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Epidemiologic Notes and Reports

Outbreak of Invasive Pneumococcal Disease in a Jail — Texas, 1989

Between September 6 and October 2, 1989, invasive pneumococcal disease—including bacteremic pneumonia, meningitis, and primary septicemia—occurred in 12 inmates at a county jail in Texas. Two patients died. Five additional inmates with pneumonia had *Streptococcus pneumoniae* isolated from sputum specimens. All isolates from the 17 patients were serotype 12. Fourteen patients had underlying conditions including alcoholism and intravenous-drug abuse, cirrhosis, and asplenia. One person reported having previously received pneumococcal vaccine. All patients were male; their mean age was 30 (range: 19–53) years.

The jail is in a 13-story building that was constructed to hold 3500 inmates but houses a daily average of 6900 inmates (84% male). Cases occurred on seven of 10 floors used to house inmates. No cases occurred among 950 staff members.

Immunization with the 23-valent pneumococcal polysaccharide vaccine was recommended for all inmates and staff; 79% of inmates accepted vaccination. In addition, inmates with underlying medical conditions received a 1-week course of penicillin or erythromycin prophylaxis following vaccination.

An ongoing investigation is focusing on risk factors for disease, mechanisms of transmission, further characterization of the isolates, and distribution of serotypes of invasive pneumococcal isolates from patients in the surrounding community. Active surveillance for pneumococcal disease has been initiated within the jail.

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Editorial Note: In the pre-antibiotic period, epidemic pneumococcal disease was observed in a variety of settings including military training centers, psychiatric hospitals, and correctional institutions (*1,2*). Pneumococcal outbreaks are rarely reported now, although two epidemics have occurred in shelters for homeless men (*3,4*).

Pneumococcal Disease — Continued

Crowding and the medical status of the inmates may have been contributing factors in the jail outbreak in Texas. Underlying conditions that increase the risk for pneumococcal disease in adults include chronic cardiovascular and pulmonary diseases, diabetes mellitus, alcoholism, cirrhosis, asplenia, Hodgkin disease, lymphoma, multiple myeloma, chronic renal failure, nephrotic syndrome, organ transplantation, human immunodeficiency virus (HIV) infection, age ≥65 years, and other conditions associated with immunosuppression (*5*). Of these factors, alcoholism and trauma (possibly predisposing to splenectomy) are common among inmates of correctional facilities (*6*). In addition, HIV seroprevalence rates among inmates of correctional facilities are higher than in the general population (*7*). The epidemiology of pneumococcal disease in institutional settings is poorly understood. However, because this disease has been associated with overcrowding (*2,3*), overcrowded correctional facilities may be at risk for pneumococcal outbreaks.

Correctional facilities' staff have the opportunity to immunize high-risk inmates for pneumococcal disease during medical screening at time of incarceration. However, in facilities with high rates of recidivism among inmates, a policy of routine immunization may increase the likelihood of early revaccination. To prevent unnecessary revaccination, immunization programs in correctional facilities need to include a means of identifying inmates vaccinated during a previous incarceration.

Further efforts are needed to delineate the epidemiology of pneumococcal infections in institutional environments such as jails and prisons. State health departments are requested to notify the Respiratory Diseases Branch (RDB), Division of Bacterial Diseases, Center for Infectious Diseases, CDC, of clusters of cases of pneumococcal disease in these and other settings. Information on pneumococcal disease is available from RDB at (404) 639-3021.

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Current Trends

Safety-Restraint Assessment — Iowa, 1987–88

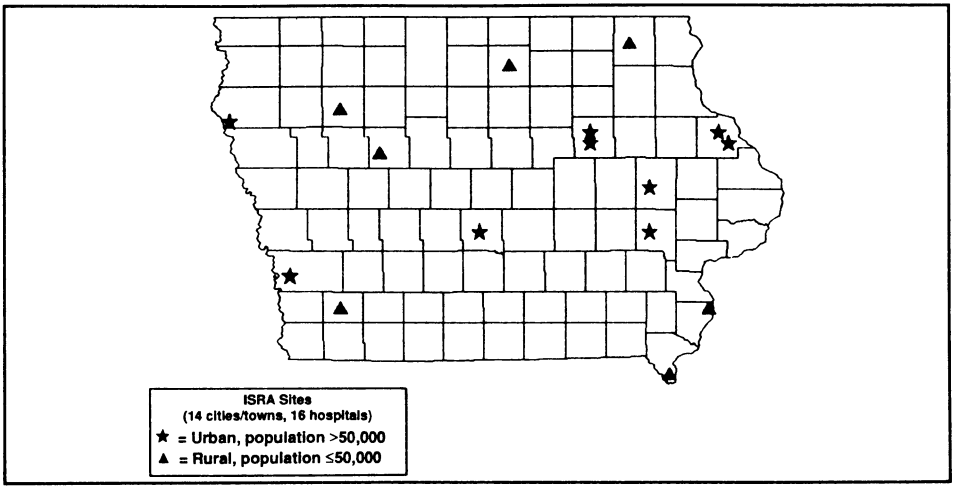
From November 1987 to March 1988, the Iowa Safety Restraint Assessment (ISRA)* study gathered data on injuries to and hospital charges for persons who survived motor vehicle crashes and presented for emergency medical care at one of 16 hospitals in Iowa. The participating hospitals (seven rural and nine urban) represented all levels of trauma care and all geographic quadrants of the state (Figure 1).

The 1454 persons injured in motor vehicle crashes who were studied during the 5-month period represented approximately 20% of all persons who were injured and who presented for emergency medical care in Iowa during the same period. Safety-restraint status was determined through questions to the patient or ambulance personnel. Of the 1454 injured persons, 697 (48%) were wearing safety restraints at the time of the crash (belted), and 757 (52%) were not (unbelted). Unbelted persons were more likely than belted persons to be male, be younger, have higher reported alcohol use at the time of the crash, and report motor vehicle crash speeds ≥55 mph (Table 1).

Twenty-seven percent of unbelted persons were admitted to a hospital (Table 2). Unbelted persons were three times more likely than belted persons to be hospitalized, 8.4 times more likely to sustain a head injury with loss of consciousness, 2.7 times more likely to sustain a fracture, and 2.8 times more likely to sustain a laceration. Strains or sprains were reported more frequently among belted than among unbelted persons.

