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Perspectives in Disease Prevention and Health Promotion

Regional Distribution of Deaths From Residential Fires — United States, 1978-1984

In 1984, 5,010 people in the United States lost their lives in fires; almost 90% of them died in residential fires (National Center for Health Statistics [NCHS], unpublished data). To assess the regional distribution of these deaths,* 1978-1984 mortality data collected by NCHS† were analyzed.

While an average of 4,897 persons died in residential fires each year during the period 1978-1984 (Table 1), residential fire death rates per 100,000 population decreased 21%, from 2.4 in 1978 to 1.9 in 1984 (CDC, unpublished data). The South had the largest average number of deaths per year (2,150) and the highest average death rate per 100,000 population (2.9). In contrast, the West had the lowest average number of deaths per year (585) and the lowest death rate per 100,000 population (1.4). Residential fire deaths and death rates for the Northeast and the Midwest were lower than those for the South, but higher than those for the West.

Overall, males in the South had the most residential fire deaths and the highest death rate per 100,000. The male to female ratio of residential fire death rates varied by region from 1.4 to 1.7. However, death rates for females in the South were higher than for females in other regions and higher than for males in the West.

In all regions, residential fire death rates were much higher for children aged 0-4 years and the elderly (≥65 years) than for those aged 5-64 years; however, the rate differences were most pronounced in the South. Children had higher residential fire death rates than the elderly in the Midwest and the Northeast. However, in the South and West, residential fire death rates were lower for children than for the elderly.

For each region, deaths from conflagrations (uncontrolled fires) (E890) represented 87% to 90% of deaths from residential fires; those from clothing ignitions (E893) represented 4% to 5%; and those from other residential fires such as fires in

*Deaths from residential fires are those with the underlying cause of death coded as E890-E899 and place of occurrence coded as 'home,' based on the International Classification of Diseases, Supplementary Classification of External Cause of Injury, 8th Revision Adapted for 1978 and 9th Revision for 1979-1984.

†To compute sex- and age-specific death rates, the average annual number of deaths occurring during the period 1978-1984 in each of the four NCHS regions (Northeast, Midwest, South, and West) were used as a numerator, and the 1980 regional census total was used as the denominator.

Fires — Continued

unspecified buildings or structures (E891) and ignition from highly inflammable material (E894) represented 6% to 8%. For each type of residential fire death, the South had the highest number of deaths, and the West, the lowest. For conflagrations, the residential fire death rate was highest in the South (2.5) and lowest in the West (1.2); fire death rates were similar in the Northeast (1.7) and Midwest (1.9). For clothing ignition, the residential fire death rates were identical in all four regions (0.1). For all other residential fire deaths, the rate in the Northeast, Midwest, and West was 0.1; the rate in the South was 0.2.

Most residential fire deaths occurred in the winter (December-February), and the fewest occurred in the summer (June-August) (Figure 1). Within each region, the seasonal distribution of residential fire deaths varied markedly. In the winter, the number of deaths in every region was 1.5 to 3.3 times the number of deaths in the summer. For every season, the South had the highest number of deaths, and the West had the lowest.

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Editorial note: The week of October 4-10 marks the 65th anniversary of Fire Prevention Week (FPW), which was first observed in 1922 after President Warren Harding proclaimed a national fire prevention day to commemorate the Great Chicago Fire of 1871 (*1*). The Chicago fire destroyed over 17,000 buildings, killed 250 persons, and rendered 10,000 others homeless (*1*).

Since residential fire deaths have accounted for most deaths from fires and flames in recent years, the U.S. Department of Health and Human Services identified residential fires as an important area for intervention and established an objective to reduce the death rate from the 2.4 deaths per 100,000 recorded in 1978 to 1.5 deaths

TABLE 1. Average annual number of residential fire deaths and death rates* per 100,000 population, by sex and age of decedents and by type of fire — United States, 1978-1984

	South		Midwest		Northeast		West		Total†	
	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate
Sex										
Male	1,331	3.6	725	2.5	531	2.3	343	1.6	**2,930**	**2.7**
Female	819	2.1	497	1.6	410	1.6	242	1.1	**1,967**	**1.7**
Age										
<5 years	343	6.2	226	5.2	138	4.5	78	2.3	**785**	**4.8**
5-64 years	1,189	1.9	679	1.4	533	1.3	331	0.9	**2,733**	**1.5**
≥65 years	615	7.2	316	4.7	268	4.4	175	4.1	**1,373**	**5.4**
Type										
Conflagration	1,897	2.5	1,104	1.9	837	1.7	509	1.2	**4,346**	**1.9**
Clothing ignition	92	0.1	45	0.1	48	0.1	29	0.1	**214**	**0.1**
Other	161	0.2	72	0.1	56	0.1	47	0.1	**336**	**0.1**
Total deaths tabulated†	**2,150**	**2.9**	**1,222**	**2.1**	**940**	**1.9**	**585**	**1.4**	**4,897**	**2.2**

*$\frac{\text{(Total number of deaths, 1978-1984)}}{\text{1980 population}} \div 7$

†Rows and columns may not equal total because of rounding.

Fires — Continued

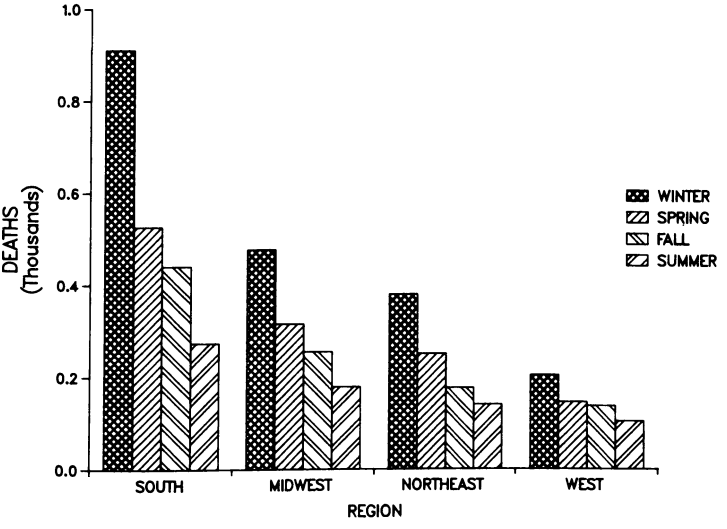
per 100,000 by 1990 (*2*). At the same time, the department established an objective to increase the number of functioning smoke detectors in residential homes from 30 million in 1979 to at least 110 million (75% of homes) by 1990 (*2*). These objectives go hand-in-hand with the aim of FPW activities—to promote fire safety and prevent fire-related injuries, deaths, and property damage.

