CENTERS FOR DISEASE CONTROL

December 16, 1983 / Vol. 32 / No. 49

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Diabetes and Pregnancy — Michigan, Missouri, South Carolina, Washington

Pregnant women with preexisting diabetes are at increased risk for adverse pregnancy outcomes. Before the use of insulin, maternal mortality from pregnancies complicated by diabetes mellitus was as high as 40%, and only 50% of pregnancies resulted in live births (*1*). Newborns often were hypoglycemic and large for gestational age and had increased rates of congenital malformations. Although rates of adverse outcome have decreased dramatically over the past four decades, the prevalence of congenital anomalies in infants born of diabetic mothers still remains well above that for infants of nondiabetic women. Currently, rates of perinatal morbidity and mortality, resulting mainly from poor glycemic control both before conception and during gestation, are approximately three to five times higher than for infants of nondiabetic women (*2*).

Recently, four states—Michigan, Missouri, South Carolina, and Washington—conducted special studies to evaluate these problems. Their findings follow.

Michigan: Using vital-statistics records for 1975-1976, the Michigan Diabetes Control Program calculated death rates for perinates of diabetic and nondiabetic women (*3*). For nondiabetic, pregnant women, perinatal mortality was 16.8 per 1,000 live births, and for pregnant women with preexisting diabetes, 63.2/1,000 (odds ratio* = 3.8). The death rate for perinates of nondiabetic women decreased as maternal age increased up to age 30, and, thereafter, the rate increased. Death rates for perinates of diabetic women followed a similar pattern after age 20. Odds ratios peaked for ages 20-24, and then decreased until age 40 and over. Perinatal mortality generally decreased with higher levels of maternal education. Odds ratios were highest for women with high-school education or less (4.5) and lowest for those with education beyond high school (3.0). Race-specific odds ratios were 4.1 for whites and 3.1 for other races. The higher odds ratio for whites reflects a lower perinatal mortality rate for white, nondiabetic women. For 1980, perinatal mortality for the general population was 15.3, and diabetes-specific perinatal mortality was 51.2, yielding an odds ratio of 3.3.

Missouri: The Missouri Diabetes Control Program assessed mortality rates for perinates of diabetic and nondiabetic women for 1972-1982. Total perinatal mortality decreased from 25.4/1,000 live births in 1972 to 16.8/1,000 in 1982. Diabetes-specific perinatal mortality decreased from 227.4 to 38.5 for the same period.

South Carolina: Through a retrospective analysis of vital-statistics records and hospital-discharge data, the South Carolina Diabetes Control Program assessed selected indices of diabetes-related perinatal morbidity and mortality in 1978 (*2*). Maternal diabetes was observed in 5.9/1,000 deliveries. The overall perinatal mortality rate was 102 deaths/1,000 deliveries by diabetic women, compared with 25/1,000 for infants of nondiabetic women. The odds ratio is approximately 4.0 (whites—2.9; other races—4.5). Perinatal mortality was

* $\frac{\text{Rates in diabetic women}}{\text{Rates in nondiabetic women}}$

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greatest for races other than white (153/1,000 deliveries). The most frequently reported neonatal morbidities were respiratory distress syndrome (17% of all deliveries), hypoglycemia (13%), infection (6%), and congenital anomalies (6%).

The South Carolina Program also assessed diabetes-associated perinatal mortality for 1980. A total of 397 single-birth deliveries among diabetic women were studied. Twenty-four fetal deaths and six neonatal deaths occurred; the perinatal mortality rate has been provisionally estimated at 76/1,000 deliveries. The perinatal mortality rate for infants of nondiabetic women was 23.4/1,000 in 1980, for an odds ratio of 3.2—nearly 25% less than in 1978. However, this decrease may, in part, reflect better reporting of diabetes in pregnancy (including gestational diabetes), thus increasing the denominator and lowering the rate.

Washington: The Diabetes in Pregnancy Study was conducted by the Washington Diabetes Control Program through the University of Washington School of Public Health and Community Medicine. For the years 1979-1980, detailed information from hospital charts of mothers and infants, as well as from vital-records data, was abstracted for approximately 648 preexisting and gestational diabetes-complicated pregnancies and from a control group of 800 pregnant, nondiabetic women. This represents one of the largest population-based studies of its kind ever undertaken.

Fetal death rates and neonatal mortality among pregnant, diabetic women were assessed (Table 1). Congenital malformations, particularly neural tube defects, were important complications in this cohort. Data were also gathered about the type of maternal diabetes for infants who required ventilatory assistance, were hypoglycemic, had birth-related injuries, or who were either small or large for gestational age (Table 2).

In addition, deliveries were analyzed by type of hospital and type of maternal diabetes, and results indicated that a greater percentage of women with diabetes-complicated pregnancies delivered in tertiary-care hospitals. In addition, as the severity of maternal diabetes increased, the proportions of deliveries in tertiary-care hospitals also increased (Table 3). Although tertiary-care centers often see the most difficult and severe cases (as evidenced by the highest neonatal mortality rate), overall perinatal mortality was lowest in this setting. The high percentage of infants transferred to tertiary-care centers from smaller hospitals may contribute to this higher neonatal mortality rate.

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TABLE 1. Fetal and neonatal deaths, by type of maternal diabetes—Washington, 1979-1980

Maternal diabetes status	No. of live births & fetal deaths	Rate* of diabetes mellitus	Fetal death rate†	Odds ratio	Neonatal death rate†	Odds ratio
IDDM§	191	1.5	68.1	9.5	52.4	7.4
NIDDM¶	69	0.5	58.0	8.1	0.0	—
Total with pre-existing diabetes	260	2.1	65.4	9.1	42.3	6.0
Gestational	388	3.1	20.6	2.9	12.9	1.8
Total	648	5.1				
Non-DM	126,305	0.0	7.2	1.0	7.1	1.0

*Per 1,000 total live births and fetal deaths.

†Specific rates per 1,000 diabetes complicated live births and fetal deaths.