*The ISRA was a cooperative effort by many hospital personnel and by the study's sponsors, the Iowa Governor's Traffic Safety Bureau (supported by the National Highway Traffic Safety Administration) and the Iowa Traffic Safety Now.

FIGURE 1. Iowa Safety Restraint Assessment (ISRA) hospital sites, November 1987–March 1988



Safety-Restraint – Continued

The average hospital bill was significantly higher for unbelted ($2462) than for belted persons ($753) ($p<0.01$). The average hospital stay was 2.6 times longer for unbelted (16.9 days) than for belted persons (6.6 days).

Most injuries were minor and external (e.g., abrasions, contusions, and lacerations)—391 (51.7%) among unbelted and 296 (42.5%) among belted persons.

TABLE 1. Characteristics of motor vehicle crash occupants, by safety-restraint status – Iowa Safety Restraint Assessment, November 1987–March 1988

	Safety restraint status			
	Belted		Unbelted	
Characteristic	No.	(%)	No.	(%)
Sex				
Male	286	(41.0)	407	(53.8)
Female	398	(57.1)	343	(45.3)
Unknown	13	(1.9)	7	(0.9)
Age group (yrs)				
<16	78	(11.2)	85	(11.2)
16–24	203	(29.1)	348	(46.0)
25–34	142	(20.4)	153	(20.2)
35–54	151	(21.7)	104	(13.7)
≥55	123	(17.6)	67	(8.9)
Total	**697**	**(100.0)**	**757**	**(100.0)**
Median age (yrs)	29		22	
Alcohol (reported use)	57	(8.2)	200	(26.4)
Speed (reported mph)				
<30	285	(40.9)	267	(35.3)
30–54	322	(46.2)	357	(47.1)
≥55	90	(12.9)	133	(17.6)
Total	**697**	**(100.0)**	**757**	**(100.0)**

TABLE 2. Hospital admissions and injury diagnoses of motor vehicle crash occupants, by safety-restraint status – Iowa Safety Restraint Assessment, November 1987–March 1988

	Safety restraint status					
	Belted		Unbelted			
Category	No.	(%)	No.	(%)	Relative risk	95% CI*
Hospital admission†	64	(9.2)	207	(27.3)	3.0	2.3–3.9
Injury diagnosis†						
Head injury	12	(1.7)	109	(14.4)	8.4	4.6–15.0
Fracture	52	(7.5)	153	(20.2)	2.7	2.0–3.6
Laceration	85	(12.2)	260	(34.3)	2.8	2.3–3.5
Strain/Sprain	293	(42.0)	217	(28.7)	0.7	0.6–0.8

*Confidence interval.

†Hospital admissions and injury diagnoses are not mutually exclusive.

Safety-Restraint – Continued

Based on the Abbreviated Injury Scale (AIS)—for which severity scores range from 1 (minor) to 6 (most critical) for each anatomic region (*1*)—injuries were more severe in all anatomic regions for unbelted than for belted persons. These differences were statistically significant ($p<0.01$) for all areas except the face and the abdomen and pelvis. For head injuries, the average AIS score was 1.6 for belted persons and 2.6 for unbelted persons; for injuries to the thorax, the average score was 1.8 for belted persons and 2.3 for unbelted persons. Overall, the average AIS score was 1.2 for belted and 1.5 for unbelted persons.

At both low- and high-impact speeds, unbelted occupants were more likely to incur head injuries, fractures, and lacerations. At low-impact speeds (≤30 mph), 1.1% of belted persons received head injuries; 3.7%, fractures; and 8.8%, lacerations. For unbelted persons, 7.8% incurred head injuries; 9.5%, fractures; and 26.6%, lacerations. At high-impact speeds (greater than 30 mph), 2.5% of belted persons received head injuries; 11.9%, fractures; and 16.3%, lacerations. For unbelted persons, 20.3% received head injuries; 29.8%, fractures; and 41.3%, lacerations.

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Editorial Note: This statewide hospital evaluation of motor vehicle crash morbidity, which is modeled after a 1986 pilot study in Keokuk, Iowa (*2*), serves as a model for future injury surveillance.

Since July 1986, Iowa has had a primary enforcement safety-restraint law. Observational studies conducted by the Iowa Department of Transportation found that safety-restraint compliance was 56% in September 1987 and 55% in September 1988 (*3,4*). In the ISRA, 48% of injured persons were belted, which may suggest that belted persons have fewer motor vehicle crashes and/or are less likely to have injuries requiring emergency care.

Most injuries reported were minor, especially for belted persons. Minor injuries can be a source of temporary disability and medical expense but are seldom reported in case studies. Soft-tissue injuries, such as strains and sprains, may be underreported among unbelted persons because seriously injured patients are less likely (or unable) to complain about soft-tissue injury, and trauma teams are less likely to address these injuries when life-threatening injuries are present.

The ISRA demonstrated that among persons who were injured and used safety restraints injuries were less severe and cost less. Reduction of motor vehicle crash injury and subsequent effects will require increased public awareness of the benefits of correct and consistent safety-restraint use. Methods to reach this goal include:

- Emphasis on the ability of safety restraints to reduce crash injuries and associated hospital costs, disability, and death.
- Instruction of children about the importance of wearing safety restraints to reduce the risk of severe injury in a crash so that safety-restraint use becomes routine before adolescence and early adulthood.
- Education of persons 16–24 years of age—who are at greatest risk for traffic-related injury—about preventive behavior (safety-restraint use and alcohol avoidance) and traffic safety enforcement (compliance with speed limit and alcohol consumption laws).

Safety Restraint – Continued

Since 1975, detailed mortality data have been collected on all motor vehicle crash deaths by the National Highway Traffic Safety Administration using the Fatal Accident Reporting System. Data are limited on nonfatal motor vehicle crash injuries, such as those reported in the ISRA. A comprehensive database on injuries and disabilities will require integrated morbidity and mortality data collection at the local, state, and federal levels (*5*). In addition, such data linkage will require collaboration between public service agencies, the medical community (e.g., physicians, nurses, coroners, hospital staff, and prehospital emergency medical-care staff), police, highway and transportation departments, and others.