During FPW, individual fire departments across the nation conduct additional fire safety programs for targeted populations in their areas. These programs are of two general types: preventing fires from occurring and reducing the risk of injury in the event of fire. Prevention activities focus on promoting safe storage of matches and flammable liquids such as gasoline and kerosene, teaching children not to play with matches, and discouraging people from smoking in bed. Injury risk-reduction programs teach how to install and maintain smoke detectors, how to put out fires, and how to escape during a fire.

Smoke detectors are relatively inexpensive devices designed to warn people of a fire before it becomes unmanageable and noxious gases are released. Although the effectiveness of smoke detectors has not been thoroughly evaluated, one investigator estimated that the residential fire death rate in homes with a detector was half that in homes without one (*3*). Possible explanations for continued residential fire deaths include the low prevalence of smoke detectors in the homes of high-risk groups and poor maintenance of smoke detectors after installation; personal characteristics such as alcohol consumption and smoking in bed; and conditions that hamper the chances of escape from a fire, such as hearing and/or visual impairment, the effect of medications, lack of mobility, or advanced age (*4-7*). Additional risk factors for residential fires are poverty, poor housing, and decreased availability and slower response of fire department services (*7-9*).

Reasons for the high rate of residential fire deaths in the South are not known because definitive studies on residential fires have not been conducted. There is,

FIGURE 1. Average annual residential fire deaths, by region and season — United States, 1978-1984



Fires – Continued

however, some evidence that, compared with other regions, the South has had a lower prevalence of smoke detectors (*10*), a higher usage of portable heating equipment (*6*), and a larger percentage of persons below the poverty level (*11*). Together, these factors may contribute to the higher rate of residential fire deaths in the South.

The overall residential fire death rate in the West was lower than 1.5 deaths per 100,000 (the 1990 objective rate for residential fires), although children, the elderly, and males in this region had rates higher than 1.5. The overall death rates for all other regions were 27% to 93% higher than the 1990 objective, and some age-specific rates far exceeded the 1990 objective for lowering the residential fire death rate.

Most residential fire deaths occurred in the winter, followed by spring, fall, and summer. Since the risk of dying in a residential fire varies markedly by season, deaths from residential fires might be reduced if fire prevention and risk-reduction activities in each region target high-risk groups at appropriate times of the year. Residential fire death rates might be further reduced by increasing the prevalence of functioning smoke detectors in the homes of high-risk groups, by adopting safe house-heating practices, and by modifying commercial brands of cigarettes to reduce their potential to start fires on upholstered furniture or mattresses (*12*; National Bureau of Standards, unpublished data). The manufacture of self-extinguishing and otherwise less fire-prone cigarettes is technically feasible, according to a recent study conducted by the National Bureau of Standards (National Bureau of Standards, unpublished data).

The maintenance of functioning smoke detectors in high-risk homes will require innovative approaches. For example, to reduce fire death risks for the elderly, a public health nurse or a home health-care provider might be asked to check the condition of the smoke detector and complete a fire safety checklist as part of the medical evaluation. Further information is needed to assess the effectiveness of smoke detectors in homes of the elderly and to ascertain specific circumstances leading to residential fire deaths.

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Fires — Continued

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Current Trends

Impact of the 1985 CDC Lead Statement — Savannah, Georgia

In January 1985, CDC published a statement of revised recommendations on screening children for lead poisoning (*1*). The statement recommended that children at high risk for lead poisoning be screened as frequently as every 3 to 6 months, using a two-step screening process consisting of an initial erythrocyte protoporphyrin (EP) test followed by a second EP test and a blood lead (BL) test if the initial test indicated an EP level ≥35 μg/dl. The statement also recommended that children <6 years of age with BL concentrations ≥25 μg/dl and EP concentrations ≥35 μg/dl be considered to have lead toxicity and to require medical follow-up. In contrast, the previous CDC statement, published in 1978, had recommended medical follow-up if children had BL concentrations ≥30 μg/dl and EP concentrations ≥50 μg/dl.

On January 23, 1985, the Lead Screening Program in Chatham County, Georgia, adopted the new CDC guidelines. Even though there was a similar number of screenings in 1984 and 1985 (>5,000), the program identified many more children in the Savannah area as having lead toxicity in 1985. Fifty-nine children with lead toxicity had a total of 68 hospitalizations in 1985, compared with 25 children with 42 hospitalizations in 1984. The differences represent a 140% increase in the number of children treated and a 60% increase in overall hospitalizations for treatment.

Test results were evaluated to determine whether this increase was attributable to the new criteria for medical referral or whether more children had lead toxicity. Researchers calculated the number of children who would not have received follow-up testing and referral under the 1978 guidelines and compared that number to the number receiving such care under the new guidelines. In 1985, 862 children (15% of 5,828 screenings) required follow-up because their EP levels were ≥35 μg/dl. However, only 366 (6%) had EP levels >50 μg/dl and would have received follow-up under the 1978 guidelines. Using the new guidelines resulted in the evaluation of 150% more children in 1985.

The quarterly trends of the mean EP and BL levels of children screened in 1985 were also studied. The mean EP level declined for each 3-month period in 1985 (30 μg/dl, 25 μg/dl, 23 μg/dl, and 22 μg/dl). The proportion of children requiring follow-up BL and EP testing also declined (22%, 16%, 12%, and 11%).

Seven hundred fifty-seven of the 862 children with EP levels ≥35 μg/dl were available for retesting. The highest BL level was 64 μg/dl, and the mean BL level was 17 μg/dl. Of those retested, 139 had BL levels ≥25 μg/dl and were referred for medical follow-up. If the 1978 CDC guidelines had been in effect, only the 67 children with BL levels ≥30 μg/dl would have been referred. The difference represents a 110% increase in the number of medical referrals because of the revised guidelines.

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Lead Statement — Continued

Editorial Note: Although children's lead exposure appears to be declining in the United States, researchers suggest that BL levels lower than the current cutoff for retesting may have deleterious effects on the developing child (*2*). The greatest potential harm appears to be in neurobehavioral abnormalities and intellectual impairment. In the revised statement on lead poisoning published by CDC in 1985, the EP screening guidelines were unchanged—only those relating to the BL and EP levels for medical follow-up were changed. The recommendations reflected current knowledge concerning screening, treatment, follow-up, and environmental intervention for children with elevated BL levels.

