

Morbidity and Mortality



PUBLIC HEALTH SERVICE RECOMMENDATION ON SMALLPOX VACCINATION

The Public Health Service has considered and accepts the recommendation on smallpox vaccination formulated by its Advisory Committee on Immunization Practices. The Service recognizes that this recommendation may differ from the policies established by statutes and regulations now in force in many states and localities. It therefore encourages State public health, medical, and other groups with responsibilities for preventive medical care to promptly explore mechanisms to facilitate broad understanding of the recommendation and a smooth transition to its implementation. The following is the full text of the Advisory Committee's recommendation:

"The Committee has reviewed the success achieved so far by the World Health Organization (WHO)-sponsored smallpox eradication effort and fully expects that it will continue. It now believes that the risk of smallpox in the United States is so small that the practice of routine smallpox vaccination is no longer indicated in this country.

"The Committee believes that public health efforts should be devoted to assuring adequate immunization of all personnel involved in health services and of all travelers to and from continents where smallpox has not been eradicated.

"Because of the rapidly declining incidence of smallpox in the world and the vastly reduced risk of its being imported into the United States, health officials in the United States should consider the discontinuation of compulsory measures

as they relate to routine smallpox vaccination.

"The Public Health Service should regularly evaluate and distribute information on the progress toward worldwide smallpox eradication. This will provide a basis for future assessment of smallpox vaccination practices in the United States.

"Finally, physicians and public health agencies should intensify efforts to assure that all adverse vaccine reactions are reported and that the following contraindications to smallpox vaccination are scrupulously observed: (1) eczema and other forms of chronic dermatitis in the person to be vaccinated or in a household contact; (2) pregnancy; (3) altered immune states from disease or therapy."

CURRENT TRENDS

VACCINATION AGAINST SMALLPOX IN THE UNITED STATES A REEVALUATION OF THE RISKS AND BENEFITS

INTRODUCTION

The policy of nonselective vaccination for protection against smallpox began when smallpox was widespread and uncontrolled. Under those conditions, it was a rational, necessary procedure, and legal regulations were passed to ensure vaccination of the public.

Today, nonselective vaccination against smallpox unnecessarily exposes a large segment of the United States public to the risk of complications resulting from vaccination - a risk greater than the probability of their contracting the disease.

The probability of contracting smallpox in the United States today is extremely low and continues to decrease. There has not been a documented case of this disease in the United States since 1949, and importation is the only way in which smallpox could occur in this country. Importation is unlikely because worldwide eradication efforts have brought about a significant decrease in the number of cases of smallpox and in the number of smallpox-endemic* areas. In this country, there is a national surveillance system to identify sus-

pect cases. Upon confirmation of a suspect case, there are efficient emergency procedures for managing the case and contacts and preventing spread of the disease. For most people in the United States, the probability of contracting smallpox is so small that the risk of complications from vaccination outweighs the benefits derived from it. For this reason, nonselective vaccination of the public is no longer justifiable. Vaccination should routinely be required only of people at special risk: travelers to and from countries where smallpox is still endemic and health services personnel who come into contact with patients.

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Table 1
Complications Associated with Smallpox Vaccination in the United States
by Diagnosis and Vaccination Status, 1968*

Age (Years)	Number of Vaccinations	Number of Cases				
		Postvaccinal Encephalitis	Vaccinia Necrosum	Eczema Vaccinatum	Generalized Vaccinia	Accidental Infection
Primary vaccinations †						
< 1	614,000	4 (3)††	0	5	43	7
1-4	2,733,000	6	1	31	47	91
5-9	1,553,000	5 (1)††	1 (1)††	11	20	32
10-14	295,000	0	0	1	2	1
15-19	111,000	0	1 (1)††	2	3	2
20+	288,000	1	2	7	13	4
Unknown		0	0	1	3	5
Totals	5,594,000	16 (4)††	5 (2)††	58	131	142
Revaccinations						
< 1	0	0	0	0	0	0
1-4	478,000	0	0	1	0	1
5-9	1,643,000	0	1 (1)††	4	1	3
10-14	1,440,000	0	0	1	0	0
15-19	1,217,000	0	1	2	0	0
20+	3,796,000	0	4 (1)††	0	9	3
Totals	8,574,000	0	6 (2)††	8	10	7
Contacts						
< 1		0	0	4	0	9
1-4		0	0	38 (1)††	1	16
5-9		0	0	8	0	7
10-14		0	0	0	0	2
15-19		0	0	1	0	1
20+		0	0	9	1	9
Unknown		0	0	0	0	0
Totals		0	0	60 (1)††	2	44
Grand Totals	14,168,000	16 (4)††	11 (4)††	126 (1)††	143	193

*Lane, *et al* Complications of smallpox vaccination. 1968. National surveillance in the United States. *New Engl J Med* 281:1201 (1969)

†Includes 31 patients with unknown vaccination status

††Deaths attributable to vaccinia shown in parentheses

Table 2
Complications Associated with Smallpox Vaccination per 1,000,000 Vaccinations

Complication	Complications Per Million Primary Vaccinations					Complications Per Million Revaccinations
	Age at Vaccination					
	<1	1-4	5-19	20+	All Ages	All Ages
Death (from all complications)* † † †	5.0	0.5	0.5	unknown	1.0	0.1
Post-Vaccinal Encephalitis†	6.5	2.2	2.6	3.5	2.9	0.0
Vaccinia Necrosum†	0.0	0.4	1.0	6.9	0.9	0.7
Eczema Vaccinatum•	14	44	35	30	38	3
Generalized Vaccinia•	394	233	140	212	242	9
Accidental Infection•	507	577	371	606	529	42
Erythematous Urticarial Reactions*	unknown	9,600	unknown	unknown	unknown	unknown

*Neff, *et al*, Complications of smallpox vaccination. I National survey in the United States, 1963. *New Engl J Med* 276:125 (1967)

†Lane, *et al*, Complications of smallpox vaccination, 1968. National surveillance in the United States. *New Engl J Med* 281:1201 (1969)

††Lane and Millar, Risk of smallpox vaccination complications in the United States. *Am J Epidemiol* 93:238 (1971)

◆Lane, *et al*, Complications of smallpox vaccination, 1968. II Results of ten statewide surveys, *J Infect Dis* 122:303 (1970)

★Neff JM, (Unpublished data)

Figure 1
COUNTRIES REPORTING SMALLPOX - JUNE 1971



■ COUNTRIES REPORTING SMALLPOX, JUNE 1971

SOURCE: WHO

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SMALLPOX — (Continued from page 341)

The decision of the Public Health Service to institute a policy of selective vaccination against smallpox in the United States was made only after the careful examination and quantification of many factors, including the risk of complications following smallpox vaccination, the probability of smallpox importation into the United States, and the anticipated extent of smallpox spread after importation.