References

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TABLE I. Summary – cases of specified notifiable diseases, United States

Disease	43rd Week Ending			Cumulative, 43rd Week Ending		
	Oct. 28, 1989	Oct. 29, 1988	Median 1984-1988	Oct. 28, 1989	Oct. 29, 1988	Median 1984-1988
Acquired Immunodeficiency Syndrome (AIDS)	895	U*	251	29,145	25,218	10,936
Aseptic meningitis	368	171	238	8,073	5,649	8,460
Encephalitis: Primary (arthropod-borne & unspec)	26	11	36	716	692	1,011
Post-infectious	2	3	2	72	109	99
Gonorrhea: Civilian	12,081	14,500	18,575	561,612	574,572	695,547
Military	101	220	400	9,327	9,651	13,933
Hepatitis: Type A	694	555	555	28,623	21,221	18,747
Type B	390	407	543	18,707	18,594	21,298
Non A, Non B	31	30	73	1,945	2,120	2,949
Unspecified	26	106	88	1,871	1,870	3,652
Legionellosis	35	20	20	896	822	655
Leprosy	2	8	3	138	134	194
Malaria	26	12	19	1,066	841	841
Measles: Total†	147	18	22	12,805	2,445	2,583
Indigenous	122	11	21	12,180	2,191	2,191
Imported	25	7	3	625	254	299
Meningococcal infections	35	31	39	2,178	2,342	2,257
Mumps	76	91	91	4,501	3,908	3,908
Pertussis	100	135	135	2,892	2,493	2,493
Rubella (German measles)	2	-	4	379	184	468
Syphilis (Primary & Secondary): Civilian	890	923	736	33,128	33,486	23,083
Military	4	3	2	201	133	140
Toxic Shock syndrome	9	9	8	311	307	307
Tuberculosis	430	385	448	17,545	17,530	17,542
Tularemia	2	5	3	131	165	165
Typhoid Fever	6	8	5	409	330	301
Typhus fever, tick-borne (RMSF)	11	4	6	581	558	643
Rabies, animal	91	71	85	3,888	3,614	4,510

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1989		Cum. 1989
Anthrax	-	Leptospirosis (Hawaii 1)	76
Botulism: Foodborne	21	Plague	4
Infant	15	Poliomyelitis, Paralytic	-
Other	4	Psittacosis (Mo. 1, Ore. 1)	86
Brucellosis (Texas 1)	73	Rabies, human	1
Cholera	-	Tetanus	36
Congenital rubella syndrome	2	Trichinosis	15
Congenital syphilis, ages < 1 year	165		
Diphtheria	3		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending October 28, 1989 and October 29, 1988 (43rd Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	29,145	8,073	716	72	561,612	574,572	28,623	18,707	1,945	1,871	896	138
NEW ENGLAND	1,152	438	20	2	16,999	18,058	605	916	63	76	57	8
Maine	58	24	5	-	219	339	19	50	6	1	5	-
N.H.	38	47	-	-	142	223	57	51	8	4	2	-
Vt.	11	38	4	-	57	101	35	67	6	-	2	-
Mass.	629	145	6	2	6,577	6,127	168	516	25	55	37	6
R.I.	65	80	-	-	1,237	1,671	43	64	4	9	11	1
Conn.	351	104	5	-	8,767	9,597	283	168	14	7	-	1
MID. ATLANTIC	8,347	1,086	32	5	70,894	90,880	3,475	2,897	181	205	218	20
Upstate N.Y.	1,157	464	27	4	13,759	12,615	794	560	67	11	72	3
N.Y. City	4,348	139	2	1	31,867	38,890	354	1,134	32	168	31	15
N.J.	1,895	-	3	-	12,617	12,948	405	522	26	5	42	1
Pa.	947	483	-	-	12,651	26,427	1,922	681	56	21	73	1
E.N. CENTRAL	2,222	1,610	262	9	106,437	96,781	1,721	2,216	224	83	259	4
Ohio	411	518	105	4	28,358	21,918	357	391	38	19	109	-
Ind.	310	226	41	3	8,255	7,321	191	345	26	29	55	1
Ill.	971	314	50	2	34,537	28,275	761	583	92	21	17	3
Mich.	419	451	43	-	27,352	30,898	233	547	43	14	40	-
Wis.	111	101	23	-	7,935	8,369	179	350	25	-	38	-
W.N. CENTRAL	700	411	28	4	27,125	24,435	1,171	846	102	23	33	1
Minn.	147	43	1	1	3,021	3,294	138	97	17	4	2	-
Iowa	50	64	10	-	2,324	1,830	125	34	14	5	6	-
Mo.	351	188	3	-	16,711	13,957	598	576	42	8	14	-
N. Dak.	6	12	1	-	112	161	4	22	4	2	1	-
S. Dak.	4	11	4	-	230	423	13	10	9	-	2	-
Nebr.	27	17	5	-	1,198	1,341	69	25	3	2	2	1
Kans.	115	76	4	3	3,529	3,429	224	82	13	2	6	-
S. ATLANTIC	6,171	1,584	152	23	155,512	162,309	2,877	3,656	296	303	118	1
Del.	73	67	1	-	2,705	2,550	53	126	6	8	10	-
Md.	709	202	19	2	18,437	16,943	841	622	24	27	27	-
D.C.	425	23	-	-	9,063	12,105	8	27	2	-	1	-
Va.	379	328	36	3	13,456	11,943	261	255	63	177	8	-
W. Va.	45	91	81	-	1,188	1,137	25	86	10	8	-	-
N.C.	393	178	8	2	23,473	22,676	389	899	78	-	31	1
S.C.	290	34	1	-	14,176	12,857	69	515	3	10	6	-
Ga.	905	120	2	1	29,955	30,750	313	355	11	8	24	-
Fla.	2,952	541	4	15	43,059	51,348	918	771	99	65	11	-
E.S. CENTRAL	636	604	42	2	46,989	46,295	349	1,329	138	11	53	-
Ky.	118	191	15	1	4,550	4,664	102	330	46	4	9	-
Tenn.	200	115	5	-	15,875	15,962	135	701	31	-	31	-
Ala.	199	208	19	-	15,131	14,017	74	192	54	3	12	-
Miss.	119	90	3	1	11,433	11,652	38	106	7	4	1	-
W.S. CENTRAL	2,600	814	63	6	60,756	61,825	3,205	1,845	126	436	42	19
Ark.	64	37	8	-	6,985	6,115	215	64	15	6	1	-
La.	416	69	13	1	12,878	12,129	233	319	15	2	8	-
Okla.	130	70	11	3	5,244	5,881	392	168	31	32	24	-
Tex.	1,990	638	31	2	35,649	37,700	2,365	1,294	65	396	9	19
MOUNTAIN	916	270	13	4	12,162	12,325	4,115	1,238	173	120	52	3
Mont.	15	6	-	-	158	360	82	41	6	3	3	1
Idaho	20	2	-	1	149	287	143	109	12	3	1	-
Wyo.	14	5	-	-	86	174	46	8	2	-	-	-
Colo.	334	130	3	1	2,508	2,744	429	139	46	49	4	-
N. Mex.	78	10	1	-	1,101	1,225	546	171	29	3	5	1
Ariz.	235	90	3	-	4,919	4,454	2,132	475	41	51	25	1
Utah	59	18	1	2	387	449	427	98	23	4	7	-
Nev.	161	9	5	-	2,854	2,632	310	197	14	7	7	-
PACIFIC	6,401	1,256	104	17	64,738	61,664	11,105	3,764	642	614	64	82
Wash.	467	-	3	1	5,346	5,880	2,653	814	173	51	23	7
Oreg.	193	-	-	-	2,593	2,689	1,991	424	65	14	2	1
Calif.	5,570	1,137	88	16	55,517	51,676	5,730	2,401	390	535	36	61
Alaska	16	30	10	-	833	894	572	53	6	4	1	-
Hawaii	155	89	3	-	449	525	159	72	8	10	2	13
Guam	1	5	1	-	82	129	4	-	-	6	-	1
P.R.	1,065	84	2	1	930	1,107	168	199	16	19	-	8
V.I.	26	-	-	-	540	371	-	8	-	-	-	-
Amer. Samoa	-	-	-	-	19	71	22	-	1	-	-	3
C.N.M.I.	-	-	-	-	58	44	2	7	-	1	-	1