The American Academy of Pediatrics recently published its recommendations for pediatric lead screening (*2*), which closely follow those of the 1985 CDC statement. Some researchers and public health officials, however, have proposed that the CDC guidelines be further revised because the current criteria for medical referral allow children to have BL concentrations up to 24 μg/dl, levels that may be unsafe.

(Continued on page 655)

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

Disease	39th Week Ending			Cumulative, 39th Week Ending		
	Oct. 3, 1987	Sept. 27, 1986	Median 1982-1986	Oct. 3, 1987	Sept. 27, 1986	Median 1982-1986
Acquired Immunodeficiency Syndrome (AIDS)	-*	135	N	13,287	9,566	N
Aseptic meningitis	305	429	429	8,405	7,448	6,993
Encephalitis: Primary (arthropod-borne & unspec)	33	49	49	954	867	896
Post-infectious	2	1	1	84	87	87
Gonorrhea: Civilian	14,312	19,810	19,242	579,249	658,128	662,548
Military	322	378	438	12,367	12,388	16,243
Hepatitis: Type A	456	476	489	18,255	16,620	16,523
Type B	414	442	482	19,083	19,285	19,100
Non A, Non B	36	54	N	2,237	2,674	N
Unspecified	62	69	139	2,368	3,331	4,266
Legionellosis	12	26	N	646	554	N
Leprosy	2	4	4	146	195	189
Malaria	17	41	26	669	843	782
Measles: Total†	16	45	23	3,358	5,476	2,338
Indigenous	16	45	N	2,954	5,188	N
Imported	-	-	N	404	282	N
Meningococcal infections: Total	27	37	34	2,204	1,940	2,108
Civilian	27	37	34	2,203	1,938	2,093
Military	-	-	-	1	2	6
Mumps	104	80	45	10,511	3,643	2,532
Pertussis	59	110	91	1,875	2,458	1,836
Rubella (German measles)	1	8	7	303	447	614
Syphilis (Primary & Secondary): Civilian	632	803	706	26,168	19,689	20,976
Military	1	4	6	127	129	236
Toxic Shock syndrome	3	11	N	245	270	N
Tuberculosis	402	539	500	15,756	16,307	16,307
Tularemia	4	6	5	156	115	196
Typhoid Fever	7	10	10	245	230	276
Typhus fever, tick-borne (RMSF)	11	27	16	533	622	726
Rabies, animal	86	148	136	3,591	4,255	4,255

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1987		Cum. 1987
Anthrax	1	Leptospirosis	17
Botulism: Foodborne	9	Plague (Mont. 1, N. Mex. 1)	9
Infant (Hawaii 1)	41	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (Ohio 1, Wash. 2)	66
Brucellosis (Fla. 1)	85	Rabies, human	-
Cholera	4	Tetanus (Ala. 1)	32
Congenital rubella syndrome	5	Trichinosis (Calif. 1)	32
Congenital Syphillis, <1 year	127	Typhus fever, flea-borne (endemic, murine)	30
Diphtheria (Wash. 1)	2		