THE RISK OF COMPLICATIONS FOLLOWING SMALLPOX VACCINATION

Smallpox vaccination has a definite, measurable risk of untoward reaction and death. In 1963 and again in 1968, national studies were conducted to quantify the incidence of complications associated with smallpox vaccination in the United States. Results of the 1968 surveys are presented in Table 1, and rates from specified sources are presented in Table 2. It is estimated that 14,168,000 people were vaccinated in 1968. Nine deaths were associated with smallpox vaccination that year; one of these deaths was in a contact. Complication rates were much higher in primary vaccinees than in revaccinees and, among primary vaccinees, children under the age of 12 months had the highest rates of serious complications.

As seen in Table 2, death data collected from the 1963 and 1968 surveys show that the risk of death from all complications was 1.0 per million for primary vaccinees of all ages and 0.1 for revaccinees of all ages. Among primary vaccinees, the risk of death from all complications was 5.0 per million primary vaccinations for children under the age of 12 months and one-tenth this figure or 0.5 per million primary vaccinations for persons from 1 through 19 years of age.

The combined rate of post-vaccinial encephalitis and

vaccinia necrosum was 3.8 per million for primary vaccinees of all ages, as compared to 0.7 for revaccinees of all ages. Among primary vaccinees, the combined rate of post-vaccinial encephalitis and vaccinia necrosum was 6.5 per million for infants and 3.0 per million for persons aged 1 through 19.

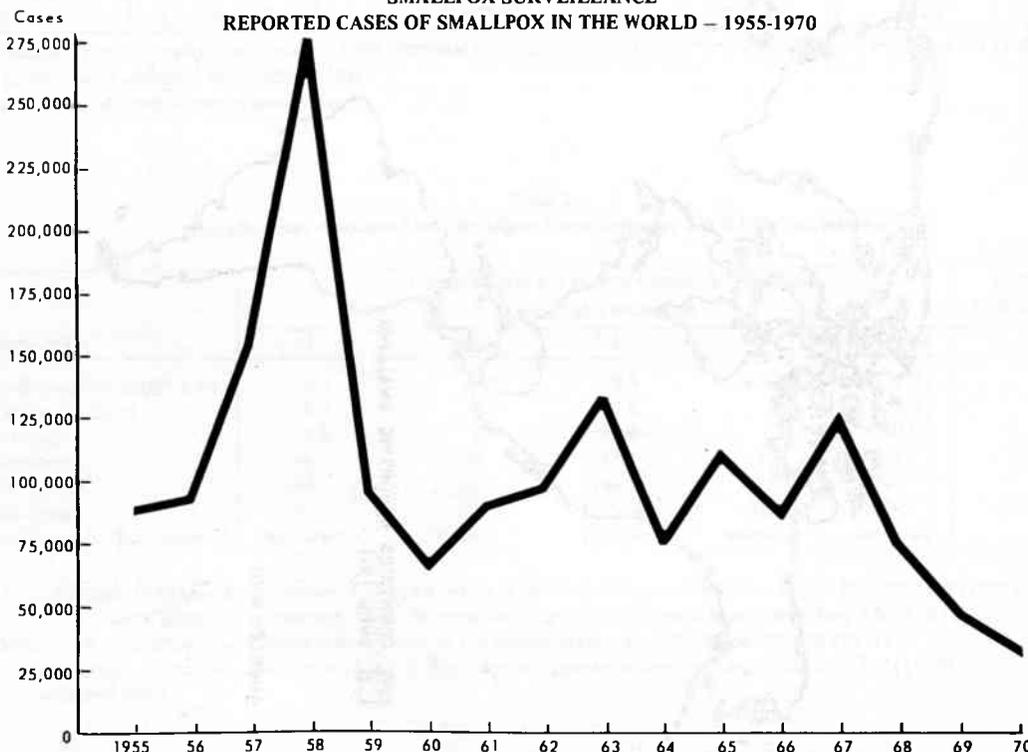
THE PROBABILITY OF SMALLPOX IMPORTATION INTO THE UNITED STATES

The geographic area in which smallpox is endemic is shrinking. In the mid-1940's, approximately 80 countries reported smallpox, and a majority of the world population lived in smallpox-endemic areas. In 1966, the number of countries reporting smallpox had been reduced to 43, 28 of which were endemic. In 1970, 23 countries reported smallpox, and 14 of these were considered to be endemic. In the 4 years from 1966 to 1970, there has been a 50 percent reduction in the number of countries reporting smallpox and in the number of endemic countries.

In June 1971, only nine countries reported smallpox (Figure 1). This rapid decrease in the number of countries reporting smallpox has greatly reduced the probability of travelers being exposed to smallpox before they enter the United States.

Together with the decrease in the number of endemic countries, there has also been a marked decline in the total number of smallpox cases in the world. Reported cases of smallpox in the world from 1955 through 1970 are shown in Figure 2. The number reported remained fairly static at about 100,000 cases per year from 1960 until 1967. In 1967, the global smallpox eradication effort was started and despite a marked improvement in surveillance efficiency, the number of reported cases of smallpox has continually declined. From

Figure 2
SMALLPOX SURVEILLANCE
REPORTED CASES OF SMALLPOX IN THE WORLD — 1955-1970



1967-1970, there was a 77 percent decline in the number of reported cases.

The decrease in smallpox incidence in major geographic areas is shown in Table 3. The smallpox eradication program in West and Central Africa has resulted in very dramatic changes in smallpox incidence with no documented cases of smallpox reported in this area since May 1970.

