34	26	13	4
N.J.	618	1,031	38	33	-	3	-	1	4	173	73	47	6	13
Pa.	793	761	16	22	-	-	-	-	-	8	73	72	41	44
E.N. CENTRAL	61	455	79	79	-	7	-	3	10	102	292	295	101	170
Ohio	42	31	9	9	-	1	-	-	1	17	90	84	32	42
Ind.	11	14	14	11	-	-	-	-	-	1	41	38	3	7
Ill.	3	23	32	38	-	-	-	2	2	56	71	97	31	80
Mich.	5	5	13	18	-	4	-	1	5	25	56	45	35	33
Wis.	-	382	11	3	-	2	-	-	2	3	34	31	-	8
W.N. CENTRAL	99	155	17	32	-	2	-	-	2	170	146	130	38	53
Minn.	42	58	3	10	-	-	-	-	-	-	24	12	2	4
Iowa	8	13	1	4	-	-	-	-	-	7	26	16	9	12
Mo.	30	73	6	11	-	1	-	-	1	160	58	64	22	33
N. Dak.	-	-	1	1	-	-	-	-	-	-	1	1	1	3
S. Dak.	-	-	1	-	-	-	-	-	-	-	5	8	-	-
Nebr.	1	3	3	4	-	-	-	-	-	2	12	9	4	1
Kans.	18	8	2	2	-	1	-	-	1	1	20	20	-	-
S. ATLANTIC	417	589	176	148	-	10	-	1	11	54	400	296	87	152
Del.	7	79	1	3	-	-	-	-	-	-	6	5	-	-
Md.	267	190	45	51	-	-	-	1	1	4	28	26	20	43
D.C.	1	6	15	12	-	-	-	-	-	-	3	4	-	-
Va.	40	113	38	20	-	-	-	-	-	2	48	53	19	35
W. Va.	21	15	2	-	-	-	-	-	-	37	8	11	-	3
N.C.	44	64	15	9	-	-	-	-	-	3	64	42	16	35
S.C.	14	7	1	4	-	-	-	-	-	-	52	19	9	7
Ga.	12	103	22	25	-	2	-	-	2	2	80	65	8	8
Fla.	11	12	37	24	-	8	-	-	8	6	111	71	15	21
E.S. CENTRAL	35	37	19	29	-	-	-	-	-	28	137	145	13	18
Ky.	5	21	1	10	-	-	-	-	-	-	46	33	-	-
Tenn.	20	10	7	9	-	-	-	-	-	28	37	26	-	6
Ala.	7	6	8	9	-	-	-	-	-	-	29	56	4	5
Miss.	3	-	3	1	-	-	-	-	-	-	25	30	9	7
W.S. CENTRAL	82	89	38	36	-	21	-	2	23	16	275	237	36	183
Ark.	5	8	3	3	-	2	-	-	2	1	22	37	3	5
La.	3	1	4	6	-	17	-	1	18	1	39	31	9	22
Okla.	36	50	1	4	U	-	U	-	-	-	26	24	-	23
Tex.	38	30	30	23	-	2	-	1	3	14	188	145	24	133
MOUNTAIN	7	11	42	25	-	67	-	1	68	163	155	136	23	129
Mont.	-	-	3	-	-	-	-	-	-	-	2	6	1	-
Idaho	-	3	1	2	-	-	-	-	-	-	7	15	2	7
Wyo.	3	3	-	1	-	-	-	-	-	-	7	5	-	2
Colo.	-	1	18	11	-	26	-	-	26	19	40	25	1	3
N. Mex.	1	2	4	3	-	30	-	1	31	-	31	13	N	N
Ariz.	-	-	7	2	-	10	-	-	10	1	48	47	2	91
Utah	1	1	5	4	-	-	-	-	-	134	13	18	11	14
Nev.	2	1	4	2	-	1	-	-	1	9	7	7	6	12
PACIFIC	79	58	208	206	2	122	-	8	130	75	431	461	195	233
Wash.	8	1	16	22	-	16	-	4	20	3	72	71	10	14
Oreg.	4	6	9	12	-	1	-	-	1	2	67	101	N	N
Calif.	67	51	171	159	2	105	-	3	108	61	281	282	167	200
Alaska	-	-	2	1	-	-	-	-	-	5	7	2	13	3
Hawaii	-	-	10	12	-	-	-	1	1	4	4	5	5	16
Guam	-	-	-	-	U	-	U	-	-	228	3	-	3	6
P.R.	-	-	1	4	-	11	-	-	11	11	14	6	-	2
V.I.	-	-	-	-	U	-	U	-	-	-	-	-	2	3
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	2
C.N.M.I.	-	-	1	1	U	-	U	-	-	29	-	-	-	2

*For imported measles, cases include only those resulting from importation from other countries.
N: Not notifiable U: Unavailable -: no reported cases