§Insulin-dependent diabetes mellitus.

¶Noninsulin-dependent diabetes mellitus.

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Editorial Note: Although these data may contain cases of gestational diabetes, there has been a clear reduction in perinatal morbidity and mortality in offspring of women with pre-existing diabetes. Three major medical advances have contributed to these improved outcomes—the discovery and use of insulin, comprehensive team care of the pregnant diabetic, and technologic improvements in monitoring fetal health and the effects of maternal insulin. More intensive management of the pregnant diabetic, including early admission, coordinated team approaches utilizing physicians of varying disciplines, normalization of blood-glucose levels both before conception and throughout gestation, and better identification of groups at high risk, has reduced dramatically the rates of maternal/infant mortality associated with pregnancies complicated by diabetes. Preconception counseling regarding the value of strict (80-110 mg/dl) glucose control before conception, as well as throughout pregnancy, helps reduce the number of adverse outcomes in pregnancies complicated by diabetes. Recent evidence suggests that the prevalence of congenital malformations in offspring of diabetic women can be reduced approximately tenfold through preconception counseling coupled with comprehensive team care of the pregnant diabetic (*4*). Although reductions in adverse outcomes have occurred over the last three decades, perinatal mortality in offspring of diabetic women remains three to five times higher than that for infants of nondiabetic women. More intensive studies aimed at elucidating the major contributors to the high perinatal mortality rate associated with these pregnancies need to be undertaken.

TABLE 2. Characteristics and birth complications of infants born to women with pre-existing diabetes — Washington, 1979-1980

Maternal diabetes status	Percentage				
	Assisted ventilation	Hypoglycemia (blood glucose < 30mg %)	Birth injury	Size for gestational age	
				Small	Large
IDDM*	25.0	39.7	15.1	1.0	48.4
NIDDM†	20.4	33.3	19.6	3.8	59.6
Gestational	8.3	14.0	21.1	0.7	50.8
Controls	4.1	1.3	15.1	4.0	28.0

*Insulin-dependent diabetes mellitus.

†Noninsulin-dependent diabetes mellitus.

TABLE 3. Characteristics of deliveries to diabetic mothers, by type of hospital and severity of maternal diabetes — Washington, 1979-1980

Maternal diabetes status	Type of Hospital (%)		
	Tertiary-care (Level 3)	Intermediate (Level 2)	Primary (Level 1)
NIDDM* (n=69)	36.3	30.4	33.3
IDDM† Class B§ (n = 45)	40.0	33.3	26.7
Class C (n = 71)	39.4	47.9	12.7
Class D (n = 55)	50.9	30.9	18.2
Class R-F (n = 20)	85.0	10.0	5.0
Proportion of all Washington births	23.5	29.3	47.2

*Noninsulin-dependent diabetes mellitus.

†Insulin-dependent diabetes mellitus.

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Orthopox Surveillance: Post-Smallpox Eradication Policy

Following are excerpts from a report of the World Health Organization (WHO) Committee on Orthopox Virus Infections, which met March 15-17, 1983, supplemented by information from the WHO Smallpox Eradication Unit in December 1983.

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TABLE I. Summary—cases specified notifiable diseases, United States

Disease	49th Week Ending			Cumulative, 49th Week Ending		
	December 10, 1983	December 11, 1982	Median 1978-1982	December 10, 1983	December 11, 1982	Median 1978-1982
Aseptic meningitis	170	216	158	11,293	9,170	8,039
Encephalitis: Primary (arthropod-borne & unspec.)	23	32	25	1,649	1,508	1,141
Post-infectious	-	2	2	68	76	205
Gonorrhea: Civilian	18,564	18,805	20,219	844,098	901,143	945,162
Military	466	579	672	22,531	24,623	25,275
Hepatitis: Type A	499	601	631	20,608	21,746	26,661
Type B	487	535	394	21,537	20,707	17,179
Non A, Non B	75	87	N	3,182	2,350	N
Unspecified	153	192	228	7,227	8,178	9,883
Legionellosis	12	7	N	667	578	N
Leprosy	4	12	5	223	202	202
Malaria	17	17	18	746	1,002	1,002
Measles: Total*	2	45	57	1,419	1,621	13,149
Indigenous	-	N	N	1,120	N	N
Imported	2	N	N	299	N	N
Meningococcal infections: Total	50	51	52	2,585	2,842	2,543
Civilian	50	51	52	2,570	2,828	2,524
Military	-	-	-	15	14	19
Mumps	53	133	146	3,043	5,077	8,115
Pertussis	20	39	39	2,134	1,664	1,584
Rubella (German measles)	12	33	74	929	2,231	3,655
Syphilis (Primary & Secondary): Civilian	598	625	588	30,303	31,002	25,754
Military	4	12	10	362	414	308
Toxic-shock syndrome	7	N	N	370	N	N
Tuberculosis	491	553	553	22,135	24,038	25,622
Tularemia	15	5	4	300	244	213
Typhoid fever	9	10	10	424	376	497
Typhus fever, tick-borne (RMSF)	3	6	4	1,133	953	1,035
Rabies, animal	68	99	93	5,590	5,930	5,930

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1983		Cum. 1983
Anthrax	-	Plague (Ariz. 2)	39
Botulism: Foodborne (Utah 1)	19	Poliomyelitis: Total	7
Infant (Utah 1)	60	Paralytic (Ind. 1)	7
Other	3	Psittacosis (Calif. 3)	117
Brucellosis (Miss. 1, Ark. 1, Colo. 1, Calif. 2)	176	Rabies, human	2
Cholera	1	Tetanus	71
Congenital rubella syndrome	20	Trichinosis (Md. 1)	32
Diphtheria	4	Typhus fever, flea-borne (endemic, murine)	44
Leptospirosis (Va. 1)	45		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending December 10, 1983 and December 11, 1982 (49th week)