*Because of the conversion currently being made in the computer software to accomodate the revised AIDS case definition for surveillance, no new case reports were added last week to the national case count.
†There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending October 3, 1987 and September 27, 1986 (39th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1987	1987	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1986	1987	1987	1987	1987	1987	Cum. 1987
UNITED STATES	13,287	305	954	84	579,249	658,128	456	414	36	62	12	146
NEW ENGLAND	528	12	36	2	17,872	16,003	20	21	2	3	1	12
Maine	16	1	2	-	532	667	-	1	-	-	-	-
N.H.	13	1	2	-	298	424	2	2	1	-	-	2
Vt.	6	3	5	-	163	195	1	-	-	-	1	-
Mass.	330	4	17	1	6,311	6,649	3	8	1	3	-	9
R.I.	46	2	3	1	1,590	1,309	1	3	-	-	-	-
Conn.	117	1	7	-	8,978	6,759	13	7	-	-	-	1
MID. ATLANTIC	3,922	76	112	7	89,706	109,609	46	71	3	13	1	11
Upstate N.Y.	473	39	42	3	12,548	13,358	31	30	-	8	1	-
N.Y. City	2,364	2	8	-	46,379	62,056	11	18	-	5	-	11
N.J.	704	22	7	-	12,040	14,534	2	7	1	-	-	-
Pa.	381	13	55	4	18,739	19,661	2	16	2	-	-	-
E.N. CENTRAL	912	73	290	12	87,831	90,887	20	33	5	1	3	7
Ohio	176	31	125	5	19,617	22,084	3	18	2	1	2	2
Ind.	80	U	43	-	6,594	9,367	U	U	U	U	U	-
Ill.	442	-	25	7	27,139	22,508	6	3	2	-	-	1
Mich.	146	42	65	-	27,253	27,516	11	12	1	-	1	3
Wis.	68	-	32	-	7,228	9,412	-	-	-	-	-	1
W.N. CENTRAL	299	18	57	-	23,626	28,235	29	16	1	3	-	-
Minn.	80	3	36	-	3,586	4,048	-	1	-	-	-	-
Iowa	21	5	9	-	2,266	2,886	2	3	-	-	-	-
Mo.	144	7	-	-	12,374	14,201	11	7	-	1	-	-
N. Dak.	1	-	-	-	210	249	-	-	-	-	-	-
S. Dak.	2	1	-	-	453	594	-	-	-	-	-	-
Nebr.	16	2	10	-	1,508	2,142	1	2	-	1	-	-
Kans.	35	-	2	-	3,229	4,115	15	3	1	1	-	-
S. ATLANTIC	2,165	54	125	28	152,045	170,700	19	88	6	2	1	5
Del.	15	-	4	1	2,579	2,777	-	-	-	-	-	-
Md.	243	18	16	5	17,402	19,861	4	15	1	1	-	2
D.C.	272	-	-	-	10,233	12,647	1	2	-	-	-	-
Va.	155	18	29	2	11,241	14,001	1	8	1	-	-	-
W. Va.	18	2	40	-	1,088	1,723	-	1	-	-	-	-
N.C.	120	3	21	-	21,784	26,352	1	9	-	-	-	-
S.C.	55	-	-	-	11,855	14,840	1	14	-	-	1	1
Ga.	321	3	1	-	27,180	28,527	4	11	1	-	-	-
Fla.	966	10	14	20	48,683	49,972	7	28	3	1	-	2
E.S. CENTRAL	163	22	50	7	43,885	53,093	8	22	-	-	2	-
Ky.	25	10	23	1	4,463	5,861	2	2	-	-	1	-
Tenn.	31	5	11	-	15,398	20,321	1	11	-	-	1	-
Ala.	86	6	16	1	13,946	15,329	1	6	-	-	-	-
Miss.	21	1	-	5	10,078	11,582	4	3	-	-	-	-
W.S. CENTRAL	1,227	19	119	4	67,001	77,611	55	39	3	19	1	4
Ark.	26	-	1	2	7,577	7,279	3	-	-	-	-	-
La.	167	-	20	-	11,739	13,794	-	9	-	-	-	-
Okla.	73	10	19	1	7,253	8,887	3	2	-	-	-	-
Tex.	961	9	79	1	40,432	47,651	49	28	3	19	1	4
MOUNTAIN	356	10	38	4	15,438	19,483	78	33	2	-	-	2
Mont.	2	-	1	-	432	543	4	-	-	-	-	-
Idaho	5	-	-	-	553	648	9	1	-	-	-	1
Wyo.	3	-	1	-	336	414	-	-	-	-	-	-
Colo.	147	2	11	-	3,467	5,031	9	6	1	-	-	-
N. Mex.	27	-	5	-	1,665	2,111	3	2	-	-	-	-
Ariz.	115	5	15	1	5,295	6,268	40	13	1	-	-	-
Utah	21	1	1	3	468	829	9	2	-	-	-	1
Nev.	36	2	4	-	3,222	3,639	4	9	-	-	-	-
PACIFIC	3,715	21	127	20	81,845	92,507	181	91	14	21	3	105
Wash.	160	-	10	4	6,188	6,945	72	28	5	6	2	4
Oreg.	100	-	-	-	3,069	3,896	25	15	2	-	-	-
Calif.	3,381	13	112	16	70,648	78,646	74	38	7	15	1	81
Alaska	12	4	2	-	1,300	2,049	9	10	-	-	-	1
Hawaii	62	4	3	-	640	971	1	-	-	-	-	19
Guam	-	-	-	-	156	149	-	1	-	-	-	-
P.R.	84	1	1	1	1,537	1,820	1	2	-	1	-	5
V.I.	-	-	-	-	207	211	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	313	357	-	1	-	2	-	45
Amer. Samoa	-	-	-	-	66	35	-	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 3, 1987 and September 27, 1986 (39th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986
UNITED STATES	669	16	2,954	-	404	5,476	2,204	104	10,511	59	1,875	2,458	1	303	447
NEW ENGLAND	45	-	114	-	156	96	186	-	43	9	125	125	-	1	9
Maine	2	-	3	-	-	13	10	-	-	-	26	2	-	1	-
N.H.	2	-	61	-	102	43	18	-	9	-	27	62	-	-	1
Vt.	-	-	11	-	15	-	13	-	3	-	4	3	-	-	1
Mass.	16	-	22	-	32	35	92	-	13	-	42	29	-	-	4
R.I.	7	-	1	-	1	2	14	-	2	-	1	5	-	-	2
Conn.	18	-	16	-	6	3	39	-	16	9	25	24	-	-	1
MID. ATLANTIC	80	-	520	-	57	1,701	279	7	193	3	218	158	-	11	32
Upstate N.Y.	29	-	26	-	14	100	97	3	87	2	124	104	-	9	24
N.Y. City	6	-	441	-	19	672	22	-	10	-	8	3	-	1	5
N.J.	22	-	32	-	7	905	51	4	52	1	13	15	-	1	3
Pa.	23	-	21	-	17	24	109	-	44	-	73	36	-	-	-
E.N. CENTRAL	44	9	303	-	25	1,059	326	15	6,021	3	191	330	-	35	73
Ohio	12	-	1	-	4	10	108	-	84	-	55	138	-	-	1
Ind.	4	U	-	U	-	30	36	U	918	U	15	26	U	-	-
Ill.	7	9	136	-	18	669	78	2	2,497	-	14	37	-	25	63
Mich.	17	-	29	-	-	59	84	12	903	3	45	28	-	9	8
Wis.	4	-	137	-	3	286	20	1	1,619	-	62	101	-	1	1
W.N. CENTRAL	21	-	208	-	22	339	92	2	1,345	9	118	304	-	1	12
Minn.	7	-	19	-	20	49	27	-	774	-	13	44	-	-	1
Iowa	5	-	-	-	-	134	3	1	400	7	48	18	-	1	1
Mo.	5	-	188	-	1	31	26	1	25	2	30	18	-	-	1
N. Dak.	-	-	1	-	-	25	1	-	6	-	10	5	-	-	1
S. Dak.	-	-	-	-	-	-	2	-	90	-	3	14	-	-	-
Nebr.	3	-	-	-	-	1	5	-	3	-	1	7	-	-	-
Kans.	1	-	-	-	1	99	28	-	47	-	13	198	-	-	8
S. ATLANTIC	113	2	129	-	12	641	355	2	241	12	279	691	1	15	6
Del.	1	-	32	-	-	1	5	-	-	-	5	227	-	2	-
Md.	25	-	5	-	2	35	35	-	25	4	15	159	-	2	-
D.C.	15	-	-	-	1	2	7	-	1	-	-	-	1	1	-
Va.	23	-	1	-	-	60	58	1	70	1	48	34	-	1	-
W. Va.	2	-	-	-	-	2	2	1	33	-	46	23	-	-	-
N.C.	10	-	2	-	3	4	46	-	17	6	113	63	-	1	-
S.C.	5	-	2	-	-	301	35	-	13	-	-	18	-	-	-
Ga.	4	-	-	-	1	93	69	-	40	-	23	122	-	1	-
Fla.	28	2	87	-	5	143	98	-	42	1	29	45	-	7	6
E.S. CENTRAL	12	-	3	-	3	67	110	1	1,233	3	36	46	-	3	4
Ky.	1	-	-	-	-	6	20	-	214	-	1	5	-	2	4
Tenn.	1	-	-	-	-	56	46	1	959	-	9	18	-	1	-
Ala.	5	-	1	-	3	2	36	-	60	2	20	23	-	-	-
Miss.	5	-	2	-	-	3	8	N	N	1	6	-	-	-	-
W.S. CENTRAL	44	-	405	-	4	647	158	73	885	3	234	194	-	11	62
Ark.	1	-	-	-	-	283	19	1	282	-	12	14	-	2	-
La.	-	-	-	-	-	4	20	68	364	2	44	13	-	-	-
Okla.	4	-	2	-	1	39	19	N	N	1	127	104	-	5	-
Tex.	39	-	403	-	3	321	100	3	238	-	51	63	-	4	62
MOUNTAIN	30	-	481	-	19	325	72	-	201	1	157	234	-	24	23
Mont.	-	-	127	-	1	8	4	-	6	-	6	13	-	8	2
Idaho	2	-	-	-	-	1	5	-	5	-	42	40	-	1	-
Wyo.	1	-	-	-	2	-	-	-	-	-	5	4	-	1	1
Colo.	7	-	5	-	4	7	21	-	28	1	55	62	-	-	1
N. Mex.	2	-	313	-	9	38	5	N	N	-	11	20	-	-	-
Ariz.	14	-	34	-	1	258	24	-	149	-	30	56	-	4	2
Utah	1	-	-	-	1	12	9	-	9	-	8	35	-	10	14
Nev.	3	-	2	-	1	1	4	-	4	-	-	4	-	-	3
PACIFIC	280	5	791	-	106	601	626	4	349	16	517	376	-	202	226
Wash.	19	-	34	-	7	157	70	-	46	4	75	114	-	2	15
Oreg.	5	-	3	-	78	12	26	N	N	-	59	12	-	2	1
Calif.	252	5	754	-	17	404	516	4	281	2	178	237	-	127	205
Alaska	3	-	-	-	-	-	5	-	7	-	10	2	-	2	-
Hawaii	1	-	-	-	4	28	9	-	15	10	195	11	-	69	5
Guam	-	-	2	-	-	5	4	-	5	-	-	-	-	1	3
P.R.	1	-	745	-	-	36	5	-	11	-	16	13	-	2	60
V.I.	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-
Pac. Trust Terr.	-	-	1	-	-	-	1	-	5	-	1	-	-	1	2
Amer. Samoa	-	-	-	-	-	2	-	-	3	-	-	-	-	-	1