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 16, 1995, and September 17, 1994 (37th Week)

Reporting Area	Pertussis			Rubella			Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	1995	Cum. 1995	Cum. 1994	1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	163	2,629	2,651	-	114	206	10,585	15,235	13,730	15,470	5,043	5,427
NEW ENGLAND	3	322	277	-	34	128	127	164	357	356	1,125	1,348
Maine	1	25	12	-	1	-	2	4	12	21	22	-
N.H.	-	25	55	-	1	-	1	4	9	13	113	116
Vt.	-	49	33	-	-	-	-	-	3	6	135	102
Mass.	2	209	150	-	7	124	46	69	200	180	339	508
R.I.	-	2	5	-	-	2	3	12	35	35	247	40
Conn.	-	12	22	-	25	2	75	75	98	101	269	582
MID. ATLANTIC	13	214	415	-	11	6	613	1,003	2,833	3,150	961	1,430
Upstate N.Y.	3	110	180	-	4	5	43	129	327	397	374	1,057
N.Y. City	-	21	81	-	7	-	287	447	1,527	1,835	-	-
N.J.	-	5	12	-	-	1	126	155	532	541	260	204
Pa.	10	78	142	-	-	-	157	272	447	377	327	169
E.N. CENTRAL	11	253	409	-	4	9	1,845	2,276	1,386	1,465	63	49
Ohio	7	103	106	-	-	-	629	897	197	243	10	4
Ind.	3	18	47	-	-	-	194	181	173	127	10	12
Ill.	1	62	87	-	1	1	690	750	679	730	3	15
Mich.	-	58	41	-	3	8	203	210	283	322	33	10
Wis.	-	12	128	-	-	-	129	238	54	43	7	8
W.N. CENTRAL	38	173	123	-	-	2	548	898	424	391	227	160
Minn.	37	80	51	-	-	-	28	36	98	95	9	14
Iowa	-	7	9	-	-	-	36	45	48	42	89	67
Mo.	-	40	33	-	-	2	466	764	163	167	19	16
N. Dak.	-	8	4	-	-	-	-	1	3	7	23	10
S. Dak.	-	10	8	-	-	-	-	1	15	17	49	26
Nebr.	-	7	8	-	-	-	9	11	20	16	5	-
Kans.	1	21	10	-	-	-	9	40	77	47	33	27
S. ATLANTIC	8	236	253	-	26	15	2,706	3,903	2,379	2,786	1,562	1,465
Del.	-	9	2	-	-	-	10	21	12	29	74	42
Md.	-	18	58	-	-	-	137	212	241	229	265	412
D.C.	1	5	5	-	-	-	77	162	71	92	11	2
Va.	-	15	29	-	-	-	443	563	167	212	295	286
W. Va.	-	-	4	-	-	-	9	8	54	60	87	58
N.C.	-	84	58	-	1	-	815	1,212	317	352	352	124
S.C.	-	20	12	-	1	-	438	574	227	265	98	135
Ga.	-	22	24	-	1	2	511	592	323	517	195	281
Fla.	7	63	61	-	23	13	266	559	967	1,030	185	125
E.S. CENTRAL	-	250	117	-	-	-	2,739	2,743	1,046	1,059	209	144
Ky.	-	11	58	-	-	-	147	148	208	232	22	16
Tenn.	-	203	18	-	-	-	633	756	294	347	69	34
Ala.	-	34	29	-	-	-	473	497	296	295	111	90
Miss.	-	2	12	N	N	N	1,486	1,342	248	185	7	4
W.S. CENTRAL	12	221	108	-	7	12	1,395	3,358	1,726	1,981	527	470
Ark.	-	28	21	-	-	-	82	370	113	193	21	23
La.	1	12	10	-	-	-	743	1,288	6	11	25	55
Okla.	U	24	22	U	-	4	54	114	146	179	31	28
Tex.	11	157	55	-	7	8	516	1,586	1,461	1,598	450	364
MOUNTAIN	2	400	367	-	4	5	194	200	441	390	127	114
Mont.	-	3	4	-	-	-	4	2	10	9	38	14
Idaho	1	80	42	-	-	-	-	1	11	11	1	3
Wyo.	-	1	-	-	-	-	4	-	1	7	22	16
Colo.	1	68	180	-	-	-	92	102	37	48	9	9
N. Mex.	-	78	20	-	-	-	32	18	60	43	5	6