These declines in the number of endemic areas and in the number of cases have reduced the probability of importation. The probability of importation into the United States is dependent on three factors: the number of travelers from endemic countries to the United States, the immunity status of travelers, and the incidence of smallpox in endemic countries.

In 1970, approximately 8,300,000 air travelers entered the United States (including returning United States citizens). A survey of travelers indicated that 9.5 percent (788,500) had traveled in a smallpox-endemic country sometime in the

previous 2 weeks. Recent surveys of immunity status have shown that not more than 10 percent (78,850) of these travelers are considered to be susceptible. The probability of a smallpox importation into the United States can be estimated by multiplying the number of susceptible travelers from endemic countries times the average 2-week smallpox incidence in Asia, East and South Africa, and South America in 1970, 0.105 per 100,000 population. The product .0828 is the probability of a smallpox importation into the United States in 1970. With this rate, the United States could expect one importation every 12 years.

Figure 3 shows the declining risk that citizens of smallpox-endemic countries have of being infected with smallpox in the 2 weeks prior to arrival in the United States. The risk in 1970 is approximately 20 percent of the risk in 1960.

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Table 3
Reported Smallpox Cases by Continent - 1963-1970

Continent	1963	1964	1965	1966	1967	1968	1969	1970
Africa								
North	5	—	—	—	—	—	—	—
West & Central	6,687	3,565	6,257	7,599	10,818	5,408	476	64
South & East	10,249	9,058	10,699	6,897	4,460	5,549	3,119	3,090
South America	7,385	3,713	3,632	3,665	4,537	4,375	7,410	1,795
Asia	108,405	58,906	91,558	76,184	111,340	64,766	43,032	25,841
Europe	129	—	1	72	5	2	—	22
TOTAL	132,860	75,242	112,147	94,417	131,160	80,100	54,037	30,812

Source: WHO Weekly Epidemiological Record 1971, Vol. 46, No. 19

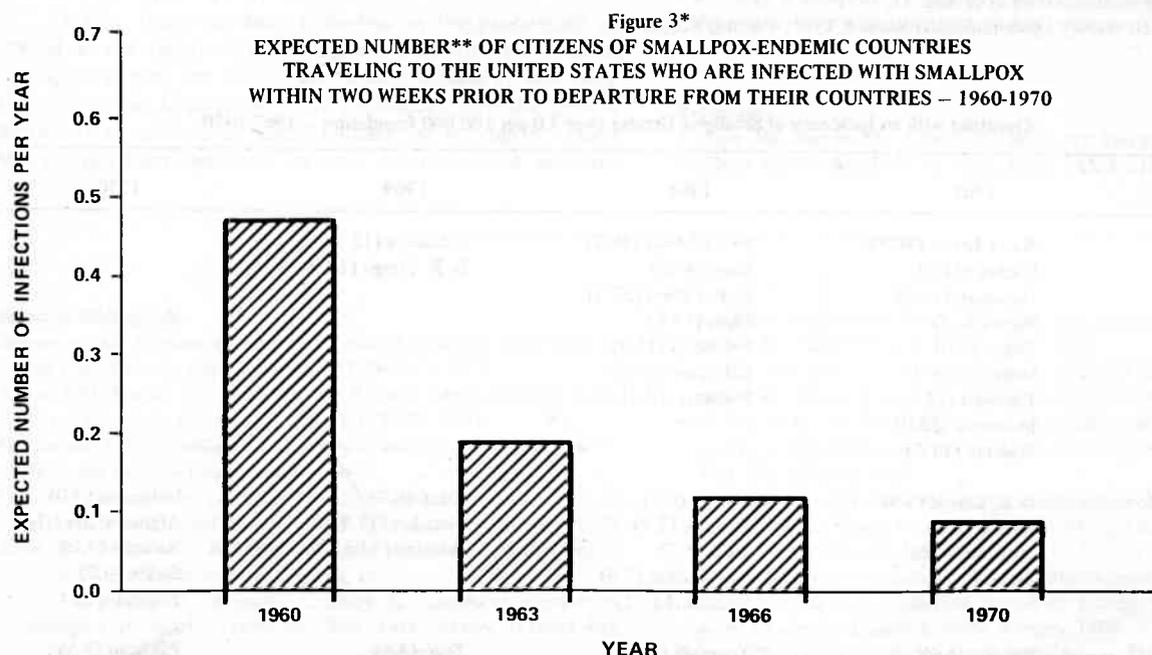


Figure 3*
EXPECTED NUMBER** OF CITIZENS OF SMALLPOX-ENDEMIC COUNTRIES TRAVELING TO THE UNITED STATES WHO ARE INFECTED WITH SMALLPOX WITHIN TWO WEEKS PRIOR TO DEPARTURE FROM THEIR COUNTRIES - 1960-1970

*These calculations assume that the immunity status of travelers is the same as that of the general population.

Since travelers have higher immunity levels, the actual risk of infection would be lower than that shown.

**Smallpox incidence rate per 100,000 population per two week period times the number of foreign travelers to the United States

Source: Foegen, et al, Am J Epidemiol 93:223-233, 1971

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Importation probability can also be analyzed by examining the risk of exportation from countries that have smallpox. Table 4 summarizes 24 importations into Europe from 1961 to 1971 where the country of exportation could be established. All 24 of these importations came from countries that had reported smallpox incidence rates of more than three cases per 100,000 population. A total of 244 country years of experience in countries with rates of less than three cases per 100,000 resulted in no exportation, while 181 country

years of experience in countries with rates over three cases per 100,000 resulted in a total of 24 exportations.

The probability of exportation is related to incidence in endemic countries. As the rates of smallpox incidence decline in endemic countries, the probability of exportation should approach zero before smallpox actually disappears from the country. Table 5 shows the marked reduction in the number of countries with more than three cases of smallpox per 100,000 population.