*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 3, 1987 and September 27, 1986 (39th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1987
UNITED STATES	26,168	19,689	3	15,756	16,307	156	245	533	3,591
NEW ENGLAND	453	351	1	491	528	1	26	7	6
Maine	1	15	-	22	33	-	1	-	2
N.H.	3	10	-	16	25	-	-	-	-
Vt.	2	8	1	10	14	-	1	-	-
Mass.	210	194	-	275	281	1	14	4	-
R.I.	9	18	-	42	40	-	3	-	1
Conn.	228	106	-	126	135	-	7	3	3
MID. ATLANTIC	4,910	2,797	1	2,764	3,284	-	28	17	305
Upstate N.Y.	177	142	1	378	470	-	8	7	47
N.Y. City	3,605	1,580	-	1,317	1,703	-	2	5	-
N.J.	522	496	-	507	573	-	18	1	13
Pa.	606	579	-	562	538	-	-	4	245
E.N. CENTRAL	703	706	-	1,826	1,936	3	28	47	136
Ohio	84	98	-	338	338	1	8	33	14
Ind.	48	87	U	174	215	-	4	-	15
Ill.	383	351	-	809	830	-	8	6	38
Mich.	134	137	-	422	459	-	5	5	26
Wis.	54	33	-	83	94	2	3	3	43
W.N. CENTRAL	148	165	-	456	496	56	9	52	780
Minn.	14	28	-	92	110	-	4	-	183
Iowa	24	6	-	32	39	4	2	1	221
Mo.	70	87	-	250	249	35	3	18	48
N. Dak.	-	6	-	6	8	1	-	-	92
S. Dak.	10	5	-	23	23	9	-	1	184
Nebr.	10	12	-	18	12	2	-	3	16
Kans.	20	21	-	35	55	5	-	29	36
S. ATLANTIC	8,929	5,947	-	3,412	3,170	5	25	200	1,012
Del.	60	48	-	34	33	1	-	2	-
Md.	484	336	-	309	234	-	3	44	348
D.C.	281	215	-	114	111	-	2	-	39
Va.	226	279	-	328	262	2	6	17	283
W. Va.	10	18	-	82	93	-	1	7	49
N.C.	522	381	-	381	428	2	2	69	13
S.C.	548	504	-	353	415	-	-	33	46
Ga.	1,251	1,130	-	596	504	-	-	26	162
Fla.	5,547	3,036	-	1,215	1,090	-	11	2	72
E.S. CENTRAL	1,461	1,377	-	1,289	1,468	7	3	87	238
Ky.	13	60	-	319	336	2	2	9	114
Tenn.	572	471	-	302	436	1	1	56	57
Ala.	379	419	-	412	457	1	-	15	67
Miss.	497	427	-	256	239	3	-	7	-
W.S. CENTRAL	3,239	3,921	1	1,865	2,058	58	18	109	487
Ark.	202	188	-	221	286	26	2	12	100
La.	606	674	-	211	346	3	-	-	12
Okla.	121	103	-	173	189	26	4	84	29
Tex.	2,310	2,956	1	1,260	1,237	3	12	13	346
MOUNTAIN	537	459	-	381	395	15	13	12	300
Mont.	9	6	-	11	21	2	-	10	134
Idaho	5	10	-	17	17	1	-	-	7
Wyo.	2	1	-	-	-	-	-	1	66
Colo.	90	106	-	40	45	4	-	-	7
N. Mex.	48	54	-	73	77	1	9	-	2
Ariz.	250	187	-	200	182	3	3	-	64
Utah	22	14	-	18	28	2	-	1	7
Nev.	111	81	-	22	25	2	1	-	13
PACIFIC	5,788	3,966	-	3,272	2,972	11	95	2	327
Wash.	77	120	-	191	148	4	7	-	-
Oreg.	215	85	-	92	102	4	1	-	-
Calif.	5,482	3,736	-	2,789	2,551	2	81	2	324
Alaska	3	-	-	54	37	1	-	-	3
Hawaii	11	25	-	146	134	-	6	-	-
Guam	2	1	-	26	34	-	-	-	-
P.R.	691	680	-	222	253	-	-	-	52
V.I.	5	1	-	2	1	-	-	-	-
Pac. Trust Terr.	185	200	-	134	53	-	19	-	-
Amer. Samoa	2	-	-	-	5	-	1	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 3, 1987 (39th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	650	456	121	43	12	17	49
Boston, Mass.	173	116	31	11	3	11	18
Bridgeport, Conn.	50	35	12	2	-	1	1
Cambridge, Mass.	18	15	-	3	-	-	2
Fall River, Mass.	31	22	5	1	3	-	-
Hartford, Conn.	79	46	18	10	4	1	6
Lowell, Mass.	25	17	8	-	-	-	6
Lynn, Mass.	18	15	2	1	-	-	-
New Bedford, Mass.	25	20	3	2	-	-	1
New Haven, Conn.§	50	36	8	5	-	1	3
Providence, R.I.	35	26	5	1	1	2	-
Somerville, Mass.	9	6	3	-	-	-	1
Springfield, Mass.	59	41	15	2	1	-	5
Waterbury, Conn.	27	24	1	2	-	-	5
Worcester, Mass.	51	37	10	3	-	1	1
MID. ATLANTIC	2,804	1,841	517	311	60	74	108
Albany, N.Y.	45	29	8	4	3	1	-
Allentown, Pa.	21	18	2	1	-	-	2
Buffalo, N.Y.	102	71	18	7	2	3	11
Camden, N.J.	44	27	11	4	1	1	2
Elizabeth, N.J.	12	8	2	2	-	-	1
Erie, Pa.†	40	32	6	1	-	1	4
Jersey City, N.J.	59	44	11	4	-	-	2
N.Y. City, N.Y.	1,506	961	280	193	33	39	55
Newark, N.J.	63	23	15	19	3	3	3
Paterson, N.J.	32	11	9	5	1	6	1
Philadelphia, Pa.	403	266	70	44	12	11	13
Pittsburgh, Pa.†	84	46	26	7	2	3	1
Reading, Pa.	25	18	6	1	-	-	3
Rochester, N.Y.	117	93	17	3	2	2	6
Schenectady, N.Y.	34	25	7	2	-	-	1
Scranton, Pa.†	30	27	3	-	-	-	-
Syracuse, N.Y.	75	55	13	4	1	2	-
Trenton, N.J.	57	40	8	7	-	2	1
Utica, N.Y.	22	19	1	2	-	-	1
Yonkers, N.Y.	33	28	4	1	-	-	1
E.N. CENTRAL	2,230	1,472	454	162	64	77	96
Akron, Ohio	70	41	17	6	5	1	6
Canton, Ohio	35	28	6	1	-	-	4
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	125	87	22	8	4	4	12
Cleveland, Ohio	155	103	31	14	2	5	4
Columbus, Ohio	124	88	24	7	2	2	4
Dayton, Ohio	92	58	21	3	8	2	4
Detroit, Mich.	253	147	47	37	9	13	7
Evansville, Ind.	46	34	9	1	1	1	-
Fort Wayne, Ind.	46	35	7	3	-	1	-
Gary, Ind.§	12	9	3	-	-	-	-
Grand Rapids, Mich.	50	33	9	2	3	3	1
Indianapolis, Ind.	189	120	40	18	5	6	7
Madison, Wis.	38	26	4	-	5	3	2
Milwaukee, Wis.	113	77	25	5	1	5	8
Peoria, Ill.	52	43	6	1	-	2	5
Rockford, Ill.	62	40	15	3	2	2	8
South Bend, Ind.	37	29	5	2	1	-	3
Toledo, Ohio	96	66	21	3	3	3	5
Youngstown, Ohio	71	46	17	3	3	2	-
W.N. CENTRAL	854	581	165	53	23	32	35
Des Moines, Iowa	60	46	10	2	2	-	5
Duluth, Minn.	33	29	2	1	-	1	-
Kansas City, Kans.	39	26	7	5	-	1	1
Kansas City, Mo.	108	64	28	9	5	2	6
Lincoln, Nebr.	24	17	6	-	1	-	-
Minneapolis, Minn.	251	179	44	16	8	4	8
Omaha, Nebr.	81	49	19	6	2	5	3
St. Louis, Mo.	154	100	31	9	2	12	8
St. Paul, Minn.	41	31	6	1	-	3	2
Wichita, Kans.	63	40	12	4	3	4	2