Ariz.	-	147	96	-	3	-	30	39	224	146	35	49
Utah	-	18	23	-	1	4	4	10	19	34	11	10
Nev.	-	5	2	-	-	1	28	28	79	92	6	7
PACIFIC	76	560	582	-	28	29	418	690	3,138	3,892	242	247
Wash.	57	175	85	-	2	-	11	28	181	195	5	15
Oreg.	-	26	85	-	1	4	6	29	25	90	-	9
Calif.	19	319	397	-	22	21	400	627	2,762	3,377	233	192
Alaska	-	-	-	-	-	-	1	3	53	49	4	31
Hawaii	-	40	15	-	3	4	-	3	117	181	-	-
Guam	U	-	2	U	-	1	3	3	33	62	-	-
P.R.	-	6	2	-	-	-	193	230	123	150	27	64
V.I.	U	-	-	U	-	-	2	24	-	-	-	-
Amer. Samoa	-	-	1	-	-	-	-	1	3	4	-	-
C.N.M.I.	U	-	-	U	-	-	4	1	13	25	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending September 16, 1995 (37th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	527	373	85	50	14	5	31
Boston, Mass.	134	93	22	11	6	2	1
Bridgeport, Conn.	35	19	9	7	-	-	-
Cambridge, Mass.	9	6	3	-	-	-	1
Fall River, Mass.	23	18	4	-	1	-	2
Hartford, Conn.	57	38	7	9	2	1	-
Lowell, Mass.	24	14	6	4	-	-	-
Lynn, Mass.	10	6	2	2	-	-	-
New Bedford, Mass.	24	18	4	2	-	-	2
New Haven, Conn.	28	20	6	2	-	-	2
Providence, R.I.	56	46	5	3	-	2	8
Somerville, Mass.	5	5	-	-	-	-	-
Springfield, Mass.	49	37	6	4	2	-	8
Waterbury, Conn.	24	18	4	1	1	-	-
Worcester, Mass.	49	35	7	5	2	-	7
MID. ATLANTIC	2,276	1,423	479	290	51	31	94
Albany, N.Y.	40	28	9	3	-	-	2
Allentown, Pa.	15	11	4	-	-	-	2
Buffalo, N.Y.	100	75	10	8	5	2	4
Camden, N.J.	38	18	7	10	2	1	1
Elizabeth, N.J.	19	14	2	3	-	-	-
Erie, Pa.§	42	32	9	-	1	-	1
Jersey City, N.J.	39	23	10	6	-	-	-
New York City, N.Y.	1,264	751	284	184	28	17	32
Newark, N.J.	47	20	13	11	2	1	3
Paterson, N.J.	32	15	5	9	1	-	1
Philadelphia, Pa.	194	110	56	20	6	2	11
Pittsburgh, Pa.§	56	43	6	4	1	2	3
Reading, Pa.	20	17	3	-	-	-	2
Rochester, N.Y.	107	74	24	7	1	1	15
Schenectady, N.Y.	20	17	2	-	-	1	2
Scranton, Pa.§	29	23	5	1	-	-	2
Syracuse, N.Y.	130	98	16	9	3	4	13
Trenton, N.J.	33	14	10	8	1	-	-
Utica, N.Y.	21	18	1	2	-	-	-
Yonkers, N.Y.	30	22	3	5	-	-	-
E.N. CENTRAL	2,122	1,355	421	193	65	58	149
Akron, Ohio	56	41	9	3	1	2	-
Canton, Ohio	31	27	4	-	-	-	4
Chicago, Ill.	358	190	88	48	16	15	27
Cincinnati, Ohio	135	62	25	15	3	1	5
Cleveland, Ohio	155	87	38	20	4	6	1
Columbus, Ohio	170	105	37	13	8	7	11
Dayton, Ohio	116	78	23	11	3	1	8
Detroit, Mich.	196	110	39	32	9	6	5
Evansville, Ind.	50	40	5	2	1	2	1
Fort Wayne, Ind.	64	43	15	6	-	-	5
Gary, Ind.	U	U	U	U	U	U	U
Grand Rapids, Mich.	64	46	9	2	2	5	12
Indianapolis, Ind.	168	110	36	13	4	5	15
Madison, Wis.	106	77	20	5	2	2	13
Milwaukee, Wis.	136	94	27	10	4	1	16
Peoria, Ill.	40	36	1	1	1	1	4
Rockford, Ill.	51	34	10	4	2	1	2
South Bend, Ind.	46	35	7	2	1	1	7
Toledo, Ohio	102	79	17	2	2	2	11
Youngstown, Ohio	78	61	11	4	2	-	2