Table 4
Europe: Introductions of Smallpox by Incidence Rate of Exporting Country, 1961-1971*

Year	Total Countries Reporting Smallpox	Annual Smallpox Incidence Rate in Exporting Country			
		Less than 3 Per 100,000 Population		3 or More Per 100,000 Population	
		Total Countries	Number of Exportations	Total Countries	Number of Exportations
1961	56	29	0	27	9
1962	61	33	0	28	4
1963	55	30	0	25	2
1964	46	27	0	19	0
1965	43	27	0	16	1
1966	41	27	0	14	0
1967	42	25	0	17	4
1968	38	24	0	14	2
1969	30	22	0	8	0
1970	23	15	0	8	2
1971**	14	9	0	5	0
TOTAL (Country Years)		244	0	181	24
Rate of Exportation (x100)			0.0		13.3

*Excludes three introductions where country of origin could not be established

**Estimated incidence rates as of Aug. 31, 1971

Source: WHO: Weekly Epidemiological Record, 1971, Vol. 46, No. 36

Table 5
Countries with an Incidence of Smallpox Greater than 3.0 per 100,000 Population — 1967-1970

Incidence Rate	1967	1968	1969	1970
≥ 10	Sierra Leone (70.8) Guinea (41.5) Dahomey (31.6) Niger (30.4) Togo (19.0) India (16.6) Tanzania (13.4) Indonesia (12.0) Pakistan (11.7)	Sierra Leone (46.2) Togo (44.2) D. R. Congo (22.7) Niger (17.8) Indonesia (15.4) Dahomey (14.0) Pakistan (10.2)	Indonesia (15.2) D. R. Congo (10.9)	
5.0-9.9	D. R. Congo (9.9) Nigeria (8.5) Swaziland (6.6) Brazil (5.2)	Guinea (8.7) Burundi (7.9) India (6.7) Afghanistan (5.6) Swaziland (5.1)	Brazil (8.0) Swaziland (5.9) Pakistan (5.0)	Indonesia (8.0) Afghanistan (7.7) Rwanda (7.0) Sudan (6.7) Burundi (5.1)
3.0-4.9	Uganda (4.5)	Tanzania (3.6) Nigeria (3.0)	Togo (4.6) Sierra Leone (3.1) Rwanda (3.0)	Pakistan (3.5) D. R. Congo (3.3)

Source: WHO Weekly Epidemiological Record 1971, Vol. 46, No. 3
WHO Smallpox Surveillance No. 57

Table 6
Experiences with Smallpox Importations
Europe - 1951-1970

Time Period	Number of Importations	Average Number of Cases Per Importation	Average Number of Deaths Per Importation	Average Number of Generations Per Importation(†)
1951 - 1960	23	25.8	*	*
1961 - 1965	18	16.1	2.4	2.6
1966 - 1970	10	10.1 (††)	0.5	1.9

*Information not available

†Index case counted as first generation

††Includes 73 cases of variola minor in one outbreak

Source: Current Approaches to Smallpox Vaccination in the United States, Eighth Annual Immunization Conference, pp. 53-57 (1971)

THE ANTICIPATED EXTENT OF SMALLPOX SPREAD AFTER IMPORTATION

Analysis of the European experience in the past 20 years indicates smallpox would not spread rapidly if imported. Table 6 presents the experience in Europe of 51 importations in the past two decades. The average importation in the decade from 1951 to 1960 resulted in 25.8 cases of smallpox. From 1961 to 1965, the average importation resulted in 16.1 cases, 2.4 deaths, and was controlled in 2.6 generations. In the last 5 years, the average outbreak has resulted in 10.1 cases, 0.5 deaths, and has been controlled in 1.9 generations. It is unlikely that the number of cases per importation would have been this high if health personnel had been adequately protected, since almost 50 percent of European cases were acquired in hospitals. **Based on European experience, it would require 15 importations per year to produce the same mortality currently associated with smallpox vaccination in the United States (1).**

Clearly, there has been a decline in the probability of spread as the result of more aggressive control procedures. Smallpox is not the highly contagious disease it was once thought to be. If smallpox were introduced into the United States, it is unlikely it would spread fast enough to evade the containment measures of case detection and selective

vaccination. **Vigilant surveillance and outbreak control are the keys to maintain freedom from smallpox.**

An efficient surveillance and control system operates in the United States to identify suspected cases of smallpox and their contacts and to interrupt transmission of the disease. Quarantine Inspectors are stationed at all international ports to observe travelers for signs of illness and check vaccination certificates of travelers from smallpox-infected countries. Travelers without valid vaccination certificates are placed under surveillance orders. A suspected case would immediately be placed in isolation until a definite diagnosis was made. If the case were confirmed, the resources of State and Federal health agencies would quickly be mobilized to trace, vaccinate, and keep under observation all of the patient's contacts.

(Reported by the Center for Disease Control.)

*Smallpox is endemic in a country when there is indigenous transmission not directly associated with an importation.

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Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

SEPTEMBER 25, 1971 AND SEPTEMBER 26, 1970 (38th WEEK)