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,296	750	296	138	59	51	61
Atlanta, Ga.	152	79	35	17	5	16	5
Baltimore, Md.	316	181	79	31	16	9	11
Charlotte, N.C.	86	54	15	9	8	-	3
Jacksonville, Fla.	111	69	20	15	4	3	7
Miami, Fla.	115	57	35	16	5	2	1
Norfolk, Va.	68	42	15	5	5	1	4
Richmond, Va.	90	55	26	3	2	4	10
Savannah, Ga.	49	32	12	3	2	-	4
St. Petersburg, Fla.	72	56	9	3	2	2	3
Tampa, Fla.	63	45	7	4	3	2	6
Washington, D.C.	146	60	38	30	7	11	5
Wilmington, Del.	28	20	5	2	-	1	2
E.S. CENTRAL	772	500	160	65	21	26	40
Birmingham, Ala.	121	75	23	14	6	3	4
Chattanooga, Tenn.	61	33	20	6	1	1	1
Knoxville, Tenn.	78	54	16	2	2	4	5
Louisville, Ky.	101	75	17	3	3	3	9
Memphis, Tenn.	148	96	29	13	7	3	12
Mobile, Ala.	74	55	10	4	-	5	3
Montgomery, Ala.	46	29	13	1	-	3	-
Nashville, Tenn.	143	83	32	22	2	4	6
W.S. CENTRAL	1,273	781	276	118	53	43	52
Austin, Tex.	60	36	11	9	3	1	4
Baton Rouge, La.	47	35	7	3	1	1	1
Corpus Christi, Tex.§	37	24	10	2	-	1	-
Dallas, Tex.	185	95	54	20	10	6	10
El Paso, Tex.	43	26	8	6	3	-	5
Fort Worth, Tex	102	63	21	7	3	8	4
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	49	34	9	1	-	3	1
New Orleans, La.	123	76	25	14	3	5	-
San Antonio, Tex.	164	111	26	12	11	4	11
Shreveport, La.	51	33	8	5	3	2	2
Tulsa, Okla.	104	72	23	5	3	1	7
MOUNTAIN	661	425	135	50	25	26	25
Albuquerque, N. Mex.	87	50	20	14	2	1	2
Colo. Springs, Colo.	29	14	10	3	1	1	4
Denver, Colo.	148	96	23	8	4	17	6
Las Vegas, Nev.	96	59	26	5	4	2	2
Ogden, Utah	21	13	3	-	5	-	3
Phoenix, Ariz.	121	80	23	11	5	2	1
Pueblo, Colo.	26	18	6	2	-	-	1
Salt Lake City, Utah	38	26	5	2	2	3	-
Tucson, Ariz.	95	69	19	5	2	-	6
PACIFIC	1,846	1,190	368	165	69	49	100
Berkeley, Calif.	25	16	7	1	-	1	4
Fresno, Calif.	72	44	15	7	3	3	8
Glendale, Calif.§	23	19	3	1	-	-	1
Honolulu, Hawaii	85	57	18	5	3	2	11
Long Beach, Calif.	74	51	13	5	2	3	3
Los Angeles Calif.§	520	325	109	54	21	6	15
Oakland, Calif.	63	47	8	4	4	-	5
Pasadena, Calif.	31	21	4	2	-	4	1
Portland, Oreg.	135	93	24	8	6	4	4
Sacramento, Calif.	141	84	28	16	5	8	15
San Diego, Calif.	124	74	34	9	7	-	7
San Francisco, Calif.	163	101	32	19	5	6	3
San Jose, Calif.	164	111	32	11	5	5	13
Seattle, Wash.	129	88	23	10	4	4	3
Spokane, Wash.	53	30	10	9	3	1	4
Tacoma, Wash.	44	29	8	4	1	2	3
TOTAL	12,386††	7,996	2,492	1,105	386	395	566

*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 4 weeks.

