

NATIONAL COMMUNICABLE DISEASE CENTER

RUBELLA

STATUS REPORT

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
Bureau of Disease Prevention and Environmental Control

PREFACE

This report is a summary of data on notified cases of rubella for 1966, the first year of national reporting, as well as selected information from earlier years. Although these data are limited, they are presented because of the current interest in this disease. Summarized is information received from State and local health departments, and other pertinent sources. Although much of the information is preliminary, it is presented for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

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I. SUMMARY

Rubella became a nationally notifiable disease on January 1, 1966, and during 1966 there were 45,895 cases reported. A seasonal peak of 7,708 cases was noted during the 4-week period ending May 21, 1966, in contrast to a low figure of 816 cases reported during the 4 weeks ending September 10, 1966. Comparison of regional case rates shows that the Mountain States exceeded other Regions of the United States during the past year.

Monthly rubella data were available for 24 states from 1955-1964. The Northeast Region had a peak of 47,161 cases in April 1964. The Pacific States were not involved until the winter and spring of 1964-65, with a peak of 8,975 cases reported in March 1965.

A comparison of case rates in these 24 selected states for 1966 and the epidemic year 1964 revealed a 10-fold difference. In 1964, 21 states had rates exceeding 100/100,000 population and none had rates less than 25/100,000 population. In 1966, only two states had a case rate of 100/100,000 population or greater while ten states had rates less than 25/100,000 population.

On January 1, 1966, in addition to rubella, the congenital rubella syndrome became nationally notifiable. Nineteen cases were reported from seven states during 1966. Nine of these cases came from Minnesota and Pennsylvania.

Rubella, recorded as the primary cause of death, averaged 17.6 deaths per year from 1955-1964. Fifty-three deaths were reported as primarily due to rubella in the 1964 epidemic year in contrast to the next highest number, 24 deaths, recorded in 1958. In addition, there were 112 infant deaths attributed to maternal rubella from 1955 to 1964.

II. CURRENT TRENDS

A. Rubella Morbidity

A total of 45,895 cases of rubella was recorded for the United States during 1966, the first year that this disease was nationally reportable (Table 1). A peak of 7,708 cases was seen during the 4-week period ending May 21, 1966. Illinois, Indiana, Michigan, Ohio, and Wisconsin reported 32.2 percent of the United States total during 1966. Nine states (Georgia, Kansas, Louisiana, Mississippi, Nevada, New Jersey, New Mexico, North Carolina, and Oklahoma) reported no cases during this period.

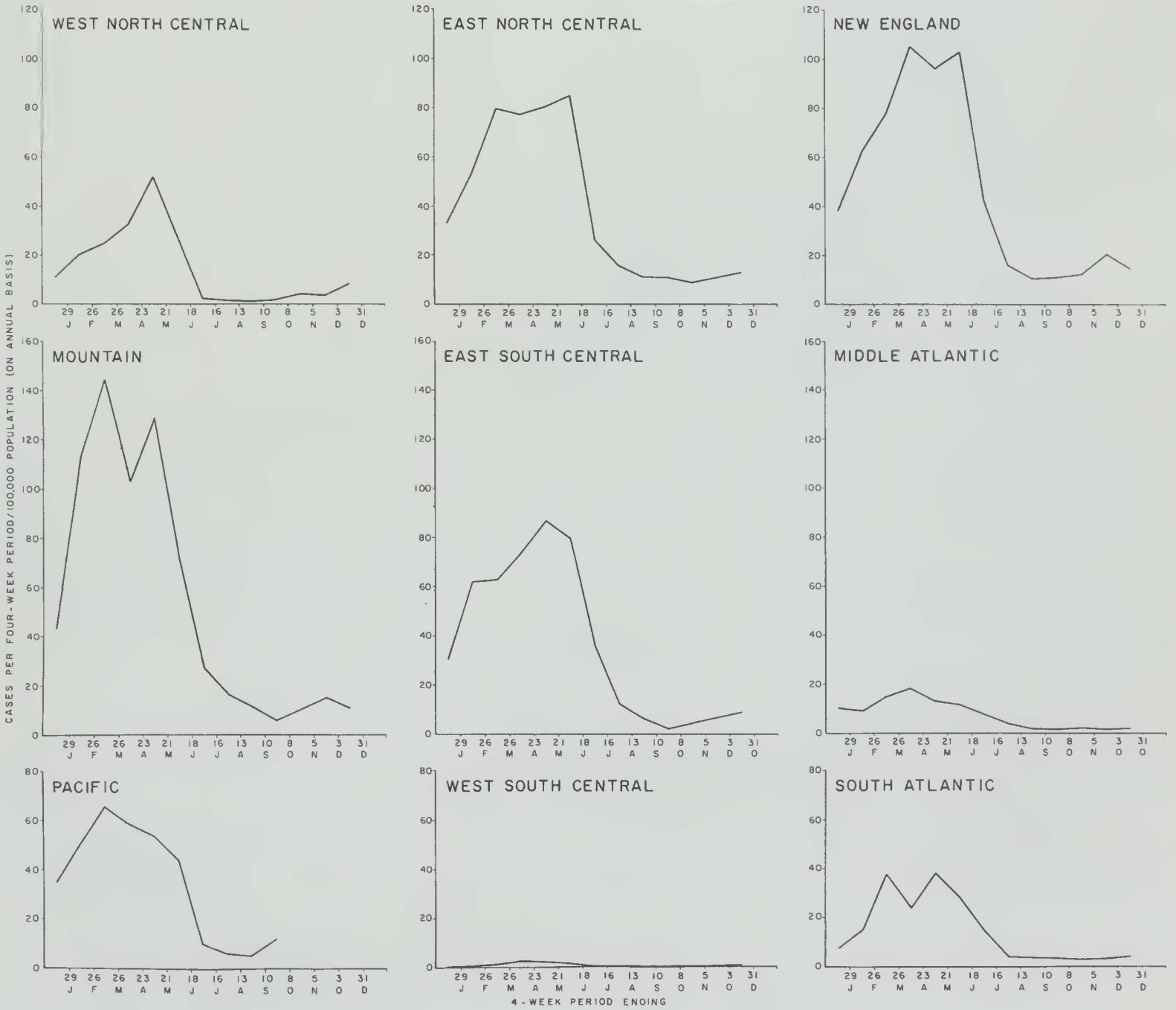
Rubella case rates for 1966 by region are shown in Figure 1. In each region, the highest rates were recorded during the spring months. The Mountain Region had the highest rate, with an early spring peak rate of 145 per 100,000 population, and the New England Region was second highest with 105 per 100,000 population. The lowest rates were noted in the West South Central and Middle Atlantic Regions.