AREA	ASEPTIC MENIN- GITIS	BRUCEL- LOSIS	DIPH- THERIA	ENCEPHALITIS			HEPATITIS			MALARIA	
				Primary including unsp. cases		Post In- fectious	Serum	Infectious		1971	Cum. 1971
				1971	1970	1971		1971	1970		
UNITED STATES.....	231	1	1	30	48	4	194	1,175	1,244	47	2,274
NEW ENGLAND.....	28	-	-	-	1	-	7	85	98	1	63
Maine.....*	-	-	-	-	-	-	-	14	16	-	4
New Hampshire.....*	-	-	-	-	-	-	-	9	9	-	1
Vermont.....	-	-	-	-	-	-	-	8	1	-	1
Massachusetts.....	2	-	-	-	1	-	1	35	41	1	42
Rhode Island.....	26	-	-	-	-	-	4	14	11	-	6
Connecticut.....	-	-	-	-	-	-	2	5	20	-	9
MIDDLE ATLANTIC.....	45	-	-	7	7	2	74	192	258	-	218
New York City.....	12	-	-	-	-	-	26	61	65	-	22
New York, Up-State...*	8	-	-	5	-	1	12	33	55	-	64
New Jersey.....*	18	-	-	-	-	-	22	65	70	-	87
Pennsylvania.....	7	-	-	2	7	1	14	33	68	-	45
EAST NORTH CENTRAL.....	33	-	-	8	21	-	38	207	175	-	147
Ohio.....	20	-	-	3	10	-	8	46	50	-	18
Indiana.....	-	-	-	-	-	-	-	20	5	-	11
Illinois.....	2	-	-	2	-	-	15	51	34	-	45
Michigan.....	10	-	-	2	11	-	14	78	74	-	48
Wisconsin.....	1	-	-	1	-	-	1	12	12	-	25
WEST NORTH CENTRAL.....	7	1	-	1	-	-	5	39	39	3	216
Minnesota.....	6	-	-	-	-	-	-	2	4	-	23
Iowa.....	-	1	-	-	-	-	-	7	7	1	26
Missouri.....	1	-	-	-	-	-	-	14	20	-	26
North Dakota.....	-	-	-	-	-	-	-	3	-	-	3
South Dakota.....	-	-	-	-	-	-	-	-	-	-	1
Nebraska.....	-	-	-	-	-	-	-	1	2	-	14
Kansas.....	-	-	-	1	-	-	5	12	6	2	123
SOUTH ATLANTIC.....	42	-	-	6	8	1	25	137	141	12	368
Delaware.....	-	-	-	-	1	-	-	5	3	-	1
Maryland.....	6	-	-	2	-	1	7	18	22	2	51
Dist. of Columbia...*	-	-	-	-	-	-	2	2	2	-	4
Virginia.....	1	-	-	-	-	-	2	25	21	-	61
West Virginia.....	4	-	-	-	1	-	2	10	7	-	7
North Carolina.....	5	-	-	1	-	-	3	21	20	-	122
South Carolina.....	-	-	-	-	1	-	1	5	11	-	18
Georgia.....	3	-	-	-	1	-	-	18	1	10	67
Florida.....	23	-	-	3	4	-	8	33	54	-	37
EAST SOUTH CENTRAL.....	22	-	-	2	1	-	9	90	86	11	164
Kentucky.....	2	-	-	2	-	-	-	44	16	10	137
Tennessee.....	17	-	-	-	1	-	4	42	42	-	-
Alabama.....	2	-	-	-	-	-	5	2	19	1	21
Mississippi.....	1	-	-	-	-	-	-	2	9	-	6
WEST SOUTH CENTRAL.....	14	-	-	1	1	-	4	105	93	10	483
Arkansas.....	-	-	-	-	-	-	-	7	8	-	19
Louisiana.....	1	-	-	1	-	-	-	22	15	1	38
Oklahoma.....	9	-	-	-	1	-	-	10	13	1	68
Texas.....	4	-	-	-	-	-	4	66	57	8	358
MOUNTAIN.....	1	-	1	-	3	-	3	62	77	2	120
Montana.....	1	-	-	-	-	-	-	3	4	-	1
Idaho.....	-	-	-	-	-	-	-	4	3	-	5
Wyoming.....	-	-	-	-	-	-	-	4	2	-	3
Colorado.....	-	-	-	-	3	-	1	15	35	-	89
New Mexico.....	-	-	-	-	-	-	1	16	2	2	9
Arizona.....*	-	-	1	-	-	-	1	12	25	-	8
Utah.....	-	-	-	-	-	-	-	8	4	-	3
Nevada.....	-	-	-	-	-	-	-	-	2	-	2
PACIFIC.....	39	-	-	5	6	1	29	258	277	8	495
Washington.....	7	-	-	1	-	-	2	18	24	1	2
Oregon.....	-	-	-	-	-	-	2	26	20	-	19
California.....	31	-	-	4	6	1	25	209	226	5	417
Alaska.....*	-	-	-	-	-	-	-	1	1	-	6
Hawaii.....	1	-	-	-	-	-	-	4	6	2	51
Puerto Rico.....*	-	-	-	-	-	-	4	23	20	-	19
Virgin Islands.....	-	-	-	-	-	-	-	-	-	-	-