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 28, 1989 and October 29, 1988 (43rd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	1989	Cum. 1989	Cum. 1988
UNITED STATES	1,066	122	12,180	25	625	2,445	2,178	76	4,501	100	2,892	2,493	2	379	184
NEW ENGLAND	75	-	298	-	38	112	158	5	77	20	332	267	-	6	9
Maine	-	-	-	-	1	7	14	-	-	5	25	13	-	-	-
N.H.	2	-	8	-	7	88	15	1	14	10	16	47	-	4	5
Vt.	3	-	1	-	2	-	8	-	2	-	6	4	-	1	-
Mass.	42	-	42	-	21	4	88	2	50	5	256	188	-	1	3
R.I.	16	-	38	-	3	-	1	-	-	-	11	15	-	-	1
Conn.	12	-	209	-	4	13	32	2	11	-	18	20	-	-	-
MID. ATLANTIC	199	4	722	-	177	875	310	2	399	9	246	172	-	78	14
Upstate N.Y.	31	-	54	-	98	37	115	1	152	1	108	100	-	63	2
N.Y. City	78	4	101	-	15	51	40	-	19	2	11	5	-	15	7
N.J.	54	-	361	-	6	244	69	-	167	-	24	8	-	-	3
Pa.	36	-	206	-	58	543	86	1	61	6	103	59	-	-	2
E.N. CENTRAL	75	63	3,827	-	95	187	284	5	481	-	334	272	-	24	30
Ohio	11	63	1,424	-	35	25	102	-	118	-	45	49	-	3	1
Ind.	11	-	78	-	-	57	29	-	44	-	19	69	-	-	-
Ill.	31	-	1,824	-	1	72	75	-	159	-	111	47	-	19	25
Mich.	14	-	309	-	16	29	57	4	121	-	42	34	-	1	4
Wis.	8	-	192	-	43	4	21	1	39	-	117	73	-	1	-
W.N. CENTRAL	27	-	667	-	11	13	70	1	394	2	167	122	-	6	2
Minn.	8	-	17	-	-	11	14	-	2	-	46	48	-	-	-
Iowa	3	-	11	-	1	-	2	1	41	-	15	29	-	1	-
Mo.	9	-	399	-	-	2	18	-	57	-	92	22	-	4	-
N. Dak.	1	-	-	-	-	-	-	-	-	-	2	11	-	-	-
S. Dak.	1	-	-	-	-	-	7	-	-	1	2	5	-	-	-
Nebr.	2	-	108	-	2	-	18	-	5	-	6	-	-	-	-
Kans.	3	-	132	-	8	-	11	-	289	1	4	7	-	1	2
S. ATLANTIC	185	2	577	16	74	394	379	26	810	5	311	223	-	10	17
Del.	7	-	42	-	1	-	2	-	1	-	1	7	-	-	-
Md.	35	1	64	-	36	14	68	5	398	2	67	37	-	2	1
D.C.	10	-	36	-	4	-	15	-	127	-	2	1	-	-	-
Va.	37	-	20	-	3	200	44	3	120	-	33	21	-	-	11
W. Va.	2	-	53	-	-	6	13	-	13	2	32	8	-	-	-
N.C.	20	-	185	-	3	5	53	2	34	-	66	62	-	1	-
S.C.	10	-	15	-	-	-	28	5	37	-	-	1	-	-	-
Ga.	12	-	1	15§	16	-	64	10	39	-	41	35	-	-	2
Fla.	52	1	161	1§	11	169	92	1	41	1	69	51	-	7	3
E.S. CENTRAL	14	4	243	-	4	69	72	7	221	7	134	97	2	5	2
Ky.	-	-	40	-	4	35	40	-	9	-	1	12	-	-	-
Tenn.	5	4	152	-	-	-	7	6	74	5	55	29	2	4	2
Ala.	6	-	50	-	-	-	20	-	29	2	73	52	-	1	-
Miss.	3	-	1	-	-	34	5	N	N	-	5	4	-	-	-
W.S. CENTRAL	64	48	3,193	9	75	17	156	21	1,436	23	349	198	-	50	10
Ark.	-	-	3	-	19	1	11	9	153	-	27	22	-	-	3
La.	2	37	48	-	-	-	38	4	629	-	19	17	-	5	-
Okla.	9	-	126	-	-	8	23	-	192	1	53	61	-	1	1
Tex.	53	11	3,016	9§	56	8	84	8	462	22	250	98	-	44	6
MOUNTAIN	26	1	369	-	50	149	64	9	196	29	591	691	-	36	6
Mont.	1	-	12	-	1	33	2	-	4	2	37	2	-	1	-
Idaho	2	-	6	-	4	1	2	1	19	-	59	319	-	32	-
Wyo.	1	-	-	-	-	-	-	-	8	-	-	2	-	2	-
Colo.	6	-	79	-	18	115	20	4	33	23	72	30	-	-	2
N. Mex.	4	-	16	-	15	-	2	N	N	1	30	48	-	-	-
Ariz.	9	-	141	-	4	-	25	4	109	3	371	261	-	-	-
Utah	-	-	114	-	-	-	5	-	16	-	21	28	-	-	3
Nev.	3	1	1	-	8	-	8	-	7	-	1	1	-	1	1
PACIFIC	401	-	2,284	-	101	629	685	-	487	5	428	451	-	164	94
Wash.	29	-	31	-	18	7	74	-	42	-	175	105	-	-	-
Oreg.	20	-	12	-	48	8	46	N	N	-	11	45	-	3	-
Calif.	342	-	2,220	-	23	600	553	-	426	5	220	236	-	139	64
Alaska	3	-	1	-	-	2	10	-	2	-	1	8	-	-	-
Hawaii	7	-	20	-	12	12	2	-	17	-	21	57	-	22	30
Guam	3	U	-	U	-	1	-	U	4	U	1	-	U	-	1
P.R.	1	-	547	-	-	190	6	-	8	-	4	15	-	8	3
V.I.	-	-	4	-	-	-	-	-	16	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	2	U	-	-	U	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-