Reporting Area	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy	Malaria
		Primary	Post-infectious			A	B	NA,NB	Unspecified			
	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1982	1983	1983	1983	1983	1983	Cum. 1983	Cum. 1983
UNITED STATES	170	1,649	68	844,098	901,143	499	487	75	153	12	223	746
NEW ENGLAND	4	63	-	22,707	21,843	21	43	2	16	1	3	37
Maine	-	-	-	1,065	1,143	-	1	-	-	-	-	1
N.H.	1	5	-	684	723	3	1	-	-	-	2	2
Vt.	-	1	-	414	399	1	-	-	-	-	-	1
Mass.	-	30	-	9,768	9,727	7	16	1	16	-	-	17
R.I.	1	1	-	1,223	1,473	4	5	-	-	-	-	4
Conn.	2	26	-	9,553	8,378	6	20	1	-	1	1	12
MID ATLANTIC	25	129	7	109,818	114,595	47	72	1	6	2	26	106
Upstate N.Y.	3	33	-	17,505	18,815	8	11	1	2	-	-	31
N.Y. City	-	12	-	44,248	47,180	2	2	-	1	-	25	27
N.J.	15	18	1	20,464	20,903	12	28	-	3	2	-	27
Pa.	7	66	6	27,601	27,697	25	31	U	U	-	1	21
E.N. CENTRAL	32	578	20	118,658	129,275	43	38	5	5	2	6	53
Ohio	14	190	9	31,773	33,615	7	6	1	3	1	1	9
Ind.	6	185	1	11,763	15,525	-	6	1	1	-	-	7
Ill.	-	17	7	31,444	37,519	6	6	2	-	-	2	17
Mich.	12	122	-	32,728	31,234	30	20	-	1	1	3	15
Wis.	-	64	3	10,950	11,382	-	-	1	-	-	-	5
W.N. CENTRAL	7	163	10	39,116	42,475	22	13	3	-	3	6	31
Minn.	3	64	1	5,639	6,158	1	1	2	-	-	4	10
Iowa	-	58	-	4,365	4,539	-	1	-	-	-	-	4
Mo.	1	30	-	18,591	20,136	1	7	1	-	3	1	5
N. Dak.	-	4	-	421	546	-	-	-	-	-	-	2
S. Dak.	-	1	2	994	1,081	19	-	-	-	-	-	1
Nebr.	-	4	-	2,627	2,534	1	-	-	-	-	-	3
Kans.	3	2	7	6,479	7,481	-	4	-	-	-	1	6
S. ATLANTIC	33	227	15	219,523	234,755	18	112	10	8	1	13	120
Del.	-	1	-	4,062	3,917	1	2	-	-	-	-	1
Md.	5	23	-	28,360	29,195	-	12	1	-	-	1	21
D.C.	-	-	-	14,974	14,437	-	2	-	1	-	-	16
Va.	1	55	2	20,101	18,960	2	11	-	1	-	1	29
W. Va.	-	47	-	2,490	2,634	1	4	-	-	-	-	3
N.C.	10	47	-	33,838	37,112	-	7	-	2	-	2	4
S.C.	5	5	-	20,282	22,843	4	20	-	-	-	-	6
Ga.	-	9	1	46,323	46,199	2	18	3	-	-	1	10
Fla.	12	40	12	49,093	59,458	8	36	6	4	1	8	30
E.S. CENTRAL	6	67	2	71,150	78,817	42	33	4	5	1	-	14
Ky.	-	16	-	8,468	10,558	34	8	-	2	1	-	2
Tenn.	4	19	-	28,941	30,655	3	14	3	3	-	-	-
Ala.	-	24	-	22,018	23,742	3	6	1	-	-	-	7
Miss.	2	8	2	11,723	13,862	2	5	-	-	-	-	5
W.S. CENTRAL	19	168	2	117,760	124,142	100	48	5	84	-	34	63
Ark.	-	13	-	9,463	10,067	1	2	-	4	-	-	1
La.	-	20	-	22,243	22,365	3	-	3	1	-	1	8
Okla.	2	30	1	13,636	13,723	25	18	2	7	-	-	10
Tex.	17	105	1	72,418	77,987	71	28	-	72	-	33	44
MOUNTAIN	5	76	4	27,057	30,274	39	25	2	3	-	14	27
Mont.	-	2	-	1,148	1,281	1	-	-	1	-	-	-
Idaho	1	1	-	1,210	1,448	-	1	-	-	-	-	2
Wyo.	-	2	-	717	912	1	1	-	1	-	-	1
Colo.	2	46	-	7,531	8,163	6	7	-	1	-	2	10
N. Mex.	-	2	-	3,334	4,183	-	6	-	-	-	-	5
Ariz.	2	11	4	7,720	7,765	23	8	1	-	-	10	6
Utah	-	12	-	1,297	1,497	6	1	-	-	-	2	3
Nev.	-	-	-	4,100	5,025	2	1	1	-	-	-	-
PACIFIC	39	178	8	118,309	124,967	167	103	43	26	2	121	295
Wash.	5	13	1	9,266	10,844	4	5	2	1	2	16	16
Oreg.	-	-	4	6,318	7,453	35	10	7	-	-	1	12
Calif.	31	156	3	97,456	100,962	128	87	34	23	-	69	265
Alaska	-	-	-	3,060	3,254	-	-	-	-	-	-	-
Hawaii	3	9	-	2,209	2,454	-	1	-	2	-	35	2
Guam	U	-	-	114	131	U	U	U	U	U	2	2
P.R.	4	1	1	2,615	2,548	4	13	-	17	-	-	3
V.I.	U	-	-	267	268	U	U	U	U	U	-	-
Pac. Trust Terr.	U	-	-	-	388	U	U	U	U	U	-	-

U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 10, 1983 and December 11, 1982 (49th week)