*Delayed reports: Diphtheria: Ariz. 1

Hepatitis, serum: Me. 1, N.H. 1, P.R. 3

Hepatitis, infectious: N.J. delete 2, Alaska 3, P.R. 45

Malaria: P.R. 1

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
SEPTEMBER 25, 1971 AND SEPTEMBER 26, 1970 (38th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		POLIOMYELITIS		
	1971	Cumulative		1971	Cumulative		1971	Cum. 1971	Total 1971	Paralytic	
		1971	1970		1971	1970				1971	Cum. 1971
UNITED STATES.....	210	69,948	39,777	17	1,788	1,911	650	100,451	-	-	7
NEW ENGLAND.....	6	3,451	867	1	80	83	34	6,136	-	-	-
Maine*.....	-	1,464	205	-	8	3	4	1,205	-	-	-
New Hampshire.....	2	211	52	-	14	8	4	657	-	-	-
Vermont.....	-	116	8	-	-	7	-	373	-	-	-
Massachusetts.....	-	256	397	1	31	37	7	1,480	-	-	-
Rhode Island.....	-	238	120	-	3	6	11	1,197	-	-	-
Connecticut.....	4	1,166	85	-	24	22	8	1,224	-	-	-
MIDDLE ATLANTIC.....	12	7,531	4,879	2	248	350	25	6,282	-	-	-
New York City.....	6	3,760	891	1	55	84	17	1,776	-	-	-
New York, Up-State...	3	666	285	1	70	67	NN	NN	-	-	-
New Jersey.....	-	1,191	1,706	-	54	132	3	1,675	-	-	-
Pennsylvania.....	3	1,914	1,997	-	69	67	5	2,831	-	-	-
EAST NORTH CENTRAL.....	78	15,399	9,813	2	204	219	174	40,723	-	-	-
Ohio.....	2	3,988	3,811	-	65	85	5	7,720	-	-	-
Indiana.....	3	2,736	272	-	14	19	10	5,117	-	-	-
Illinois.....	25	2,986	3,059	-	58	52	28	4,300	-	-	-
Michigan.....	27	2,336	1,733	1	54	53	39	9,548	-	-	-
Wisconsin.....	21	3,353	938	1	13	10	92	14,038	-	-	-
WEST NORTH CENTRAL.....	15	6,818	3,870	2	131	97	96	6,670	-	-	-
Minnesota.....	-	53	38	-	21	13	-	1,102	-	-	-
Iowa.....	14	2,256	1,147	1	10	12	67	3,074	-	-	-
Missouri.....	-	2,602	1,275	-	46	56	1	1,035	-	-	-
North Dakota.....	1	237	319	-	6	5	2	332	-	-	-
South Dakota.....	-	217	96	-	5	-	-	239	-	-	-
Nebraska.....	-	66	927	-	15	6	-	93	-	-	-
Kansas.....	-	1,387	68	1	28	5	26	795	-	-	-
SOUTH ATLANTIC.....	50	8,419	7,183	1	316	383	59	7,266	-	-	1
Delaware.....	-	38	261	-	2	3	-	170	-	-	-
Maryland.....	1	541	1,376	-	46	40	16	677	-	-	-
Dist. of Columbia....	-	15	343	-	13	3	1	91	-	-	-
Virginia.....	3	1,587	1,985	-	37	40	8	974	-	-	-
West Virginia.....	3	508	315	1	8	10	18	1,884	-	-	-
North Carolina.....	-	1,931	869	-	54	78	NN	NN	-	-	-
South Carolina.....	-	904	595	-	20	44	4	859	-	-	-
Georgia.....	31	1,104	14	-	23	34	-	11	-	-	1
Florida.....	12	1,791	1,425	-	113	131	12	2,600	-	-	-
EAST SOUTH CENTRAL.....	14	8,225	1,344	3	155	140	29	7,784	-	-	-
Kentucky.....	13	3,915	771	1	41	48	5	2,360	-	-	-
Tennessee.....	-	1,019	383	2	63	59	18	4,399	-	-	-
Alabama.....	1	1,878	100	-	28	23	-	885	-	-	-
Mississippi.....	-	1,413	90	-	23	10	6	140	-	-	-
WEST SOUTH CENTRAL.....	19	12,450	7,612	3	153	256	58	8,165	-	-	3
Arkansas.....	-	778	30	-	5	22	-	90	-	-	-
Louisiana.....	-	1,672	104	2	55	62	-	134	-	-	-
Oklahoma.....	-	754	473	-	7	20	-	182	-	-	-
Texas.....	19	9,246	7,005	1	86	152	58	7,759	-	-	3
MOUNTAIN.....	5	3,227	1,535	-	54	41	26	4,049	-	-	1
Montana.....	-	925	62	-	6	1	1	396	-	-	-
Idaho.....	-	271	45	-	10	6	3	137	-	-	-
Wyoming.....	-	85	11	-	2	2	-	274	-	-	-
Colorado.....	-	826	183	-	7	15	10	1,324	-	-	-
New Mexico.....	-	361	205	-	4	1	1	638	-	-	-
Arizona.....	5	423	973	-	8	13	11	1,124	-	-	-
Utah.....	-	329	35	-	14	2	-	156	-	-	-
Nevada.....	-	7	21	-	3	1	-	-	-	-	1
PACIFIC.....	11	4,428	2,674	3	447	342	149	13,376	-	-	2
Washington.....	4	1,031	526	-	25	44	60	5,342	-	-	1
Oregon.....	-	372	233	-	34	25	14	1,352	-	-	1
California.....	6	2,586	1,592	3	380	270	57	5,715	-	-	-
Alaska*.....	-	54	138	-	-	-	2	84	-	-	-
Hawaii.....	1	385	185	-	8	3	16	883	-	-	-
Puerto Rico.*.....	4	523	914	-	8	5	15	1,020	-	-	-
Virgin Islands.....	-	17	6	-	-	1	1	60	-	-	-

*Delayed reports: Measles: P.R. 14

Mumps: Me. 2, Alaska 4, P.R. 28

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
SEPTEMBER 25, 1971 AND SEPTEMBER 26, 1970 (38th WEEK) - CONTINUED