W.N. CENTRAL	805	527	148	72	27	20	42
Des Moines, Iowa	112	84	16	8	2	2	7
Duluth, Minn.	33	26	3	4	-	-	2
Kansas City, Kans.	35	17	8	8	2	-	-
Kansas City, Mo.	98	57	17	11	2	-	6
Lincoln, Nebr.	35	29	4	2	-	-	1
Minneapolis, Minn.	169	117	29	12	5	6	12
Omaha, Nebr.	82	49	23	7	1	2	5
St. Louis, Mo.	111	70	27	4	5	5	1
St. Paul, Minn.	46	37	5	1	1	2	5
Wichita, Kans.	84	41	16	15	9	3	3
S. ATLANTIC	1,533	920	333	194	40	42	82
Atlanta, Ga.	188	99	46	36	2	5	5
Baltimore, Md.	331	196	75	42	10	8	25
Charlotte, N.C.	123	87	22	12	1	1	7
Jacksonville, Fla.	144	96	26	14	2	6	6
Miami, Fla.	106	44	33	23	4	1	-
Norfolk, Va.	55	25	16	6	2	6	2
Richmond, Va.	87	56	15	8	5	3	3
Savannah, Ga.	49	33	12	3	-	1	3
St. Petersburg, Fla.	66	51	9	2	1	3	7
Tampa, Fla.	213	150	38	16	3	5	20
Washington, D.C.	166	80	41	32	10	3	4
Wilmington, Del.	5	3	-	-	-	-	-
E.S. CENTRAL	715	446	147	68	30	19	47
Birmingham, Ala.	121	65	30	11	9	6	3
Chattanooga, Tenn.	73	57	6	7	1	2	3
Knoxville, Tenn.	77	50	16	7	3	1	6
Lexington, Ky.	79	48	16	7	2	1	6
Memphis, Tenn.	134	85	26	14	7	2	13
Mobile, Ala.	39	24	10	2	1	2	2
Montgomery, Ala.	35	20	8	5	1	1	2
Nashville, Tenn.	157	97	35	15	6	4	12
W.S. CENTRAL	1,401	877	284	152	57	30	88
Austin, Tex.	76	49	18	6	3	-	2
Baton Rouge, La.	40	25	12	3	-	-	1
Corpus Christi, Tex.	U	U	U	U	U	U	U
Dallas, Tex.	214	121	44	36	8	5	3
El Paso, Tex.	86	53	17	7	5	3	4
Ft. Worth, Tex.	92	56	19	10	5	2	7
Houston, Tex.	370	230	75	39	19	7	35
Little Rock, Ark.	57	34	17	4	1	1	4
New Orleans, La.	90	50	14	16	7	3	-
San Antonio, Tex.	215	144	36	21	5	9	17
Shreveport, La.	60	44	11	3	2	-	7
Tulsa, Okla.	101	71	21	7	2	-	8
MOUNTAIN	904	552	185	118	32	17	49
Albuquerque, N.M.	111	64	28	10	8	1	1
Colo. Springs, Colo.	52	33	12	5	2	-	1
Denver, Colo.	129	77	22	22	5	3	10
Las Vegas, Nev.	171	104	39	24	3	1	7
Ogden, Utah	16	15	-	-	-	1	1
Phoenix, Ariz.	156	90	29	31	2	4	11
Pueblo, Colo.	31	22	5	3	1	-	2
Salt Lake City, Utah	96	56	22	8	6	4	6
Tucson, Ariz.	142	91	28	15	5	3	10
PACIFIC	1,633	1,095	283	165	59	28	110
Berkeley, Calif.	21	14	5	2	-	-	2
Fresno, Calif.	78	55	12	5	5	1	6
Glendale, Calif.	24	18	2	2	1	1	1
Honolulu, Hawaii	73	52	14	2	1	4	11
Long Beach, Calif.	57	34	14	6	1	2	10
Los Angeles, Calif.	517	325	92	65	30	2	27
Pasadena, Calif.	21	18	2	1	-	-	2
Portland, Oreg.	134	96	22	9	6	1	7
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	159	101	28	21	5	4	11
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	227	166	33	18	5	5	12
Santa Cruz, Calif.	44	36	5	2	-	1	7
Seattle, Wash.	142	90	25	22	2	3	6
Spokane, Wash.	59	40	15	1	1	2	4
Tacoma, Wash.	77	50	14	9	2	2	4
TOTAL	11,916¶	7,568	2,365	1,302	375	250	692