Reporting Area	Measles (Rubeola)					Menin-gococcal Infections	Mumps			Pertussis			Rubella		
	Indigenous		Imported*		Total										
	1983	Cum. 1983	1983	Cum. 1983	Cum. 1982	Cum. 1983	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982
UNITED STATES	-	1,120	2	299	1,621	2,585	53	3,043	5,077	20	2,134	1,664	12	929	2,231
NEW ENGLAND	-	5	-	16	14	141	3	127	186	2	72	55	1	19	20
Maine	-	-	-	-	-	10	-	22	43	-	5	4	-	-	-
N.H.	-	-	-	3	3	6	-	26	18	-	10	5	-	5	11
Vt.	-	-	-	-	2	10	-	15	7	-	8	2	-	5	-
Mass.	-	4	-	5	3	45	-	27	75	2	37	28	1	7	2
R.I.	-	-	-	-	-	11	-	16	18	-	5	11	-	-	1
Conn.	-	1	-	8	6	59	3	21	25	-	7	5	-	2	6
MID ATLANTIC	-	75	-	44	168	437	9	282	331	4	375	487	-	146	109
Upstate N.Y.	-	5	-	13	112	138	2	103	93	2	120	281	-	31	53
N.Y. City	-	44	-	27	44	74	1	40	47	-	53	39	-	86	36
N.J.	-	26	-	1	6	75	6	60	52	1	20	23	-	3	18
Pa.	-	-	-	3	6	150	-	79	139	1	182	144	-	26	2
E.N. CENTRAL	-	649	-	58	77	477	16	1,372	2,579	1	467	342	3	129	205
Ohio	-	72	-	15	1	140	2	572	1,728	1	150	93	-	2	4
Ind.	-	402	-	4	2	53	4	54	45	-	58	22	-	26	29
Ill.	-	173	-	33	24	139	3	156	299	-	151	159	1	56	78
Mich.	-	2	-	5	50	85	7	503	382	-	42	29	2	19	49
Wis.	-	-	-	1	-	60	-	87	125	-	66	39	-	26	45
W.N. CENTRAL	-	1	-	7	49	137	8	166	628	2	128	82	-	42	62
Minn.	-	1	-	-	-	28	2	30	455	-	47	34	-	9	7
Iowa	-	-	-	-	-	20	-	41	53	2	9	9	-	-	-
Mo.	-	-	-	1	2	53	1	19	13	-	18	17	-	-	38
N. Dak.	-	-	-	-	-	4	-	1	-	-	2	-	-	-	-
S. Dak.	-	-	-	-	-	4	-	-	1	-	8	6	-	-	1
Nebr.	-	-	-	-	3	5	-	4	1	-	2	1	-	-	-
Kans.	-	-	-	6	44	23	5	71	105	-	42	15	-	33	16
S. ATLANTIC	-	173	-	31	217	531	3	222	318	5	242	273	2	99	97
Del.	-	-	-	-	-	11	-	8	13	-	5	8	-	-	1
Md.	-	6	-	4	4	53	-	43	33	1	20	72	-	2	34
D.C.	-	-	-	-	1	8	-	-	-	-	-	1	-	-	-
Va.	-	10	-	13	14	78	1	36	41	-	50	29	-	2	12
W. Va.	-	-	-	-	3	3	1	56	119	-	9	11	-	-	3
N.C.	-	-	-	1	2	101	1	14	21	1	29	45	-	10	2
S.C.	-	-	-	4	-	52	-	14	17	-	14	16	-	1	1
Ga.	-	8	-	-	-	89	-	51	28	-	65	41	-	13	18
Fla.	-	149	-	9	193	136	N	-	46	3	50	50	2	71	26
E.S. CENTRAL	-	1	-	24	9	153	-	58	66	-	34	50	-	19	47
Ky.	-	-	-	1	1	30	-	21	21	-	14	6	-	18	29
Tenn.	-	-	-	-	6	52	-	31	25	-	9	26	-	-	2
Ala.	-	1	-	4	2	49	-	2	10	-	5	5	-	1	-
Miss.	-	-	-	19	-	22	-	4	10	-	6	13	-	-	16
W.S. CENTRAL	-	41	-	35	169	265	6	214	256	2	448	104	1	123	122
Ark.	-	5	-	8	-	22	-	3	8	-	25	6	-	-	2
La.	-	1	-	25	13	47	-	1	6	-	11	22	-	13	1
Okla.	-	1	-	-	30	33	N	-	-	2	330	7	-	-	3
Tex.	-	34	-	2	126	163	6	210	242	-	82	69	1	110	116
MOUNTAIN	-	12	-	18	29	117	3	177	115	-	221	70	-	39	88
Mont.	-	-	-	4	-	27	-	7	7	-	2	1	-	6	6
Idaho	-	-	-	10	-	9	-	8	4	-	15	12	-	8	7
Wyo.	-	-	-	-	1	2	-	4	2	-	6	4	-	8	7
Colo.	-	-	-	3	8	36	2	53	20	-	133	20	-	1	6
N. Mex.	-	-	-	-	-	7	N	-	-	-	14	8	-	-	6
Ariz.	-	-	-	1	17	23	1	92	54	-	29	21	-	8	18
Utah	-	12	-	-	3	12	-	8	20	-	22	4	-	7	26
Nev.	-	-	-	-	-	1	-	5	8	-	-	-	-	1	12
PACIFIC	-	163	2	66	889	327	5	425	598	4	147	201	5	313	1,481
Wash.	-	1	2§	34	42	47	2	52	99	1	20	33	-	12	57
Oreg.	-	8	-	2	17	57	N	-	-	-	9	27	-	14	7
Calif.	-	153	-	28	824	213	3	337	466	3	111	113	5	285	1,404
Alaska	-	-	-	2	1	3	-	16	12	-	4	-	-	1	5
Hawaii	-	1	-	-	5	7	-	20	21	-	3	28	-	1	8
Guam	U	1	U	1	7	1	U	1	5	U	-	-	U	-	2
P.R.	-	94	-	-	220	11	5	140	103	-	14	22	1	8	13
V.I.	U	-	U	5	-	-	U	-	4	U	-	-	U	2	2
Pac. Trust Terr.	U	-	U	-	1	-	U	-	6	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 10, 1983 and December 11, 1982 (49th week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1983	Cum. 1982	1983	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983