Examination of the case rates in 24 states which reported rubella prior to 1966 (Figure 2) allows comparison of the current year with the last known epidemic year (1964). The case rate per 100,000 population for the 24 states was 33.4 in 1966 compared with 365.7 in 1964, a 10-fold difference. In 1964, 21 states had case rates exceeding 100/100,000 population with no states reporting a rate less than 50/100,000 population. In contrast, during 1966 Arizona and Washington were the only states with rates of 100/100,000 population or greater, while ten states had rates less than 25/100,000 population.

TABLE I
REPORTED RUBELLA CASES BY 4-WEEK PERIODS, 1966

AREA	4-WEEK ENDING													Total 1966
	Jan. 29	Feb. 26	Mar. 26	Apr. 23	May 21	June 18	July 16	Aug. 13	Sept. 10	Oct. 8	Nov. 5	Dec. 3	Dec. 31	
UNITED STATES	3,113	5,169	7,302	7,092	7,708	6,722	2,422	1,156	816	870	955	1,182	1,388	45,895
NEW ENGLAND	328	534	664	901	825	880	361	135	91	94	107	177	126	5,223
Maine	30	26	24	47	59	38	20	35	22	25	21	47	27	421
New Hampshire	12	6	37	8	10	3	13	—	—	1	1	—	—	91
Vermont	60	15	12	16	8	31	8	5	—	—	2	1	1	159
Massachusetts	65	261	200	371	374	470	158	27	15	16	31	34	33	2,055
Rhode Island	31	26	11	82	50	28	14	6	14	2	4	7	7	282
Connecticut	130	200	380	377	324	310	148	62	40	50	48	88	58	2,215
MIDDLE ATLANTIC	286	259	423	514	375	335	224	112	52	51	72	50	58	2,811
New York City	83	150	180	138	125	90	54	38	32	25	44	32	27	1,018
Upstate New York	199	106	231	356	236	224	166	73	19	21	27	17	28	1,703
New Jersey	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pennsylvania	4	3	12	20	14	21	4	1	1	5	1	1	3	90
EAST NORTH CENTRAL	972	1,533	2,329	2,267	2,357	2,481	762	454	332	322	254	315	379	14,757
Ohio	91	102	172	262	295	142	38	20	21	28	33	22	50	1,276
Indiana	124	256	336	477	419	384	131	45	28	30	22	65	27	2,344
Illinois	183	254	512	376	491	617	121	41	19	56	39	43	40	2,792
Michigan	150	310	466	428	446	581	210	115	46	80	56	68	84	3,040
Wisconsin	424	611	843	724	706	757	262	233	218	128	104	117	178	5,305
WEST NORTH CENTRAL	138	249	301	395	632	334	30	19	12	21	53	43	104	2,331
Minnesota	20	14	25	20	9	17	—	1	—	—	8	4	7	125
Iowa	89	202	264	351	594	287	17	2	9	16	36	22	66	1,955
Missouri	3	3	2	6	7	16	3	9	1	2	1	4	1	58
North Dakota	26	30	10	15	22	14	8	6	2	3	7	13	30	186
South Dakota	—	—	—	—	—	—	1	1	—	—	—	—	—	2
Nebraska	—	—	—	3	—	—	1	—	—	—	1	—	—	5
Kansas	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SOUTH ATLANTIC	171	332	836	527	845	622	332	96	86	84	68	78	94	4,171
Delaware	5	6	11	3	13	6	2	—	2	3	—	4	—	55
Maryland	22	31	93	43	65	56	30	12	9	4	13	10	10	398
District of Columbia	—	—	—	2	3	—	2	—	3	2	3	—	—	15
Virginia	23	62	228	94	229	151	87	29	11	12	10	7	23	966
West Virginia	74	157	172	87	159	143	104	20	32	26	11	19	14	1,018
North Carolina	—	—	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	10	16	99	61	45	18	2	8	3	4	3	7	8	284