*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 October 28, 1989 and October 29, 1988 (43rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	33,128	33,486	311	17,545	17,530	131	409	581	3,888
NEW ENGLAND	1,427	964	16	514	456	2	35	8	8
Maine	13	12	3	25	20	-	-	-	2
N.H.	11	6	2	23	8	-	-	-	1
Vt.	1	3	-	8	4	-	-	-	-
Mass.	421	353	5	277	266	2	24	4	2
R.I.	28	30	2	53	36	-	5	1	-
Conn.	953	560	4	128	122	-	6	3	3
MID. ATLANTIC	5,799	8,179	50	3,598	3,545	2	117	59	639
Upstate N.Y.	751	479	9	275	463	1	33	13	52
N.Y. City	2,950	5,770	3	2,047	1,958	-	51	3	-
N.J.	1,183	811	12	702	546	-	25	23	21
Pa.	915	1,119	26	574	578	1	8	20	566
E.N. CENTRAL	1,527	989	52	1,780	1,926	3	47	64	109
Ohio	150	87	18	305	363	-	10	35	10
Ind.	52	47	7	132	197	1	4	19	2
Ill.	680	425	11	827	833	-	22	7	28
Mich.	516	380	16	413	445	1	6	3	25
Wis.	129	50	-	103	88	1	5	-	44
W.N. CENTRAL	273	196	39	450	441	49	7	79	496
Minn.	47	17	11	91	75	-	2	-	113
Iowa	30	18	6	44	45	-	2	3	110
Mo.	142	127	10	207	217	36	2	58	56
N. Dak.	2	2	-	12	15	-	-	1	53
S. Dak.	1	-	4	26	31	6	-	5	73
Nebr.	23	26	5	18	12	3	-	1	44
Kans.	28	6	3	52	46	4	1	11	47
S. ATLANTIC	11,739	11,777	24	3,695	3,711	6	37	205	1,168
Del.	174	91	1	31	37	-	2	1	29
Md.	671	593	1	322	364	2	8	15	326
D.C.	649	578	1	148	168	-	2	-	2
Va.	474	363	4	302	333	4	7	15	219
W. Va.	14	35	-	63	65	-	-	2	46
N.C.	915	674	6	477	388	-	2	109	7
S.C.	717	613	4	414	404	-	2	38	178
Ga.	2,099	2,123	3	579	606	-	4	22	210
Fla.	6,026	6,707	4	1,359	1,346	-	10	3	151
E.S. CENTRAL	2,540	1,668	8	1,353	1,456	7	3	64	319
Ky.	48	56	2	331	316	1	1	14	124
Tenn.	1,139	735	3	428	435	5	1	35	83
Ala.	752	477	2	389	438	-	1	6	108
Miss.	601	400	1	205	267	1	-	9	4
W.S. CENTRAL	5,032	3,629	23	2,141	2,213	40	15	74	531
Ark.	314	204	2	222	253	29	-	19	79
La.	1,243	703	-	292	268	-	1	-	12
Okla.	95	128	12	187	206	11	1	42	84
Tex.	3,380	2,594	9	1,440	1,486	-	13	13	356
MOUNTAIN	676	724	42	402	507	16	10	24	242
Mont.	1	3	-	16	19	1	-	14	70
Idaho	1	2	3	22	19	-	-	4	11
Wyo.	6	1	2	-	5	3	-	2	74
Colo.	58	88	9	19	97	3	2	3	21
N. Mex.	26	46	5	72	91	2	1	1	21
Ariz.	263	139	10	199	206	-	6	-	26
Utah	15	14	9	36	18	6	1	-	8
Nev.	306	431	4	38	52	1	-	-	11
PACIFIC	4,115	5,360	57	3,612	3,275	6	138	4	376
Wash.	350	196	4	196	190	-	9	-	-
Oreg.	194	256	-	114	128	4	6	1	-
Calif.	3,553	4,867	52	3,106	2,787	2	114	3	310
Alaska	7	14	-	44	38	-	-	-	66
Hawaii	11	27	1	152	132	-	9	-	-
Guam	4	3	-	45	26	-	1	-	-
P.R.	457	584	-	241	194	-	9	-	59
V.I.	8	1	-	4	6	-	1	-	-
Amer. Samoa	-	-	-	2	4	-	2	-	-
C.N.M.I.	7	1	-	12	23	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 28, 1989 (43rd Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	649	424	139	50	22	14	62
Boston, Mass.	179	109	37	16	8	9	21
Bridgeport, Conn.	43	30	9	1	2	1	4
Cambridge, Mass.	19	14	4	1	-	-	2
Fall River, Mass.	25	19	5	-	1	-	-
Hartford, Conn.	72	41	18	8	3	2	8
Lowell, Mass.	22	14	7	1	-	-	1
Lynn, Mass.	19	11	7	1	-	-	1
New Bedford, Mass.	23	18	2	1	2	-	3
New Haven, Conn.	59	39	12	8	-	-	5
Providence, R.I.	57	38	13	5	1	-	7
Somerville, Mass.	4	4	-	-	-	-	-
Springfield, Mass.	47	32	12	1	2	-	3
Waterbury, Conn.	24	17	1	5	-	1	2
Worcester, Mass.	56	38	12	2	3	1	5
MID. ATLANTIC	2,813	1,764	545	346	69	89	163
Albany, N.Y.	48	34	9	3	1	1	-
Allentown, Pa.	22	17	2	3	-	-	-
Buffalo, N.Y.§	101	67	19	10	2	3	5
Camden, N.J.	46	28	11	5	1	1	-
Elizabeth, N.J.	31	24	5	1	-	1	2
Erie, Pa.†	43	29	8	4	2	-	4
Jersey City, N.J.	58	24	16	9	2	7	2
N.Y. City, N.Y.	1,471	910	279	214	32	36	56
Newark, N.J.	107	45	23	23	4	12	6
Paterson, N.J.	23	10	5	3	4	1	2
Philadelphia, Pa.	394	228	91	43	14	18	25
Pittsburgh, Pa.†	64	40	15	3	2	4	3