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

U: Unavailable -: no reported cases

Syringe Exchange Programs — Continued

services (e.g., HIV counseling and testing, tuberculin skin testing, or admission to drug-treatment centers) either on-site or by referral (*2*).

SEPs have been widely implemented as an HIV-prevention intervention in Australia, Canada, Netherlands, and the United Kingdom. In the United States, the first SEP was established in Tacoma, Washington, in 1988 (*2*). Based on the survey in April 1995, the number of SEPs operating in the United States increased 82% over that in 1993; in addition, the number of syringes exchanged by SEPs increased threefold from 2.4 million in 1992 (*2*) to 8 million in 1994.

The findings in this report are subject to at least two limitations. First, the extent of SEP activities probably is underestimated because of incomplete participation in the survey by known SEPs and because some operational SEPs may be unknown to the NASEN. Second, some SEPs that participated in the 1995 survey included in their reported data information from separate, independent SEPs.

Previous studies demonstrate the effectiveness of SEPs and other interventions that increase access to sterile syringes in preventing HIV infection. For example, participation by IDUs in SEPS in Tacoma was associated with substantially lower risk for hepatitis B and hepatitis C among IDUs (sixfold and sevenfold lower, respectively) (*6*). The National Academy of Sciences recently reviewed research on SEPs and, in a September 1995 report, concluded that SEPs should be regarded as an effective component of a comprehensive strategy to prevent infectious disease (*7*). In addition, in Connecticut, simultaneous partial repeal during 1992 of a law that required a prescription to purchase syringes and a law that specified possession of syringes as illegal was followed by increased purchasing of syringes from pharmacies by IDUs and decreased sharing of injection equipment (*6,8*).

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Fatalities From Motor-Vehicle Collisions With Trains — Kansas, 1990–1994

During 1983–1992, a total of 5831 deaths in the United States were attributed to motor-vehicle collisions with trains.* During that same period, Kansas had the third highest death rate in the United States from motor-vehicle collisions with trains, and the annual rate for the state (0.8 per 100,000 persons) was approximately four times the national rate (0.2 deaths per 100,000 persons). To identify approaches for preventing such collisions, the Kansas Department of Health and Environment (KDHE) characterized all fatal motor-vehicle collisions with trains at highway-rail grade crossings† in the state from 1990 through 1994. This report summarizes the results of that study.

Information about motor-vehicle collisions with trains was obtained from the Federal Railroad Administration and the Kansas Corporation Commission, which receive incident reports from railroads following motor-vehicle collisions with trains. Specific information about drivers involved in fatal collisions with trains (e.g., age, sex, and blood alcohol content [BAC]) was obtained from the Kansas Department of Transportation, the Office of Vital Statistics in the KDHE, and the Kansas Bureau of Investigation. Additional information was obtained from published newspaper reports.

During 1990–1994, a total of 510 motor-vehicle collisions with trains occurred in Kansas, representing annual rates of 4.0 collisions per 100,000 persons and 4.2 collisions per 1 billion vehicle-miles driven. Injuries to 233 persons (167 nonfatal and 66 fatal) were reported in 186 (36%) collisions, of which 53 (10%) resulted in at least one fatality. Of these 53 collisions, drivers were killed in 52.

Forty-four (83%) of the 53 motor-vehicle drivers involved in fatal collisions were male; in comparison, 50% of all licensed drivers in the state during 1992 were male (rate ratio=4.9; 95% confidence interval=2.4–10.0). The median age of drivers was 33 years (range: 14–86 years); three (6%) were aged <18 years and nine (17%) were aged ≥65 years, a pattern of age distribution similar to that for all licensed drivers in Kansas.

Of the 53 collisions that resulted in fatalities, 35 (66%) occurred during daylight, 50 (94%) occurred during fair weather (i.e., clear or cloudy), and 44 (83%) occurred in rural areas. The number of collisions involving fatalities was similar by day of the week and by month of the year.

Fifty (94%) fatal collisions involved freight trains, and three involved the one passenger train service in the state. These trains had a median of three locomotives (range: one to eight locomotives) and 56 cars (range: one to 127 cars) and were traveling at an average estimated speed of 45 mph (range: 0–90 mph) at the time of the collision.

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*Classified according to the *International Classification of Diseases, Ninth Revision* (ICD-9), as E810. These data were obtained from CDC's Compressed Mortality File (CMF), which contains information from death certificates filed in the 50 states and the District of Columbia that have been prepared in accordance with external cause codes. CDC's Wide-ranging ONline Data for Epidemiologic Research (WONDER) computerized information system was used to obtain CMF data.

†Defined by the Federal Railroad Administration as a location where one or more railroad tracks intersect a public or private thoroughfare, a sidewalk, or a pathway.

Motor-Vehicle Collisions With Trains — Continued

Of the 53 motor vehicles involved in fatal collisions, 32 (60%) were automobiles; 16 (30%), trucks; two (4%), farm tractors; and three (6%), other types of vehicles. Five motor vehicles were stopped or stalled on the railroad tracks at the time of the collision. For the 48 motor vehicles moving at the time of the collision, the median estimated speed was 25 mph (range: 4–75 mph). In 48 (91%) collisions, the motor vehicle was struck by or struck the lead engine of the train; in the remaining five (9%), the motor vehicle struck the side of the train behind the lead engine. In these five side-impact collisions, three occurred at night, one was an apparent suicide, and one occurred after the vehicle skidded 176 feet in an attempt to stop before reaching the rail crossing.

Thirty-two (60%) drivers were killed in a collision in their county of residence, and six (11%) drivers were killed while working. Of the 28 (53%) drivers who were tested postmortem for BAC, detectable levels (≥0.02 g/dL) were present in 10 (19%), including six (11%) who were legally intoxicated (≥0.10 g/dL). The manner of death was specified on the death certificate for 49 drivers: of these, 47 (96%) were considered unintentional injuries or "accidents,"[§] and two (4%) were considered suicides.