Georgia	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Florida	37	60	233	237	331	248	105	27	26	33	28	31	39	1,435
EAST SOUTH CENTRAL	299	614	620	726	859	784	352	120	61	25	45	71	91	4,667
Kentucky	106	384	321	330	164	373	111	43	15	9	6	47	51	1,960
Tennessee	184	225	285	373	666	402	232	72	41	16	38	23	38	2,595
Alabama	9	5	14	23	29	9	9	5	5	—	1	1	2	112
Mississippi	—	—	—	—	—	—	—	—	—	—	—	—	—	—
WEST SOUTH CENTRAL	1	7	21	37	30	23	6	6	3	3	2	7	4	150
Arkansas	—	1	—	1	1	1	1	—	—	1	—	4	—	10
Louisiana	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Oklahoma	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Texas	1	6	21	36	29	22	5	6	3	2	2	3	4	140
MOUNTAIN	259	675	865	617	772	433	165	99	71	36	64	92	66	4,214
Montana	59	23	171	31	29	21	6	2	6	—	12	6	8	374
Idaho	5	72	28	21	3	10	3	1	2	2	4	7	1	159
Wyoming	2	1	3	50	177	5	—	—	1	—	—	—	—	239
Colorado	29	60	88	85	143	129	61	28	40	19	14	30	17	743
New Mexico	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arizona	154	511	560	421	406	261	89	68	21	15	30	43	39	2,618
Utah	10	8	15	9	14	7	6	—	1	—	4	6	1	81
Nevada	—	—	—	—	—	—	—	—	—	—	—	—	—	—
PACIFIC	659	966	1,243	1,108	1,013	830	190	115	108	234	290	349	466	7,571
Washington	326	504	512	386	346	383	43	40	53	121	183	178	217	3,292
Oregon	125	143	130	138	152	92	57	46	26	53	31	96	77	1,166
California	197	291	575	539	479	330	64	17	20	48	66	64	158	2,848
Alaska	—	15	9	27	15	3	11	5	2	4	7	6	9	113
Hawaii	11	13	17	18	21	22	15	7	7	8	3	5	5	152
Puerto Rico	5	3	10	4	6	—	3	3	4	9	9	21	1	78

Figure 1
RUBELLA RATES BY REGION AND FOUR-WEEK PERIOD
UNITED STATES, 1966



B. Laboratory Confirmation of Rubella Activity

Rubella is often difficult to distinguish clinically from other mild exanthematous diseases. While only a trivial proportion of the cases reported in 1966 were studied in the laboratory, it is of interest to examine the geographic distribution of cases confirmed by the Virus Reference Unit, Laboratory Program, National Communicable Disease Center. Twenty-four states submitted at least one pair of sera from a 1966 case which demonstrated a four-fold rise in rubella antibody titer (Figure 3), indicating widespread rubella virus activity. No information has been collected for cases confirmed in other laboratories.

C. Congenital Rubella Syndrome

Only 19 cases of the congenital rubella syndrome were reported during 1966 and all were from seven states: Colorado (1), Illinois (3), Michigan (4), Minnesota (7), Oregon (1), Pennsylvania (2), and Virginia (1). [There are currently no reliable indicators of the true incidence of this condition.]

[Editorial note: Diagnosis of congenital rubella syndrome can be established with reasonable certainty by laboratory tests on sera collected when the suspect case is 6-12 months old. Ideally, every case should be so confirmed. If such serologic tests for rubella are not available otherwise, they will be performed by Virus Reference Unit, Laboratory Program, NCDC.]

Figure 3.