Reading, Pa.	31	24	7	-	-	-	6
Rochester, N.Y.	133	99	24	8	2	-	25
Schenectady, N.Y.	23	21	-	1	1	-	-
Scranton, Pa.†	32	28	3	1	-	-	4
Syracuse, N.Y.	110	75	17	11	2	5	10
Trenton, N.J.	25	21	2	2	-	-	3
Utica, N.Y.	21	18	3	-	-	-	5
Yonkers, N.Y.	30	22	6	2	-	-	5
E.N. CENTRAL	2,399	1,571	478	209	61	79	116
Akron, Ohio	35	26	6	1	2	-	-
Canton, Ohio	33	27	4	1	-	1	6
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	129	99	22	7	1	-	25
Cleveland, Ohio	181	113	34	20	6	8	3
Columbus, Ohio	250	157	56	23	7	6	-
Dayton, Ohio	112	70	26	13	1	2	13
Detroit, Mich.	232	127	46	35	13	11	1
Evansville, Ind.	45	36	5	2	-	2	4
Fort Wayne, Ind.	78	54	17	4	1	2	4
Gary, Ind.	11	4	4	1	1	1	1
Grand Rapids, Mich.	62	42	11	5	3	1	7
Indianapolis, Ind.	165	105	30	16	8	6	1
Madison, Wis.	42	26	6	5	3	2	3
Milwaukee, Wis.	155	109	35	8	1	2	2
Peoria, Ill.	50	33	9	1	1	6	4
Rockford, Ill.	40	30	7	1	-	2	5
South Bend, Ind.	46	36	6	3	-	1	6
Toledo, Ohio	107	73	15	13	3	3	7
Youngstown, Ohio	62	42	14	5	-	1	8
W.N. CENTRAL	915	664	147	61	23	20	50
Des Moines, Iowa	81	59	16	6	-	-	5
Duluth, Minn.	35	25	6	3	-	1	4
Kansas City, Kans.§	86	63	16	6	1	-	2
Kansas City, Mo.	116	73	29	8	5	1	10
Lincoln, Nebr.	47	36	8	2	1	-	5
Minneapolis, Minn.	211	169	20	13	6	3	17
Omaha, Nebr.	82	58	14	4	4	2	3
St. Louis, Mo.	116	82	15	9	1	9	1
St. Paul, Minn.	68	50	10	4	3	1	3
Wichita, Kans.	73	49	13	6	2	3	-
S. ATLANTIC	1,127	690	254	124	29	29	52
Atlanta, Ga.	195	122	38	29	5	1	2
Baltimore, Md.	153	94	37	17	4	1	11
Charlotte, N.C.	111	64	32	8	3	4	6
Jacksonville, Fla.	89	49	22	7	5	6	9
Miami, Fla.	78	44	15	16	1	2	-
Norfolk, Va.	60	41	8	7	3	1	3
Richmond, Va.	59	33	16	7	2	1	3
Savannah, Ga.	54	37	12	2	-	3	7
St. Petersburg, Fla.	65	44	10	5	1	5	2
Tampa, Fla.	71	42	19	8	1	1	4
Washington, D.C.	157	93	40	15	4	4	5
Wilmington, Del.	35	27	5	3	-	-	-
E.S. CENTRAL	781	516	178	51	16	19	58
Birmingham, Ala.	97	56	23	9	4	5	4
Chattanooga, Tenn.	63	39	22	2	-	-	8
Knoxville, Tenn.	85	58	19	4	2	2	8
Louisville, Ky.	70	44	11	11	1	3	2
Memphis, Tenn.	166	117	38	5	4	2	21
Mobile, Ala.	116	85	22	5	3	1	3
Montgomery, Ala.	43	27	11	4	1	-	2
Nashville, Tenn.	141	90	32	11	1	6	10
W.S. CENTRAL	1,764	1,068	378	201	71	46	66
Austin, Tex.	53	34	15	1	-	3	4
Baton Rouge, La.	47	36	5	4	1	1	2
Corpus Christi, Tex.	44	27	10	3	-	4	1
Dallas, Tex.	205	116	48	26	12	3	3
El Paso, Tex.	74	38	21	8	4	3	5
Fort Worth, Tex	91	62	9	10	5	5	4
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	68	40	19	7	1	1	4
New Orleans, La.	137	69	25	25	16	2	-
San Antonio, Tex.	155	104	31	12	5	3	16
Shreveport, La.	59	34	11	9	2	3	7
Tulsa, Okla.	97	72	15	7	1	2	2
MOUNTAIN	635	405	138	56	21	15	34
Albuquerque, N. Mex.	75	52	16	5	1	1	2
Colo. Springs, Colo.	34	23	7	3	1	-	1
Denver, Colo.	91	61	17	6	3	4	4
Las Vegas, Nev.	125	73	34	16	1	1	10
Ogden, Utah	24	22	1	1	-	-	5
Phoenix, Ariz.	139	74	37	14	10	4	5
Pueblo, Colo.	18	12	2	3	1	-	4
Salt Lake City, Utah	43	26	8	4	2	3	-
Tucson, Ariz.	86	62	16	4	2	2	3
PACIFIC	1,949	1,217	385	230	58	56	122
Berkeley, Calif.	18	15	1	-	-	2	-
Fresno, Calif.§	81	54	12	7	4	4	5
Glendale, Calif.	16	13	2	1	-	-	1
Honolulu, Hawaii	67	44	15	7	1	-	9
Long Beach, Calif.§	85	57	16	7	3	2	10
Los Angeles Calif.	577	358	118	62	20	16	28
Oakland, Calif.	89	43	21	19	4	2	3
Pasadena, Calif.	25	16	5	3	1	-	-
Portland, Oreg.	144	101	22	16	2	3	5
Sacramento, Calif.	145	95	29	11	5	5	12
San Diego, Calif.	145	83	28	21	5	8	15
San Francisco, Calif.	178	87	42	41	5	3	3
San Jose, Calif.	153	95	37	14	5	2	16
Seattle, Wash.	148	97	30	13	3	5	2
Spokane, Wash.	41	32	5	1	-	3	9
Tacoma, Wash.	37	27	2	7	-	1	4
TOTAL	13,032††	8,319	2,642	1,328	370	367	723