UNITED STATES	30,303	31,002	7	491	22,135	300	424	1,133	5,590
NEW ENGLAND	648	581	-	18	669	4	18	6	37
Maine	19	7	-	3	36	-	-	-	9
N.H.	22	5	-	-	34	-	-	1	5
Vt.	3	4	-	1	12	-	-	-	2
Mass.	418	391	-	11	357	3	13	2	14
R.I.	22	24	-	2	58	1	1	-	1
Conn.	164	150	-	1	172	-	4	3	6
MID ATLANTIC	3,945	4,152	5	87	3,994	1	74	27	253
Upstate N.Y.	290	434	-	20	673	1	11	7	74
N.Y. City	2,326	2,462	-	36	1,583	-	26	2	-
N.J.	785	596	-	7	811	-	31	8	24
Pa.	544	660	5	24	927	-	6	10	155
E.N. CENTRAL	1,556	1,819	1	56	2,969	4	62	74	466
Ohio	431	296	1	7	472	-	19	32	60
Ind.	139	193	-	-	329	-	4	16	30
Ill.	669	958	-	32	1,275	1	28	17	238
Mich.	229	276	-	17	743	1	10	7	20
Wis.	88	96	-	-	150	2	1	2	118
W.N. CENTRAL	370	529	-	24	695	89	12	55	804
Minn.	141	136	-	7	149	-	2	-	139
Iowa	22	32	-	-	66	-	-	-	197
Mo.	140	286	-	8	339	60	8	26	95
N. Dak.	2	7	-	-	6	-	-	1	85
S. Dak.	11	2	-	-	36	10	-	5	143
Nebr.	15	14	-	2	25	8	-	3	64
Kans.	39	52	-	7	74	11	2	20	81
S. ATLANTIC	8,325	8,506	-	94	4,442	12	53	472	2,028
Del.	35	25	-	-	61	-	-	4	5
Md.	555	472	-	5	352	3	5	39	771
D.C.	364	461	-	4	180	-	3	-	141
Va.	537	585	-	10	485	1	16	60	608
W. Va.	24	30	-	1	127	-	2	12	114
N.C.	827	694	-	7	702	7	4	205	26
S.C.	545	537	-	20	422	-	2	80	36
Ga.	1,473	1,759	-	24	766	1	2	66	203
Fla.	3,965	3,943	-	23	1,347	-	19	6	124
E.S. CENTRAL	2,020	2,127	-	48	1,972	23	10	108	355
Ky.	168	127	-	6	500	1	3	24	83
Tenn.	537	607	-	14	598	17	2	49	188
Ala.	784	794	-	13	496	-	2	24	84
Miss.	531	599	-	15	378	5	3	11	-
W.S. CENTRAL	7,775	8,139	-	62	2,743	120	58	375	979
Ark.	182	213	-	15	338	71	4	43	156
La.	1,607	1,763	-	-	421	7	4	1	34
Okla.	189	179	-	5	254	32	2	232	101
Tex.	5,797	5,984	-	42	1,730	10	48	99	688
MOUNTAIN	622	782	-	14	592	39	22	14	230
Mont.	7	5	-	-	42	5	1	6	66
Idaho	7	25	-	-	27	2	1	3	16
Wyo.	12	16	-	-	11	7	-	2	11
Colo.	150	223	-	-	84	14	1	-	32
N. Mex.	169	180	-	-	108	3	2	-	15
Ariz.	160	207	-	14	249	1	15	1	36
Utah	22	22	-	-	36	6	1	1	11
Nev.	95	104	-	-	35	1	1	1	43
PACIFIC	5,042	4,367	1	88	4,059	8	115	2	438
Wash.	163	163	-	4	224	2	5	-	2
Oreg.	142	109	1	5	172	3	4	-	1
Calif.	4,649	3,974	-	73	3,363	2	103	2	420
Alaska	13	15	-	-	73	1	-	-	15
Hawaii	75	106	-	6	227	-	3	-	-
Guam	-	1	U	U	5	-	-	-	-
P.R.	880	784	-	12	446	-	1	-	48
V.I.	19	29	U	U	2	-	1	-	-
Pac. Trust Terr.	-	-	U	U	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending December 10, 1983 (49th week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	671	477	127	37	10	20	58
Boston, Mass.	174	112	35	15	2	10	22
Bridgeport, Conn.	34	25	4	4	-	1	1
Cambridge, Mass.	29	23	4	2	-	-	4
Fall River, Mass.	32	24	8	-	-	-	-
Hartford, Conn.	52	35	13	4	-	-	1
Lowell, Mass.	38	28	8	1	1	-	1
Lynn, Mass.	20	14	4	1	1	-	1
New Bedford, Mass.	32	28	3	1	-	-	3
New Haven, Conn.	17	11	3	2	-	1	1
Providence, R.I.	81	55	18	3	1	4	6
Somerville, Mass.	8	6	1	-	1	-	1
Springfield, Mass.	56	39	10	3	3	1	7
Waterbury, Conn.	33	25	6	1	-	1	3
Worcester, Mass.	65	52	10	-	1	2	7
MID. ATLANTIC	2,602	1,724	567	179	50	80	112
Albany, N.Y.	59	43	8	4	2	2	-
Allentown, Pa.	20	16	4	-	-	-	-
Buffalo, N.Y.	132	81	34	7	3	7	10
Camden, N.J.	35	18	10	2	2	3	2
Elizabeth, N.J.	33	23	8	2	-	-	-
Erie, Pa.†	34	25	7	1	1	-	2
Jersey City, N.J.	43	22	16	5	-	-	-
N.Y. City, N.Y.	1,485	983	306	122	30	44	57
Newark, N.J.	47	22	12	5	2	4	4
Paterson, N.J.	31	22	5	3	1	-	-
Philadelphia, Pa.†	200	126	44	11	7	12	13
Pittsburgh, Pa.†	82	52	21	4	1	4	1
Reading, Pa.	28	17	11	-	-	-	3
Rochester, N.Y.	124	97	22	4	-	1	13
Schenectady, N.Y.	25	18	7	-	-	-	2
Scranton, Pa.†	25	22	1	2	-	-	-