Thirty-three (62%) drivers did not stop at the highway-rail crossing before the collision; two (4%) drivers stopped and then proceeded before the collision. Five (9%) drivers drove behind or in front of a train and struck or were struck by a second train on a parallel set of tracks, and seven (13%) motorists drove around or through crossing gates.

For the 51 grade crossings at which collisions involving fatalities occurred, 49 (96%) crossings had one fatal collision each, and two (3.9%) crossings had two each. All crossings had some type of warning device. At 37 (73%) crossings, passive warning devices were present, including 32 (63%) at which the crossings were marked only by crossbucks (i.e., black and white X-shaped signs that read "Railroad Crossing"). At 14 (27%) crossings, at least one type of active warning device (e.g., gates or flashing lights) was present. In five (9%) collisions, the view of the railroad track was obstructed at the crossing by standing railroad equipment, a passing train, topography, or vegetation.

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Editorial Note: Although the number of motor-vehicle collisions with trains in the United States has decreased substantially since 1976, each year approximately 500 persons die as the result of such collisions (*1*). The findings from a previous study indicate that many motorists are unaware of, or chose to ignore, the need for caution at highway-rail crossings (*2*). Two strategies employed to prevent collisions have included educational campaigns (e.g., "Operation Lifesaver") to alert the public to the hazards of highway-rail crossings, and engineering controls (e.g., installation of active warning systems) to improve the safety of crossings (*3*). The findings from Kansas suggest that vigorous use of both approaches might assist in decreasing the occurrence of fatal collisions at highway-rail crossings. In particular, educational efforts

[§]When a death occurs under "accidental" circumstances, the preferred term within the public health community is "unintentional injury."

Motor-Vehicle Collisions With Trains — Continued

should encourage drivers to approach every highway-rail crossing as if a train were approaching and to take appropriate precautions.

The findings in Kansas also indicate that drivers may fail to heed passive warning systems and that the presence of obstructed views may contribute to some collisions. Of the 8040 public highway-rail crossings in Kansas in 1993, a total of 6502 (81%) had only passive warnings (*1*). However, even though collisions at crossings with passive warning devices accounted for 70% of fatal crashes, the risk for fatal collisions at crossings in relation to the presence of warning devices cannot be determined without estimates of both train and motor-vehicle traffic volume. Because the probability of a collision is two to 40 times higher at crossings without gates (*4,5*), unnecessary crossings should be eliminated and remaining crossings should be upgraded. However, upgrading is expensive; installation of active warning devices costs approximately $150,000–$200,000 per crossing in Kansas (Kansas Department of Transportation, unpublished data).

This analysis did not assess data about collisions involving nonfatal injuries; therefore, the findings may not be representative of all collisions involving injuries. Further research is necessary to identify risk factors for fatal and nonfatal collisions.

An action plan to improve highway-rail crossing safety by the Federal Highway Administration, the Federal Railroad Administration, the Federal Transit Administration, and the National Highway Traffic Safety Administration (*6*) includes six major initiatives (i.e., promoting enforcement of traffic laws, encouraging safety reviews, supporting public education, reviewing private-crossing issues, conducting research and making data available, and fostering trespass prevention) encompassing 55 specific proposals. In addition, this plan has targeted as a goal for the year 2004 reduction nationally of the number of fatalities from motor-vehicle collisions with trains per year by at least 50%.

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Economic Costs of Birth Defects and Cerebral Palsy — United States, 1992

Birth defects are the leading cause of infant mortality in the United States and the fifth leading cause of years of potential life lost (*1,2*). Despite the substantial allocation of medical and nonmedical resources to the care and support of persons with birth

Birth Defects and Cerebral Palsy — Continued

defects, the economic costs of such defects have not been estimated accurately. Because estimates of the cost per new case of a birth defect represent the savings from preventing a case, an incidence-based approach enables assessment of the value of prevention strategies. This approach was used to estimate the cost of illness for cerebral palsy and for 17 of the most clinically important structural birth defects in the United States. This report uses data from California (adjusted to provide national estimates) and national data (Table 1) to estimate the costs of these 18 conditions occurring in the United States during 1992.

Using a human capital approach,* estimates were made of the direct costs of medical, developmental,† and special education services and the indirect costs of lost work and household productivity attributable to premature morbidity and mortality of the cohort of persons born in California during 1988§ with any of the 18 conditions (*6,7*). Estimates were adjusted to reflect national costs in 1992 dollars and to avoid duplication when a child had more than one condition. Estimated costs of medical and other services used by children without these conditions were subtracted to yield the cost of each condition. The cost of associated conditions (e.g., cardiac anomalies with Down syndrome) were included because prevention of defects was presumed to prevent such conditions.