*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.

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

Cost of Injury — Continued

3. Office of Driver Services, Iowa Department of Transportation. Observational Safety Belt Usage Survey. Des Moines, Iowa: Iowa Department of Transportation, 1987.
4. Office of Driver Services, Iowa Department of Transportation. Observational Safety Belt Usage Survey. Des Moines, Iowa: Iowa Department of Transportation, 1988.
5. Committee on Trauma Research, Commission of Life Sciences, National Research Council and the Institute of Medicine. Injury in America. Washington, DC: National Academy Press, 1985.

Cost of Injury — United States: A Report to Congress, 1989

In 1987, Congress directed the National Highway Traffic Safety Administration and CDC to evaluate the cost of injury in the United States in terms of the medical resources used for the care, treatment, and rehabilitation of injured persons; life years lost* due to short- and long-term disability and premature death; and pain and suffering of the injured persons, their families, and their friends. This article summarizes the report (*Cost of Injury in the United States*) submitted to Congress in October 1989 (*1*).

The report estimates the lifetime economic cost for injuries that occurred in the United States in 1985. This estimate reflects the incidence of injury by patient age, sex, and major cause categories, as well as indicators for injury severity, i.e., death, hospitalization, medical attention outside the hospital, and restricted activity for ≥1 day. The lifetime economic cost reflects the direct cost for medical treatment and rehabilitation of patients injured in 1985 and the indirect costs associated with loss of earnings due to short- and long-term disability and premature death.

Estimates of incidence and lifetime cost were based in part on data from CDC's National Center for Health Statistics, including the National Mortality Detail File, National Health Interview Survey, National Hospital Discharge Survey, National Medical Care Utilization and Expenditure Survey, and National Nursing Home Survey. Other data sources included the National Council on Compensation Insurance Detailed Claim Information Database, Maryland and California statewide hospital discharge abstract data, and information from smaller studies.

In 1985, approximately 57 million persons were injured in the United States at a lifetime cost to the nation of $157.6 billion. Adults aged 25–44 years accounted for the greatest number of injuries and for 42% of the total cost. Injury to persons aged 15–24 years ranked second, accounting for 25% of the total cost (Table 1).

The greatest lifetime economic losses (in billions of dollars) were caused by motor vehicles ($48.7); falls ($37.3); firearms ($14.4); poisonings ($8.5); fire and burns ($3.8); and drownings and near drownings ($2.5) (Table 2). Injuries from all other causes (e.g., cutting and piercing instruments, railway and air transportation crashes, suffocations, and trauma from blunt objects) resulted in $42.4 billion in lifetime costs (Table 2).

As a result of injuries that occurred in 1985, 155,665 persons died (142,568 deaths in 1985 and 13,097 deaths in subsequent years). An additional 2.3 million Americans were hospitalized for their injuries, while 54.4 million were treated outside the hospital for injuries or required restricted activity for ≥1 day.

*Based on number of years of life expectancy remaining at death (*1*).

Cost of Injury — Continued

Direct personal medical and nonmedical costs of care for injured persons were $44.8 billion, of which $24.5 billion (55%) was for hospital care, including rehabilitation and the cost of professional services provided to hospitalized patients. Physician visits outside of hospitals ($6.5 billion) and nursing-home care ($2.5 billion) were the second and third highest direct cost expenditures.

TABLE 1. Number and rate of injured persons and lifetime cost of injury by patient age and type of cost — United States, 1985

	Injured persons		Lifetime cost* (millions)			
					Indirect	
Age group (yrs)	No. (thousands)	Rate†	Total§	Direct	Morbidity	Mortality
0–4	4,071	22,621	$ 4,127	$ 1,810	$ 1,384	$ 933
5–14	10,189	30,039	9,699	4,026	4,067	1,605
15–24	12,750	32,892	39,142	8,934	15,725	14,483
25–44	18,063	24,769	65,822	12,724	28,680	24,418
45–64	7,369	16,417	23,971	6,757	11,311	5,903
≥65	4,417	15,464	14,853	10,555	3,752	546
Total§	**56,859**	**23,986**	**$157,615**	**$44,807**	**$64,920**	**$47,888**

*A discount rate of 6% was used to convert aggregate earnings lost in future years to present values.
†Per 100,000 persons.
§Numbers may not add to totals because of rounding.