AREA	RUBELLA		TETANUS		TULAREMIA		TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971
UNITED STATES.....	236	38,799	4	79	4	130	19	266	4	351	61	3,034
NEW ENGLAND.....	8	1,719	2	6	-	1	-	14	-	2	-	188
Maine.....	-	261	-	-	-	-	-	2	-	-	-	170
New Hampshire.....	-	46	1	2	-	-	-	-	-	-	-	1
Vermont.....	-	94	-	-	-	-	-	-	-	-	-	11
Massachusetts.....	3	825	-	1	-	-	-	9	-	-	-	5
Rhode Island.....	-	97	-	-	-	-	-	-	-	2	-	1
Connecticut.....	5	396	1	3	-	1	-	3	-	-	-	-
MIDDLE ATLANTIC.....	10	2,536	-	6	-	-	5	53	1	30	1	134
New York City.....	4	552	-	5	-	-	-	13	-	1	-	-
New York, Up-State..	2	410	-	1	-	-	-	12	1	16	1	115
New Jersey.....	1	576	-	-	-	-	-	5	-	6	-	-
Pennsylvania.....	3	998	-	-	-	-	5	23	-	7	-	19
EAST NORTH CENTRAL....	81	8,429	-	10	-	5	9	37	1	18	8	325
Ohio.....	4	963	-	1	-	1	2	16	-	14	2	95
Indiana.....	8	2,045	-	1	-	-	2	6	-	-	1	68
Illinois.....	6	1,262	-	6	-	1	3	9	-	3	5	65
Michigan.....	30	2,645	-	2	-	1	2	6	1	1	-	40
Wisconsin.....	33	1,514	-	-	-	2	-	-	-	-	-	57
WEST NORTH CENTRAL....	18	3,209	-	6	1	18	-	3	-	5	15	814
Minnesota.....	1	275	-	3	-	-	-	-	-	-	1	176
Iowa.....	8	676	-	1	-	-	-	-	-	-	6	193
Missouri.....	4	1,364	-	2	1	14	-	3	-	2	3	116
North Dakota.....	1	94	-	-	-	-	-	-	-	-	2	147
South Dakota.....	-	97	-	-	-	1	-	-	-	-	1	86
Nebraska.....	-	88	-	-	-	-	-	-	-	-	-	5
Kansas.....	4	615	-	-	-	3	-	-	-	2	2	91
SOUTH ATLANTIC.....	37	3,103	1	19	-	20	1	38	1	188	8	335
Delaware.....	2	48	-	-	-	-	-	1	-	2	-	-
Maryland.....	4	155	-	1	-	3	-	4	-	31	-	1
Dist. of Columbia...	-	8	-	-	-	-	-	1	-	-	-	-
Virginia.....	2	209	1	3	-	8	1	9	-	28	3	66
West Virginia.....	13	636	-	-	-	-	-	3	-	3	-	108
North Carolina.....	-	45	-	1	-	4	-	3	1	99	1	6
South Carolina.....	3	435	-	1	-	-	-	1	-	14	-	-
Georgia.....	1	1	-	2	-	3	-	2	-	11	1	109
Florida.....	12	1,566	-	11	-	2	-	14	-	-	3	45
EAST SOUTH CENTRAL....	6	3,242	1	11	-	10	1	33	1	59	5	277
Kentucky.....	2	1,119	1	1	-	2	1	8	1	13	3	143
Tennessee.....	4	1,847	-	6	-	5	-	19	-	33	2	90
Alabama.....	-	203	-	3	-	2	-	6	-	7	-	41
Mississippi.....	-	73	-	1	-	1	-	-	-	6	-	3
WEST SOUTH CENTRAL....	24	4,696	-	11	2	52	1	27	-	39	10	609
Arkansas.....	-	337	-	1	1	21	1	9	-	5	2	77
Louisiana.....	-	280	-	1	-	7	-	6	-	1	-	23
Oklahoma.....	-	69	-	1	1	16	-	3	-	26	4	250
Texas.....	24	4,010	-	8	-	8	-	9	-	7	4	259
MOUNTAIN.....	9	1,915	-	2	-	19	-	9	-	10	3	62
Montana.....	-	113	-	-	-	1	-	-	-	3	-	-
Idaho.....	-	39	-	1	-	1	-	-	-	3	-	-
Wyoming.....	-	859	-	-	-	-	-	-	-	-	1	11
Colorado.....	1	268	-	-	-	-	-	2	-	2	-	11
New Mexico.....	1	220	-	-	-	-	-	5	-	-	1	9
Arizona.....	4	341	-	1	-	-	-	2	-	-	-	20
Utah.....	3	61	-	-	-	17	-	-	-	1	1	9
Nevada.....	-	14	-	-	-	-	-	-	-	1	-	2
PACIFIC.....	43	9,950	-	8	1	5	2	52	-	-	11	290
Washington.....	10	1,346	-	1	-	-	-	-	-	-	-	-
Oregon.....	9	738	-	1	-	3	-	-	-	-	1	9
California.....	22	7,665	-	6	1	2	2	47	-	-	10	247
Alaska.....	-	45	-	-	-	-	-	1	-	-	-	34
Hawaii.....	2	156	-	-	-	-	-	4	-	-	-	-
Puerto Rico.....	-	62	-	7	-	-	-	3	-	-	-	58
Virgin Islands.....	-	-	-	-	-	-	-	-	-	-	-	-

*Delayed reports: RMSF: Pa. delete 2

Rabies in animals: P.R. 1

Morbidity and Mortality Weekly Report

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TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED SEPTEMBER 25, 1971