The number of new cases of the conditions were estimated using data from the California Birth Defects Monitoring Program (CBDMP). Prevalence estimates were derived from CBDMP and from a combined sample of CDC's National Health Interview Surveys for 1985–1989 (*8*). For each condition, estimates of excess mortality through the first year of life were based on a CBDMP study linking birth and death records. Estimates of age-specific direct costs of the conditions were based on reported charges and expenditures for children with the conditions. For several conditions, limitations in the data restricted the incorporation of certain costs and the period of time during which costs could be assessed. For example, the long-term excess costs of education for persons with certain conditions was not available.

For 1992, the combined estimated cost of the 18 conditions in the United States was $8 billion (Table 2). Costs ranged from $75,000 to $503,000 per new case. Conditions with the highest costs per case were characterized by relatively high levels of long-term activity limitations (e.g., cerebral palsy [$503,000], Down syndrome [$451,000], and spina bifida [$294,000]). In addition, these conditions had among the highest total lifetime costs ($2.4 billion, $1.8 billion, and $489 million, respectively), reflecting their relatively high incidences.

The high cost per new case of major heart defects reflects the high medical costs associated with early surgical interventions for these defects and high costs of lost productivity attributable to deaths during the first year of life.

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* A method for estimating the economic cost of disease that includes the resources used for medical care and the productivity losses resulting from morbidity and premature mortality. Intangible costs (e.g., "pain and suffering") are excluded from estimates using this approach.

† Nonmedical services provided to children outside the educational system. Services were grouped into four categories: out-of-home services (e.g., community-care centers), day programs, camps (including day residential and respite care), and other services (e.g., training for independent living, driver training, and interpreters).

§ The most recent year for which data were available.

Birth Defects and Cerebral Palsy — Continued

TABLE 1. Data sources used to estimate the costs of cerebral palsy and 17 of the most clinically important structural birth defects, by cost category — United States

Cost category	Data source	Data description/adjustment
Direct costs		
Medical services	Medical tape-to-tape claims file (MTTCF), 1988 Office of Statewide Health Planning and Development (OSHPD) hospital discharge abstract, 1988	Estimates of inpatient and outpatient medical costs were based on abstracts of all discharges from California nonfederal, acute-care hospitals in 1988 and on claims for all MediCal (California's Medicaid program) beneficiaries in fiscal year 1988 (i.e., July 1988–June 1989). Because charges do not reflect actual costs, charges were adjusted using Medicare cost-to-charge ratios.
Inpatient	MTTCF, 1988 OSHPD hospital discharge abstract, 1988	Inpatient charges from OSHPD were adjusted to cost based on the Medicare cost-to-charge ratio for California hospitals.
Outpatient/ Physician services	MTTCF, 1988	Because Medicare charges more accurately reflect actual costs, MediCal costs were adjusted to approximate Medicare charges.
Long-term care	MTTCF, 1988	Cost estimates were based on data from the MediCal claims file and a file from the California Department of Developmental Services.
Developmental services	California Department of Developmental Services master file, 1988–1989	Cost estimates were based on nonmedical services provided to children outside the educational system. Services were grouped into four categories: out-of-home services (e.g., community-care services), day programs, camps (including day residential and respite care), and other services (e.g., training for independent living, driver training, and interpreters).
Special education services	California Special Education Enrollment data, 1988–1989 California Special Education Expenditure data, 1989 National Longitudinal Study of Special Education Students, 1985	School-district–level special education enrollment and expenditure data provided by the California Department of Education were analyzed to provide estimates that considered differences in costs resulting from both federal handicap categories and school-placement settings. Data about the distribution of persons with conditions among special education handicap and placement categories were based on a nationally representative survey of special education students (*3*).
Indirect costs		
Productivity losses	Survey of Income and Program Participation (SIPP), wave 2, 1987	Work-limitation estimates were obtained from CDC's National Health Interview Survey, and reduction of earnings resulting from limitations were based on the 1987 SIPP (*4*). Average California earnings and household-production estimates by age and sex were used to calculate lost productivity resulting from such limitations (*5*) and were adjusted based on the average employee compensation index in California relative to the United States (1991 Statistical Abstract of the United States).
Care-giver costs	Not included	

Birth Defects and Cerebral Palsy — Continued

TABLE 2. Incidence rate and estimated economic costs* of cerebral palsy and 17 of the most clinically important birth defects, by condition and type of cost — United States, 1992