TABLE 2. Number and rate of injured persons and lifetime cost of injury by cause and type of cost — United States, 1985

	Injured persons		Lifetime cost* (millions)			
					Indirect	
Cause	No. (thousands)	Rate†	Total§	Direct	Morbidity	Mortality
Motor vehicles	5,372	2,266	$ 48,683	$12,270	$19,085	$17,328
Falls	12,289	5,184	37,279	14,689	21,049	1,541
Firearms	268¶	113	14,410	912	1,418	12,080
Poisonings	1,702	718	8,537	1,702	2,441	4,394
Fires/Burns	1,463	617	3,832	920	1,548	1,364
Drownings**	38¶	16	2,453	78	107	2,268
Other	35,726	15,071	42,421	14,235	19,272	8,914
Total§	**56,859**	**23,985**	**$157,615**	**$44,807**	**$64,920**	**$47,888**

*A discount rate of 6% was used to convert aggregate earnings lost in future years to present values.
†Per 100,000 persons.
§Numbers may not add to totals because of rounding.
¶Figure has low statistical reliability or precision (relative standard error exceeds 30%).
**Includes near drownings.

Cost of Injury — Continued

In 1985, morbidity losses included 5.1 million productive life years[†], or 9 life years lost per 100 injured persons. These losses represented a cost of $64.9 billion, or $1145 per injured person. Injury fatalities resulted in losses of 5.3 million life years and $47.9 billion.

Private sources (e.g., private health insurance, workers' compensation, uninsured care) paid approximately 72% of the direct cost; public sources (federal, state, and local governments) accounted for 28%. Medicare and other public sources paid 72% of the direct costs for injured persons aged ≥65 years. For injured persons aged <65 years, however, private health insurance and other private funds paid 85% of the direct costs.

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Editorial Note: In 1985 and 1988, the National Academy of Sciences (NAS) recommended as a high priority research on the prevention and treatment of injuries and the rehabilitation of injured persons (*2,3*). Although injury is the fourth leading cause of death in the United States, productivity losses are greater from injury than from the three other leading causes of death—heart disease, stroke, and cancer. Injury causes 36 life years lost per death compared with 12 years from heart disease and stroke combined and 16 years from cancer.

The large number of premature deaths and disabilities due to injury and the accompanying high economic cost, including public-sector expenditures, emphasize the need to reduce the burden of injury in the United States. Implementation of known injury-control interventions can substantially reduce the incidence, severity, and accompanying cost of injury.

The report to Congress provides recommendations in four major areas: injury prevention and control, methods for collecting injury data, types of data needed, and treatment and rehabilitation. Data needs include 1) a national coordinated program of injury surveillance for rapid identification and control of specific injuries; 2) longitudinal studies to determine the short- and long-term consequences of injuries for individuals, families, friends, communities, and society; 3) improved and more timely data on cost of injury; and 4) reliable data on occupational injuries (*4*).

Single copies of *Cost of Injury in the United States* are available from the Division of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, CDC, Mailstop F-36, Atlanta, GA 30333.

References

1. Rice DP, MacKenzie EJ, Jones AS, et al. Cost of injury in the United States: a report to Congress. San Francisco: Institute for Health and Aging, University of California; Injury Prevention Center, Johns Hopkins University, 1989.

[†]Derived from the number of years lost from work by employed persons and from performance of housekeeping services by those who perform them as their major activity.

Cost of Injury — Continued

2. Committee on Trauma Research, Commission on Life Sciences, National Research Council, Institute of Medicine. Injury in America: a continuing public health problem. Washington, DC: National Academy Press, 1985.
3. Committee to Review the Status and Progress of the Injury Control Program at the Centers for Disease Control. Injury control. Washington, DC: National Academy Press, 1988.
4. National Research Council. Counting injuries and illnesses in the workplace: proposals for better systems. Washington, DC: National Academy Press, 1987.

Erratum: Vol. 38, No. SS-2

In the *MMWR CDC Surveillance Summaries* dated September 1989, in the article titled "Abortion Surveillance, United States, 1984–1985," four percentage distributions shown in Table 1, on page 16, are incorrect. The percentage distribution under "Residence," subheading "Abortion out-of-state," should be corrected for the years 1980–1983, as follows: 1980, 7.4; 1981, 7.5; 1982, 7.1; and 1983, 6.7.

Clarification: Vol. 38, No. S-6

In the recommendations entitled *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers*, the following reference should be added for the law-enforcement and correctional-facility recommendations on pages 23 and 26:

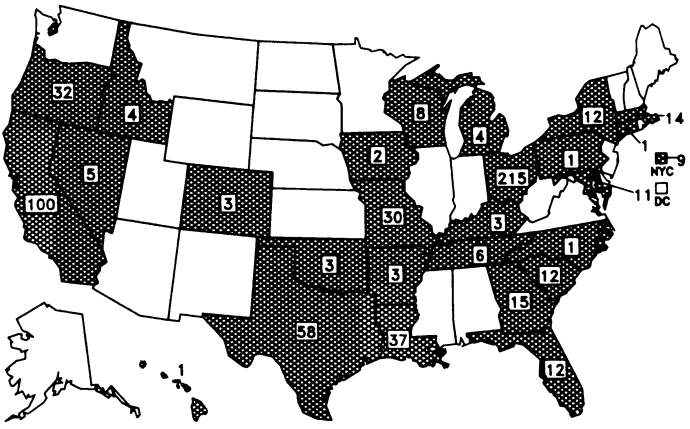
Bigbee D. The law enforcement officer and AIDS. 2nd ed. Washington, DC: US Department of Justice, Federal Bureau of Investigation, Forensic Science Research Training Center, 1988.

The third footnote to Table 4 on page 35 refers to Appendix A and Appendix B. These refer respectively to:

CDC. Update: universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other bloodborne pathogens in health-care settings. MMWR 1988;37:377–82,387–8.

CDC. Recommendations for prevention of HIV transmission in health-care settings. MMWR 1987;36(no. 2S).

FIGURE I. Reported measles cases — United States, weeks 40–43, 1989



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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