Lead Statement — Continued

Lowering the cutoff will identify additional children who may be at risk for lead toxicity. This may necessitate finding an alternative to the EP test, which is not a good predictor of lead exposure at low BL levels (*3*). EP levels become elevated as the result of many conditions—iron deficiency is often the cause (*4*). While EP is recommended as a screening test for both iron deficiency and lead toxicity, it is not recommended for identifying children with BL levels <18 μg/dl (*3*). At this level, mass screening may require BL instead of EP analysis.

References

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Epidemiologic Notes and Reports

Western Equine Encephalitis — United States and Canada, 1987

CDC has received reports of 37 western equine encephalitis (WEE) cases among humans and 132 cases among horses in the Plains and Rocky Mountain states thus far this year. This outbreak is the largest in the United States since 1977, when 41 cases among humans were reported. Active, hospital-based surveillance in Colorado has identified 29 cases, including one fatality. Passive surveillance has revealed three cases in Nebraska, two in Texas, two in North Dakota, and one in Montana. Colorado, Iowa, Nebraska, and North Dakota also reported sporadically occurring cases of St. Louis encephalitis (SLE), concurrently with the WEE epidemic. The diffuse character of the outbreak has made it difficult to assign a denominator to the human population at risk. However, the crude attack rate in Colorado, where there is evidence of statewide virus transmission, is 1.0/100,000.

The first WEE cases among humans were reported from Texas and Colorado; both had onset during the first week in July (Figure 1). The sex and age distribution of human patients follows the typical pattern of WEE outbreaks—25 are male, and 16 of these are between 15 and 64 years of age. A case-control study has been initiated to investigate behavioral and host factors associated with risk of infection.

Equine cases have been identified in 11 states and Manitoba Province, Canada (Figure 2). The earliest case was reported from south Texas in April. In June, most cases occurred in the Southwest (Texas Panhandle, New Mexico, and Oklahoma). During July, the epizootic spread rapidly across the Plains and Rocky Mountain states, extending as far north as North Dakota and Minnesota. In August, it expanded to Montana and Manitoba in the northwestern and northern reaches of the Great Plains and eastward to Wisconsin. Only four cases were reported from counties west of the Continental Divide.

Routine, seasonal surveillance of sentinel chickens and vector mosquitoes revealed enzootic virus activity in northeastern Utah and in the Imperial Valley and Sacramento Valley of California. However, despite this evidence of intense viral activity, no cases have been recognized among horses or humans in these areas.

Encephalitis — Continued

The vector mosquito population has been reduced because many municipalities throughout the affected area have applied adulticides as a control measure. In addition, the cessation of host-seeking behavior in *Culex tarsalis,* the principal mosquito vector, has diminished the risk in most areas.

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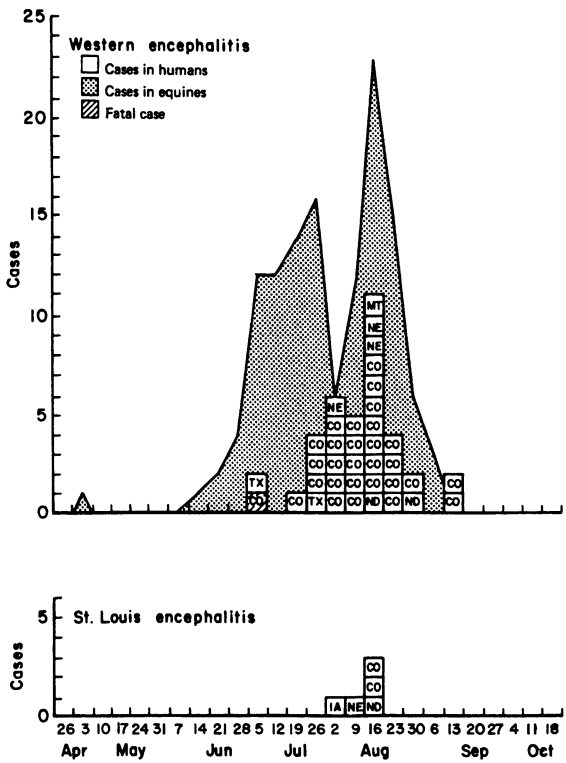
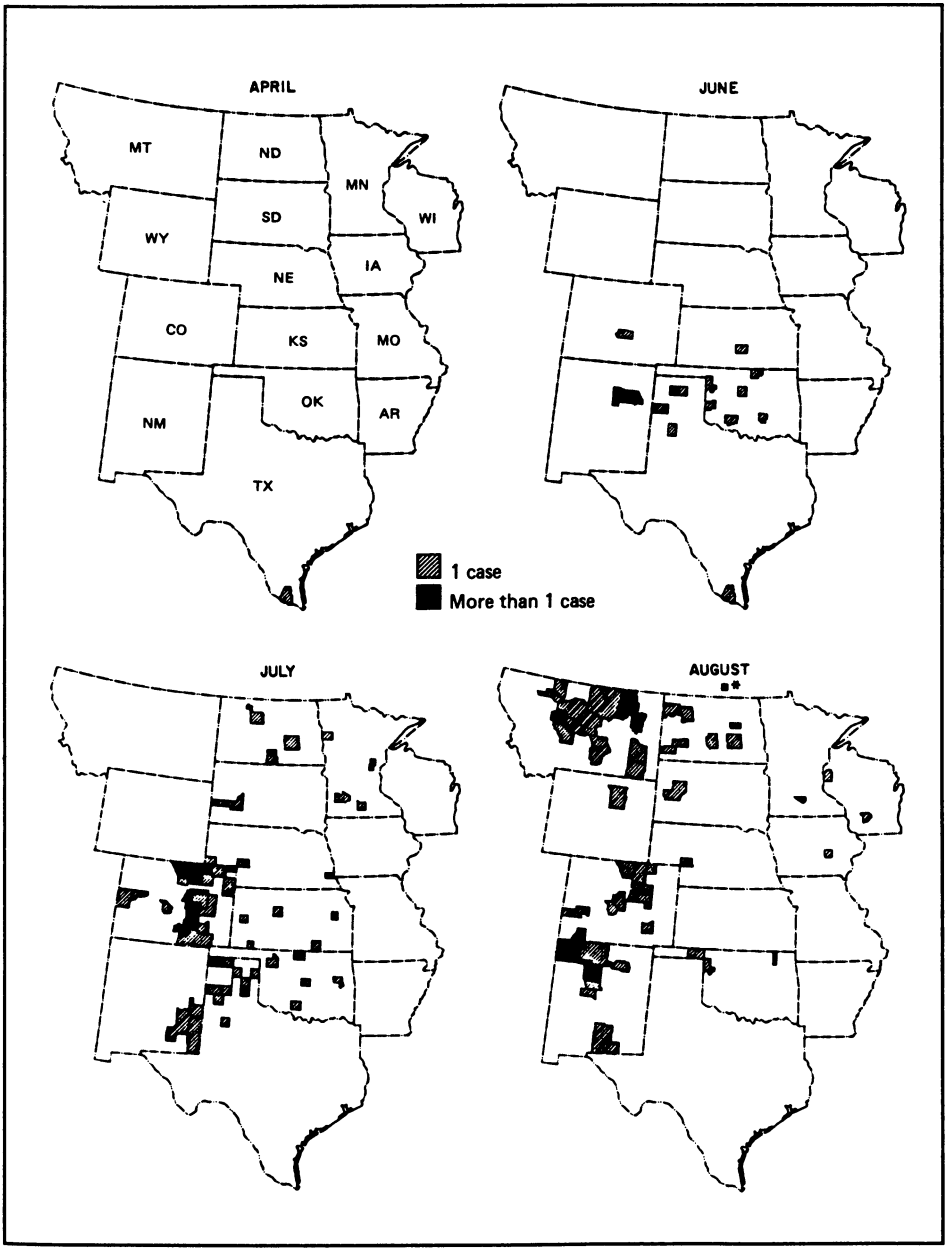
Editorial Note: In most years, WEE transmission occurs at a low level in the rural West and principally involves birds and *Cx. tarsalis,* which constitute the virus'