Condition	Incidence rate†	Direct costs		Indirect costs** (millions)	Total costs†† (millions)	Cost per new case (thousands)
		Medical§ (millions)	Nonmedical¶ (millions)			
Nervous system						
Cerebral palsy§§	12.3	$ 852	$445	$1,129	**$2,426**	$503
Spina bifida	4.2	$ 205	$ 43	$ 241	**$ 489**	$294
Cardiovascular						
Truncus arteriosus	1.1	$ 108	$ <1	$ 101	**$ 210**	$505
Single ventricle	1.3	$ 62	$ <1	$ 110	**$ 173**	$344
Transposition/ Double outlet right ventricle	4.9	$ 166	$ 4	$ 344	**$ 515**	$267
Tetralogy of fallot	3.5	$ 185	$ 4	$ 171	**$ 360**	$262
Alimentary tract						
Tracheo-esophageal fistula¶¶	2.9	$ 62	—	$ 103	**$ 165**	$145
Colorectal atresia	4.5	$ 57	—	$ 162	**$ 219**	$123
Cleft lip or palate	17.7	$ 97	$ 20	$ 599	**$ 697**	$101
Atresia/stenosis of small intestine¶¶	3.8	$ 63	—	$ 47	**$ 110**	$ 75
Genitourinary						
Renal agenesis	4.3	$ 25	—	$ 399	**$ 424**	$250
Urinary obstruction¶¶	10.4	$ 46	—	$ 297	**$ 343**	$ 84
Musculoskeletal						
Lower-limb reduction	2.2	$ 17	$ 12	$ 139	**$ 167**	$199
Upper-limb reduction	4.4	$ 11	$ 24	$ 135	**$ 170**	$ 99
Abdominal wall						
Omphalocele¶¶	1.9	$ 28	—	$ 104	**$ 132**	$176
Gastroschisis¶¶	2.6	$ 55	—	$ 54	**$ 109**	$108
Chromosomal abnormality						
Down syndrome	10.5	$ 279	$389	$1,180	**$1,848**	$451
Other						
Diaphragmatic hernia¶¶	3.7	$ 63	—	$ 302	**$ 364**	$250
Total¶¶	**83.8**	**$2,104**	**$887**	**$5,039**	**$8,031**	**$244**

* Costs (in 1992 dollars) are based on lifetime estimates for the 1988 birth cohort in California adjusted for differences in births and costs between California and the nation and for cost inflation during 1988–1992. Future costs are discounted at 5% (*9*).

† Per 10,000 live births.

§ Medical costs were estimated through the second year of life only for persons born with tracheo-esophageal fistula, atresia/stenosis of small intestine, urinary obstruction, gastroschisis, omphalocele, or diaphragmatic hernia and through age 17 years for those born with colorectal atresia. For all other conditions, medical costs were estimated through age 65 years.

¶ Includes developmental services costs for persons born with cleft lip or palate, spina bifida, Down syndrome, and cerebral palsy, and special education costs for persons born with these conditions as well as for those born with upper- or lower-limb reduction and heart anomalies.

** Includes indirect costs of illness for persons born with cleft lip or palate, spina bifida, Down syndrome, cerebral palsy, upper- or lower-limb reductions, and heart anomalies, and indirect costs resulting from first-year mortality for persons born with any of the conditions except spina bifida, cerebral palsy, and Down syndrome. For the latter three conditions, indirect costs attributable to excess mortality were estimated through ages 9, 17, and 65 years, respectively.

†† Row totals may not equal row sums because of rounding.

§§ Estimates of incidence were based on the proportion of 3-year-olds with cerebral palsy.

¶¶ Column totals are less than column sums because total cost estimates reflect a downward adjustment to avoid duplication when a child had more than one condition.

Birth Defects and Cerebral Palsy — Continued

Editorial Note: The findings in this report indicate that cerebral palsy and 17 of the most clinically important birth defects in the United States cause substantial economic burden. If all of the approximately 120,000 infants (3% of all live births) born each year in the United States with serious birth defects had been included in this analysis, the economic costs would have been higher. These cost estimates provide a basis for assessing prevention strategies using cost-benefit and cost-effectiveness analyses.

Because the medical and nonmedical services provided to persons with the 18 conditions often continue into adulthood, the cost estimates for these conditions were particularly sensitive to the choice of discount rate (*6*). In this analysis, a discount rate of 5% was used to compute the present value of money to be spent or received in the future.

The findings in this report are subject to at least four limitations. First, California data used to estimate incidence rates and treatment costs may not be representative of the United States; therefore, total costs per case may vary by state. Second, the contribution of time by family members to the provision of care was not estimated and may be substantial for some conditions. Third, the psychosocial costs of illness—which may exceed traditional human capital costs—also were not included (*10*). For these and other reasons, the use of the human capital approach underestimates what the public is willing to pay to prevent these conditions (*9*). Finally, excess medical and education costs probably were underestimated for some conditions because they could not be ascertained completely.

Prevention of birth defects can substantially reduce their economic burden. In 1992, the Public Health Service recommended that all women capable of becoming pregnant consume 0.4 mg of folic acid (a B vitamin) to reduce their risk for a pregnancy affected by spina bifida or anencephaly (*11*). Based on the estimates in this report, if this recommendation were fully implemented, a substantial proportion of the $489 million in total costs associated with spina bifida could be averted. The high personal and societal costs of birth defects underscore the need to develop and implement effective primary-prevention programs.

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