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes	Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over				All Ages	65 years and over		
NEW ENGLAND:	640	370	23	28	SOUTH ATLANTIC:	1,177	619	38	67
Boston, Mass.-----	191	92	3	9	Atlanta, Ga.-----	187	102	3	6
Bridgeport, Conn.-----	41	23	3	1	Baltimore, Md.-----	198	93	1	11
Cambridge, Mass.-----	26	16	2	—	Charlotte, N. C.-----	50	18	1	1
Fall River, Mass.-----	30	17	—	—	Jacksonville, Fla.-----	67	38	—	2
Hartford, Conn.-----	50	38	1	1	Miami, Fla.-----	107	63	4	4
Lowell, Mass.-----	23	18	—	—	Norfolk, Va.-----	47	21	4	3
Lynn, Mass.-----	16	9	1	1	Richmond, Va.-----	71	38	2	8
New Bedford, Mass.-----	33	24	3	2	Savannah, Ga.-----	43	27	3	2
New Haven, Conn.-----	56	28	1	4	St. Petersburg, Fla.-----	84	69	3	3
Providence, R. I.-----	51	33	5	2	Tampa, Fla.-----	99	53	5	11
Somerville, Mass.-----	7	4	—	—	Washington, D. C.-----	178	73	11	12
Springfield, Mass.-----	39	20	3	3	Wilmington, Del.-----	46	24	1	4
Waterbury, Conn.-----	32	19	—	2	EAST SOUTH CENTRAL:	686	332	34	49
Worcester, Mass.-----	45	29	1	3	Birmingham, Ala.-----	115	49	2	9
MIDDLE ATLANTIC:	2,958	1,732	90	110	Chattanooga, Tenn.-----	63	32	6	3
Albany, N. Y.-----	41	16	—	3	Knoxville, Tenn.-----	36	21	1	1
Allentown, Pa.-----	22	16	1	—	Louisville, Ky.-----	108	59	13	11
Buffalo, N. Y.-----	145	76	3	6	Memphis, Tenn.-----	157	75	5	9
Camden, N. J.-----	41	22	7	1	Mobile, Ala.-----	58	24	3	5
Elizabeth, N. J.-----	35	19	—	4	Montgomery, Ala.-----	44	23	3	3
Erie, Pa.-----	36	23	2	—	Nashville, Tenn.-----	105	49	1	8
Jersey City, N. J.-----	68	40	5	5	WEST SOUTH CENTRAL:	1,227	606	33	85
Newark, N. J.-----	63	25	—	2	Austin, Tex.-----	47	29	3	3
New York City, N. Y.-----	1,559	941	40	50	Baton Rouge, La.-----	70	31	1	9
Paterson, N. J.-----	29	13	3	2	Corpus Christi, Tex.-----	45	21	2	5
Philadelphia, Pa.-----	384	200	2	15	Dallas, Tex.-----	159	77	4	10
Pittsburgh, Pa.-----	160	99	7	6	El Paso, Tex.-----	54	27	2	7
Reading, Pa.-----	30	20	1	1	Fort Worth, Tex.-----	53	37	2	2
Rochester, N. Y.-----	85	49	8	6	Houston, Tex.-----	223	97	6	13
Schenectady, N. Y.-----	26	19	1	—	Little Rock, Ark.-----	60	31	2	2
Scranton, Pa.-----	38	23	—	3	New Orleans, La.-----	171	72	2	15
Syracuse, N. Y.-----	84	56	1	3	Oklahoma City, Okla.-----	89	47	2	3
Trenton, N. J.-----	42	27	3	1	San Antonio, Tex.-----	131	68	3	5
Utica, N. Y.-----	30	18	3	2	Shreveport, La.-----	63	34	3	8
Yonkers, N. Y.-----	40	30	3	—	Tulsa, Okla.-----	62	35	1	3
EAST NORTH CENTRAL:	2,429	1,350	74	122	MOUNTAIN:	485	293	21	17
Akron, Ohio-----	62	37	—	5	Albuquerque, N. Mex.-----	44	25	7	2
Canton, Ohio-----	27	19	2	1	Colorado Springs, Colo.-----	28	17	1	3
Chicago, Ill.-----	648	332	13	38	Denver, Colo.-----	114	66	4	4
Cincinnati, Ohio-----	173	95	3	7	Ogden, Utah-----	21	16	3	1
Cleveland, Ohio-----	155	86	3	4	Phoenix, Ariz.-----	113	71	2	1
Columbus, Ohio-----	140	67	9	12	Pueblo, Colo.-----	28	13	2	2
Dayton, Ohio-----	94	55	2	6	Salt Lake City, Utah-----	71	44	1	3
Detroit, Mich.-----	318	171	9	6	Tucson, Ariz.-----	66	41	1	1
Evansville, Ind.-----	48	34	3	2	PACIFIC:	1,673	1,041	42	50
Flint, Mich.-----	48	25	3	7	Berkeley, Calif.-----	18	14	—	—
Fort Wayne, Ind.-----	59	29	4	1	Fresno, Calif.-----	46	27	1	2
Gary, Ind.-----	33	14	3	3	Glendale, Calif.-----	49	35	1	2
Grand Rapids, Mich.-----	62	42	4	1	Honolulu, Hawaii-----	65	30	2	4
Indianapolis, Ind.-----	155	87	3	9	Long Beach, Calif.-----	96	62	—	3
Madison, Wis.-----	32	19	2	4	Los Angeles, Calif.-----	536	351	16	16
Milwaukee, Wis.-----	105	63	2	3	Oakland, Calif.-----	79	55	2	2
Peoria, Ill.-----	42	24	1	6	Pasadena, Calif.-----	41	28	1	—
Rockford, Ill.-----	38	25	4	1	Portland, Oreg.-----	118	75	4	2
South Bend, Ind.-----	32	18	2	1	Sacramento, Calif.-----	59	40	—	2
Toledo, Ohio-----	86	58	2	2	San Diego, Calif.-----	115	69	2	4
Youngstown, Ohio-----	72	50	—	3	San Francisco, Calif.-----	184	106	7	3
WEST NORTH CENTRAL:	779	471	23	36	San Jose, Calif.-----	41	20	—	2
Des Moines, Iowa-----	59	35	—	2	Seattle, Wash.-----	154	84	4	6
Duluth, Minn.-----	29	20	—	1	Spokane, Wash.-----	36	22	—	1
Kansas City, Kans.-----	26	16	2	1	Tacoma, Wash.-----	36	23	2	1
Kansas City, Mo.-----	123	67	1	6	Total	12,054	6,814	378	564
Lincoln, Nebr.-----	30	22	1	1	Expected Number	12,119	6,831	406	574
Minneapolis, Minn.-----	83	62	4	1	Cumulative Total (includes reported corrections for previous weeks)	486,325	279,128	17,902	21,839
Omaha, Nebr.-----	81	44	2	4					
St. Louis, Mo.-----	211	121	5	15					
St. Paul, Minn.-----	75	46	—	4					
Wichita, Kans.-----	62	38	8	1					
Las Vegas, Nev.*	22	10	—	—					

*Mortality data are being collected from Las Vegas, Nev., for possible inclusion in this table, however, for statistical reasons, these data will be listed only and not included in the total, expected number, or cumulative total, until 5 years of data are collected.

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	38th WEEK ENDED		MEDIAN 1966 - 1970	CUMULATIVE, FIRST 38 WEEKS		
	September 25, 1971	September 26, 1970		1971	1970	MEDIAN 1966 - 1970
Aseptic meningitis	231	352	196	3,552	3,834	2,218
Brucellosis	1	6	5	117	154	164
Diphtheria	1	16	7	113	310	138
Encephalitis, primary:						
Arthropod-borne & unspecified	30	48	48	1,033	1,033	1,033
Encephalitis, post-infectious	4	2	9	283	326	384
Hepatitis, serum	194	126	110	6,267	5,211	3,159
Hepatitis, infectious	1,175	1,244	1,055	44,142	40,899	32,306
Malaria	47	71	71	2,274	2,456	1,651
Measles (rubeola)	210	156	161	69,948	39,777	39,777
Meningococcal infections, total	17	28	28	1,788	1,911	2,059
Civilian	17	26	26	1,594	1,720	1,879
Military	-	2	1	194	191	191
Mumps	650	628	- - -	100,451	76,747	- - -
Poliomyelitis, total	-	1	-	11	18	26
Paralytic	-	1	-	7	18	22
Rubella (German measles)	236	246	219	38,799	49,823	44,131
Tetanus	4	1	4	79	85	116
Tularemia	4	4	3	130	107	132
Typhoid fever	19	10	9	266	229	276
Typhus, tick-borne (Rky. Mt. spotted fever)	4	9	9	351	309	276
Rabies in animals	61	57	58	3,034	2,292	2,614

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	4	Psittacosis: N.Y.Ups.-I	28
Botulism: Calif.-5	15	Rabies in Man:	1
Leprosy:	93	Rubella congenital syndrome: Calif.-I	42
Leptospirosis:	25	Trichinosis:	63
Plague:	1	Typhus, murine:	17

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The data in this report are provisional, based on weekly telegraphs 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.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting outbreaks or case investigations of current interest to health officials.

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