Syracuse, N.Y.	99	74	19	4	-	2	3
Trenton, N.J.	42	22	18	2	-	-	-
Utica, N.Y.	16	11	5	-	-	-	1
Yonkers, N.Y.	42	30	9	1	1	1	1
E.N. CENTRAL	2,298	1,492	528	119	70	87	75
Akron, Ohio	65	46	8	5	2	4	-
Canton, Ohio	37	24	9	-	2	2	-
Chicago, Ill	538	324	137	39	17	21	15
Cincinnati, Ohio	159	104	42	4	3	6	13
Cleveland, Ohio	167	100	45	10	7	5	4
Columbus, Ohio	172	113	38	5	8	8	9
Dayton, Ohio	132	81	34	9	4	4	1
Detroit, Mich.	276	155	78	20	10	13	6
Evansville, Ind.	44	33	6	2	1	2	1
Fort Wayne, Ind.	47	34	13	-	-	-	2
Gary, Ind.	13	6	6	-	-	1	-
Grand Rapids, Mich.	51	34	14	1	1	1	-
Indianapolis, Ind.	159	103	38	10	5	3	6
Madison, Wis.	32	24	3	3	1	1	2
Milwaukee, Wis.	129	98	24	2	2	3	3
Peoria, Ill.	22	12	2	2	1	5	1
Rockford, Ill.	36	25	5	3	1	2	3
South Bend, Ind.	40	25	11	-	1	3	3
Toledo, Ohio §	118	107	1	2	3	3	6
Youngstown, Ohio	61	44	14	2	1	-	-
W.N. CENTRAL	895	642	167	36	20	29	58
Des Moines, Iowa	79	67	8	1	3	-	8
Duluth, Minn.	31	22	7	-	-	2	3
Kansas City, Kans.	45	28	10	5	-	2	2
Kansas City, Mo.	131	84	29	7	2	8	7
Lincoln, Nebr.	41	29	10	1	-	1	6
Minneapolis, Minn.	102	73	20	4	2	3	2
Omaha, Nebr.	125	85	29	3	4	4	6
St. Louis, Mo.	181	128	31	9	7	6	14
St. Paul, Minn.	90	72	14	3	1	-	-
Wichita, Kans.	70	54	9	3	1	3	10
S. ATLANTIC	1,152	698	291	78	38	47	50
Atlanta, Ga.	151	93	32	17	4	5	4
Baltimore, Md.	98	59	23	7	6	3	-
Charlotte, N.C.	71	39	21	5	3	3	1
Jacksonville, Fla.	115	69	30	6	6	4	7
Miami, Fla.	136	74	46	11	2	3	3
Norfolk, Va.	58	39	11	3	2	3	6
Richmond, Va.	73	35	25	3	3	7	7
Savannah, Ga.	51	33	14	4	-	-	5
St. Petersburg, Fla.	93	74	14	1	1	3	7
Tampa, Fla.	82	51	19	5	3	4	3
Washington, D.C.	167	92	44	15	6	10	6
Wilmington, Del.	57	40	12	1	2	2	1
E.S. CENTRAL	898	585	213	45	31	23	49
Birmingham, Ala.	135	82	33	10	8	2	2
Chattanooga, Tenn.	51	40	8	2	1	-	2
Knoxville, Tenn.	77	52	20	2	3	-	4
Louisville, Ky.	133	86	30	6	6	5	9
Memphis, Tenn.	280	179	73	13	8	7	18
Mobile, Ala.	52	32	10	5	2	2	3
Montgomery, Ala.	51	33	12	-	2	4	5
Nashville, Tenn.	119	81	27	7	1	3	6
W.S. CENTRAL	1,334	776	326	108	59	65	52
Austin, Tex.	78	48	14	7	5	4	3
Baton Rouge, La.	62	44	12	5	1	-	4
Corpus Christi, Tex.	49	31	11	2	3	2	-
Dallas, Tex.	157	89	45	11	6	6	4
El Paso, Tex.	66	40	15	7	2	2	4
Fort Worth, Tex.	104	64	16	9	9	6	7
Houston, Tex.	289	149	75	31	15	19	4
Little Rock, Ark.	69	36	24	2	3	4	5
New Orleans, La.	132	73	40	12	4	3	-
San Antonio, Tex.	188	112	48	13	4	11	13
Shreveport, La.	43	30	6	3	2	2	1
Tulsa, Okla.	97	60	20	6	5	6	7
MOUNTAIN	702	444	161	48	29	20	34
Albuquerque, N.Mex.	60	32	14	7	4	3	1
Colo. Springs, Colo.	47	34	5	2	3	3	10
Denver, Colo.	128	76	36	11	2	3	1
Las Vegas, Nev.	82	46	26	7	2	1	5
Ogden, Utah	30	21	3	1	3	2	4
Phoenix, Ariz.	170	116	32	10	7	5	3
Pueblo, Colo.	13	12	1	-	-	-	2
Salt Lake City, Utah	59	30	22	3	3	1	1
Tucson, Ariz.	113	77	22	7	5	2	7
PACIFIC	1,781	1,173	362	140	50	56	93
Berkeley, Calif.	24	15	2	4	2	1	1
Fresno, Calif.	89	58	18	6	4	3	10
Glendale, Calif.	25	19	5	-	1	-	-
Honolulu, Hawaii	72	43	17	8	1	3	6
Long Beach, Calif.	87	55	20	7	2	3	4
Los Angeles, Calif.	471	307	93	43	16	12	16
Oakland, Calif.	88	55	15	13	3	2	4
Pasadena, Calif.	21	14	5	-	1	1	1
Portland, Oreg.	114	81	19	7	2	5	5
Sacramento, Calif.	68	39	19	4	4	2	3
San Diego, Calif.	143	99	20	13	5	6	10
San Francisco, Calif.	143	90	31	14	4	4	5
San Jose, Calif.	174	115	35	15	3	6	16
Seattle, Wash.	152	107	39	2	1	3	6
Spokane, Wash.	49	33	13	1	1	1	5
Tacoma, Wash.	61	43	11	3	-	4	1
TOTAL	12,333 ††	8,011	2,742	790	357	427	581