FIGURE 1. Western equine encephalitis and St. Louis encephalitis cases, by state of residence and week of onset — United States, 1987



Encephalitis — Continued

FIGURE 2. Western equine encephalitis in equines, by month of onset and county — United States, 1987



*One case has been reported from Manitoba Province, Canada.

Encephalitis — Continued

maintenance cycle (*1*). At such times, infections in humans and equines, which occur outside the maintenance cycle, result in small numbers of sporadically occurring cases (*2*). However, at intervals of 5 to 10 years and for reasons poorly understood, viral transmission in the maintenance cycle is more intense, and humans and equines become infected at epidemic and epizootic levels.

Outbreaks have often affected wide areas of the western United States and Canada. In 1941, more than 3,400 cases among humans occurred in the northern Plains states and in Canada's Manitoba, Alberta, and Saskatchewan provinces. The attack rate reached 167/100,000 (*3*). More recently, in 1975, there were 277 reported cases among humans and 281 among equines in an outbreak in the Red River Valley (*4,5*).

Cx. tarsalis breeds chiefly in waste irrigation water in farmland and pastures in the West (*1*). Risk of acquiring WEE is associated with residence in rural areas and with agricultural occupations and other outdoor activities that lead to contact with the vector mosquito (*2*). Attack rates for males are generally twofold greater than for females.

Control of WEE is difficult because major outbreaks occur at unpredictable intervals and because virus activity covers wide and usually sparsely populated areas. The size of vector mosquito populations, the virus infection rates of vectors, the seroconversion rate among sentinel chickens, and the prevalence of cases among equines have been shown to correlate with the appearance of cases among humans (*6*). These indices are monitored in an attempt to anticipate epidemics and as a guide in planning mosquito control measures. It should be noted, however, that vaccination of horses and underreporting of the disease limit the sensitivity of equine surveillance.

The epizootic this year was remarkable because of the northward progression of cases during the summer. *Cx. tarsalis* is active year-round in the Rio Grande Valley, and WEE virus has been isolated from winter collections of the mosquito (*7*). The northward progression of cases during the 1987 season suggests that the epizootic may have originated in the Rio Grande Valley and that WEE virus spread from that area. An alternative explanation is that the northerly spread simply reflects temporal differences in the start of spring and summer activity of *Cx. tarsalis* and house sparrows, the principal avian host in the maintenance cycle (*1*).

Contemporaneous SLE and WEE outbreaks in the West have been reported in several instances (*1,2,8*). While SLE and WEE viruses have common maintenance cycles, SLE virus activity typically peaks several weeks later, and cases among humans occur chiefly in late August and September.

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Encephalitis — Continued

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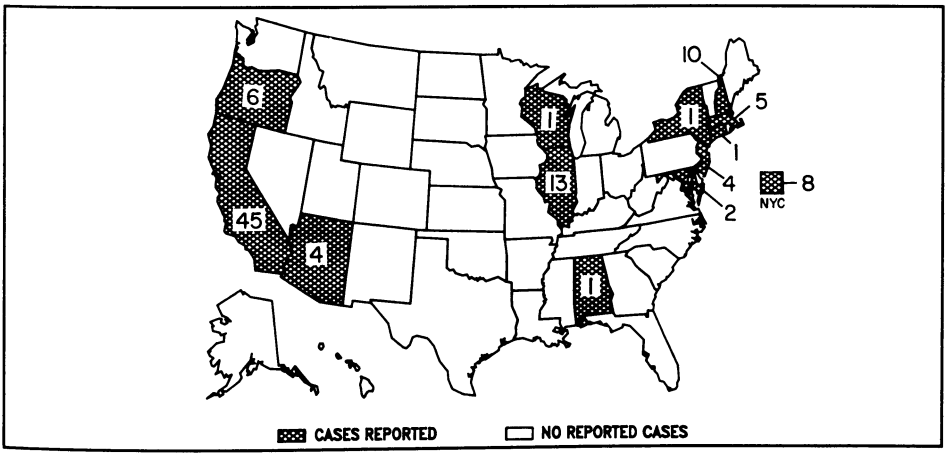
FIGURE I. Reported measles cases — United States, Weeks 35-38, 1987



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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.

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