* 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 4 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.

§ Data not available. Figures are estimates based on average of past 4 weeks.

Orthopox Surveillance — Continued

Vaccination policy: WHO has been informed that 156 of its 160 member states and associate members have now officially discontinued routine smallpox vaccination. Albania and Chad continue smallpox vaccination. Egypt continues primary vaccination, but revaccination has been discontinued. France has stopped primary vaccination, but revaccination continues. WHO encourages all countries to cease smallpox vaccination, except to protect laboratory workers exposed to orthopox viruses.

Denmark, Finland, the Netherlands, Switzerland, the United Kingdom, and Zimbabwe have informed WHO that smallpox vaccination of military personnel has been discontinued. The Committee expressed hope that other countries will do likewise, since vaccinating such personnel involves risk for both the vaccinees and their contacts. The Committee recommended that military personnel who had been vaccinated be confined to their bases and prevented from contacting unvaccinated persons for 2 weeks after vaccination because of the risk of person-to-person spread. International Certificates of Smallpox Vaccination are no longer required of travelers.

Reserve stocks of smallpox vaccine: WHO has established two refrigerated storage depots for smallpox vaccine (Geneva and New Delhi), with an existing reserve sufficient to vaccinate more than 200 million persons. The stored vaccine is regularly monitored. In addition, substantial quantities of vaccine are held by many member governments.

Investigation of suspected cases: Although the number of rumors of suspected smallpox cases reported to WHO declined from 31 in 1980 to 10 in 1982, 19 more have been reported through December 7, 1983. All cases have been diagnosed as chickenpox or some other non-smallpox etiology.

Human monkeypox: As of December 7, 1983, 140 human monkeypox cases have been reported since 1970. By year, the numbers of cases are: 1980—three cases; 1981—seven cases; 1982—35 cases; and 1983—32 cases. During 1982, human transmission was presumed in five episodes, including one in which a third generation of cases was believed to have occurred for the first time. The revised estimate of secondary attack rate among unvaccinated household contacts is about 15%. Although monkeypox is not considered a serious public health problem, continued surveillance of the disease in Zaire was recommended. WHO is also supporting investigation of new serologic tests for monkeypox diagnosis.

Comparative studies of orthopox virus: Work to characterize the genome of variola virus continues. Deoxyribonucleic acid (DNA) fragments, representing three strains of variola virus, have been cloned into recombinant plasmids at the Center for Applied Microbiology and Research, Porton Down, England, and at CDC. Recombinant plasmids are available through WHO, for more detailed analysis of the variola genome, which can be conducted safely outside the maximum containment precautions that apply to intact variola virus. Mapping of cleavage sites for variola is steadily building an extensive profile of variola DNA.

Archives and Publications: Archives of smallpox eradication activities are being collected and indexed. Work has begun on a book dealing comprehensively with relevant scientific operations and administrative aspects of the smallpox eradication program, which WHO will publish in 1985.

Laboratory safety for handling orthopox virus other than variola virus: The only orthopox viruses, other than variola virus, that are documented to cause human infections are vaccinia, monkeypox, and cowpox viruses. Natural human infections with these viruses and person-to-person transmission are rare. Vaccination gives adequate protection against all three viruses, and few laboratory-associated infections with pox viruses other than variola have been reported.

It is appropriate, therefore, that known orthopox viruses, other than variola, be handled as Risk Group II (moderate individual risk, limited community risk) microorganisms, which may be handled in the basic laboratory with the use of biosafety cabinets and other appropriate

Orthopox Surveillance – Continued

personal protection (in this case, smallpox vaccination) or physical containment devices, when required. However, if the work on monkeypox virus specifically involves large quantities of the virus or if the work area is not separated from places in which nonhuman primates are maintained, the monkeypox should be handled as Risk Group III (high individual risk, special risk to nonhuman primates, low community risk) microorganisms, in a containment laboratory.

In all cases, all persons working in or entering the laboratory or nonhuman, primate-care area where activities with vaccinia, monkeypox, and cowpox viruses are being conducted should have documented evidence of satisfactory vaccination against smallpox within the preceding 3 years.

Recognition: October 26 has been designated "Smallpox Eradication Day." Beginning in 1984, a medal will be presented in recognition of a recipient's contributions to the control of communicable diseases.

Conclusion: WHO was commended for effectively and diligently implementing the recommendations for the 33rd World Health Assembly regarding activities to be undertaken in the post-smallpox era. Activities beyond 1985 will include the investigation of smallpox rumors, maintenance of smallpox-vaccine reserves, and surveillance of human monkeypox.

Reported by WHO Weekly Epidemiological Record, *1983;58:149-54; Evaluation and Research Div, International Health Program Office, CDC.*

Blood Alcohol Concentrations among Young Drivers — United States, 1982

Data from the Fatal Accident Reporting System (FARS)* for 1982 show that U.S. youth continue to be involved in fatal motor vehicle accidents (MVA), both as passengers and pedestrians, as well as drivers. The data also show that the blood alcohol concentrations (BAC) of young drivers who have been drinking and become involved in fatal MVA are lower than those of older drivers who have been drinking.

Of the 101,703 drivers, passengers, and pedestrians involved in 1982 fatal MVA on public roads, 43,721 (43%) died. A total of 17,832 (41%) of the victims were under 24 years of age; 6,687 (15%) were 15-19 years of age. According to police reports, 36% of the deaths occurred from MVA in which at least one driver had been drinking alcoholic beverages.

Young drivers comprised one-third of the 56,910 drivers involved in fatal crashes during 1982: 19,199 (34%) were under 24 years of age; 7,652 (13%) were 15-19 years of age. A total of 15,946 (36%) of all motor vehicle fatalities resulted from accidents in which at least one driver was under 24 years of age; 6,545 (15%) from accidents in which at least one driver was 15-19 years of age.

BAC tests are the only objective measure of alcohol use contained in the FARS data system. However, relatively few drivers are actually tested, and from those who are, not all results are reported. Although BAC testing and reporting have steadily increased in recent years (*1*), BAC data in 1982 were available for only 33% of all drivers in fatal MVA. Because of the incompleteness of BAC testing and reporting, large year-to-year variations in epidemiologic patterns could occur (*2*). However, the data on variations in BAC levels, when distributed by age, consistently reveal the same patterns year after year. This suggests the BAC data may reflect an underlying epidemiologic pattern.

Younger drivers who had been drinking (BAC $\geq$ .01) and who were involved in fatal MVAs had lower BAC levels than older drivers who had been drinking (Figure 1). Among 16- to 19-year-olds, BAC levels of .10-.14 occurred most frequently. BAC of this level constituted 27% of the 1,687 drivers in this age group with reported positive BAC ($\geq$ .01). For 20- to 24-

*Department of Transportation, National Highway Traffic Safety Administration.

Blood Alcohol Concentrations — Continued

year-olds with positive BAC, the most frequent BAC level, .15-.19, was found in 26% of the 3,143 drivers in this category. Drivers 25-34 years of age are similar to those 20-24 years of age with respect to the most frequent BAC level, but the distribution as a whole is shifted to higher BAC levels. The most frequent BAC level is .20-.24 for drivers 35-44 years of age and for drivers 45 years of age and older. The overall distributions for these two older age groups are comparable.

Although inclusion of data for drivers with BAC of zero decreases the percentages in each positive BAC category, the overall relationship of BAC level to age remains the same (Table 4).

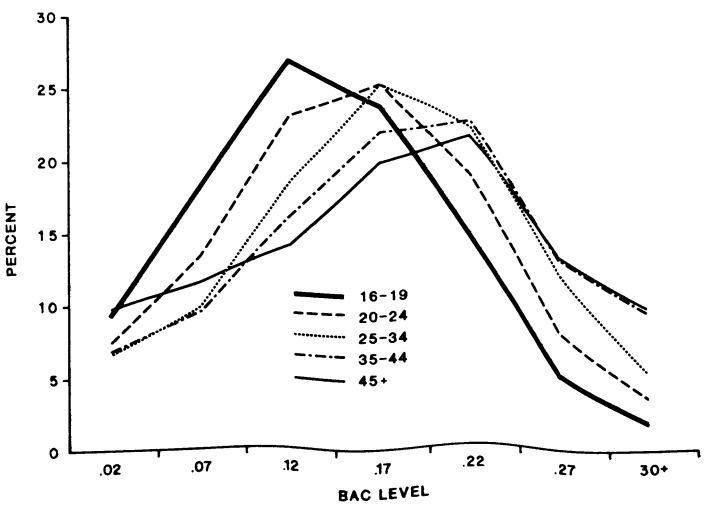
Among those for whom BAC test results were reported, more 20- to 34-year-old drivers involved in fatal MVA had been drinking (BAC $\geq$ .01) than drivers of other ages (Table 4). Sixty-two percent of tested drivers 16-19 years old and 71% of drivers 20-34 years old had positive BAC, compared with 49% of tested drivers 35 years of age or over.

The age-specific patterns of BAC distributions have remained consistent over the years, despite changes in reporting practices. The distribution of 16- to 19-year-olds with reported positive BAC by BAC levels is similar for each of 6 years in a series of curves representing FARS BAC data collected between 1977 and 1982. The same congruence over time exists for age-specific BAC patterns in each of the other age groups.

Reported by N Verdugo, MA, H Malin, MA, C Lowman, PhD, Alcohol Epidemiology Data System, Div of Biometry and Epidemiology, National Institute of Alcohol Abuse and Alcoholism; Div of Surveillance and Epidemiolgoic Studies, Epidemiology Program Offfice, CDC.

Editorial Note: There are several possible interpretations of the age-specific BAC distributions. Survey data from self-reporting of alcohol use suggest these data may reflect alcohol-use patterns in the general population. Teenagers, for example, report lower levels of alcohol use (*3*) than older persons (*4*). Another interpretation is that younger drinkers may have a lower tolerance for alcohol than older, more experienced drinkers. Lower alcohol tolerance, combined with inexperience in driving, may increase the risk of teenage involvement in fatal MVA. Whatever the final explanation, it is apparent that many young lives are lost in alcohol-related accidents. The need is clear for education and action, particularly directed toward young persons, to prevent future alcohol use among drivers.

FIGURE 1. Percentage of drivers, involved in fatal motor vehicle accidents, with positive blood alcohol concentration (BAC)* test results, be age — United States, 1982



*Greater than .01.

Blood Alcohol Concentrations — Continued

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TABLE 4. Percentage of drivers, involved in fatal motor vehicle accidents, with known BAC test results, by age group and BAC level — United States, 1982

Age group	Number of drivers	BAC levels								
		.00	.01-.04	.05-.09	.10-.14	.15-.19	.20-.24	.25-.29	.30+	Total
< 15 years	84	75.0	4.8	3.6	6.0	4.8	6.0	0.0	0.0	100.2
16-19 years	2,739	38.4	5.8	11.4	16.6	14.7	8.8	3.1	1.2	100.0
20-24 years	4,318	27.2	5.4	9.8	16.8	18.6	13.8	5.9	2.6	100.1
25-34 years	5,113	29.9	4.7	6.9	12.9	17.8	15.6	8.5	3.7	100.0
35-44 years	2,454	38.0	4.3	6.0	9.9	13.7	14.1	8.2	5.9	100.1
⩾ 45 years	3,694	59.2	4.0	4.7	5.7	8.2	8.8	5.4	4.0	100.0
Total	18,402	37.7	4.9	7.7	12.5	15.0	12.5	6.4	3.4	100.1

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HHS Publication No. (CDC) 84-8017