STATES WITH LABORATORY CONFIRMED RUBELLA ACTIVITY, 1966 *



*
BASED ON TESTS PERFORMED BY VIRUS REFERENCE UNIT,
LABORATORY IMPROVEMENT PROGRAM N C D C .

III. Ten-Year Experience

A. Rubella Morbidity

Cases of rubella for states reporting during the last 10 years are presented in Table II. For the 35 states reporting in 1964 there were 448,796 reported cases, which greatly exceeds the number reported in any other year during this period.

Rubella data by month of report are available for 24 states throughout the 10-year period. Figure 4 graphically demonstrates the marked rise in total reported cases in 1964 for this selected group of states. A seasonal increase is apparent during the months of March, April, and May each year.

A sharp increase in cases occurred in all sections of the country except the Pacific States during the winter and spring of 1963-64 (Figure 5). This increase was most pronounced in the Northeast Region with a peak of 47,161 reported cases in April 1964. The North Central Region reported 27,770 cases, the South 19,538 cases, and the Mountain States 6,226 cases during the same month. However, not until the winter and spring of 1964-65 did the far West note a marked increase in the number of rubella cases when a peak of 8,975 occurred in March 1965.

Figure 4.
RUBELLA BY MONTH OF REPORT
FOR 24 SELECTED STATES
1956-66*

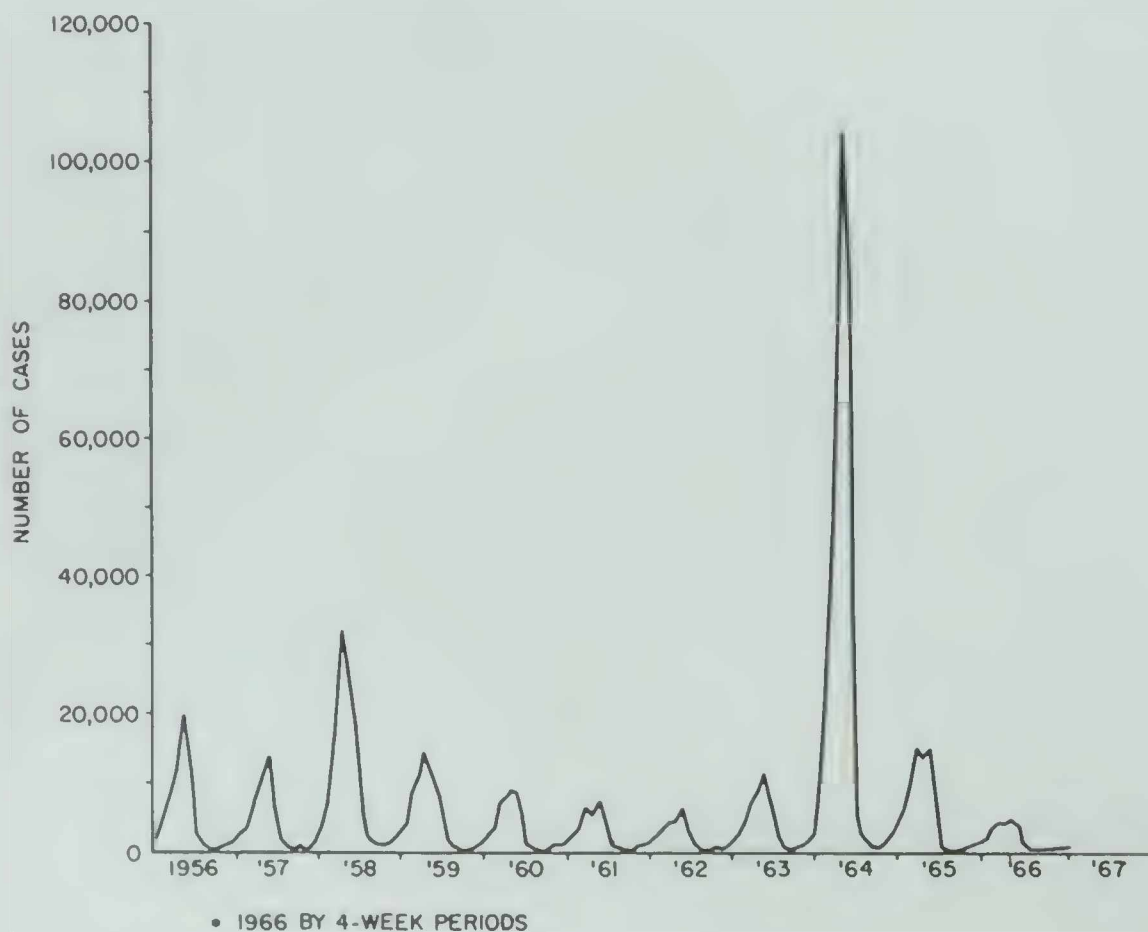
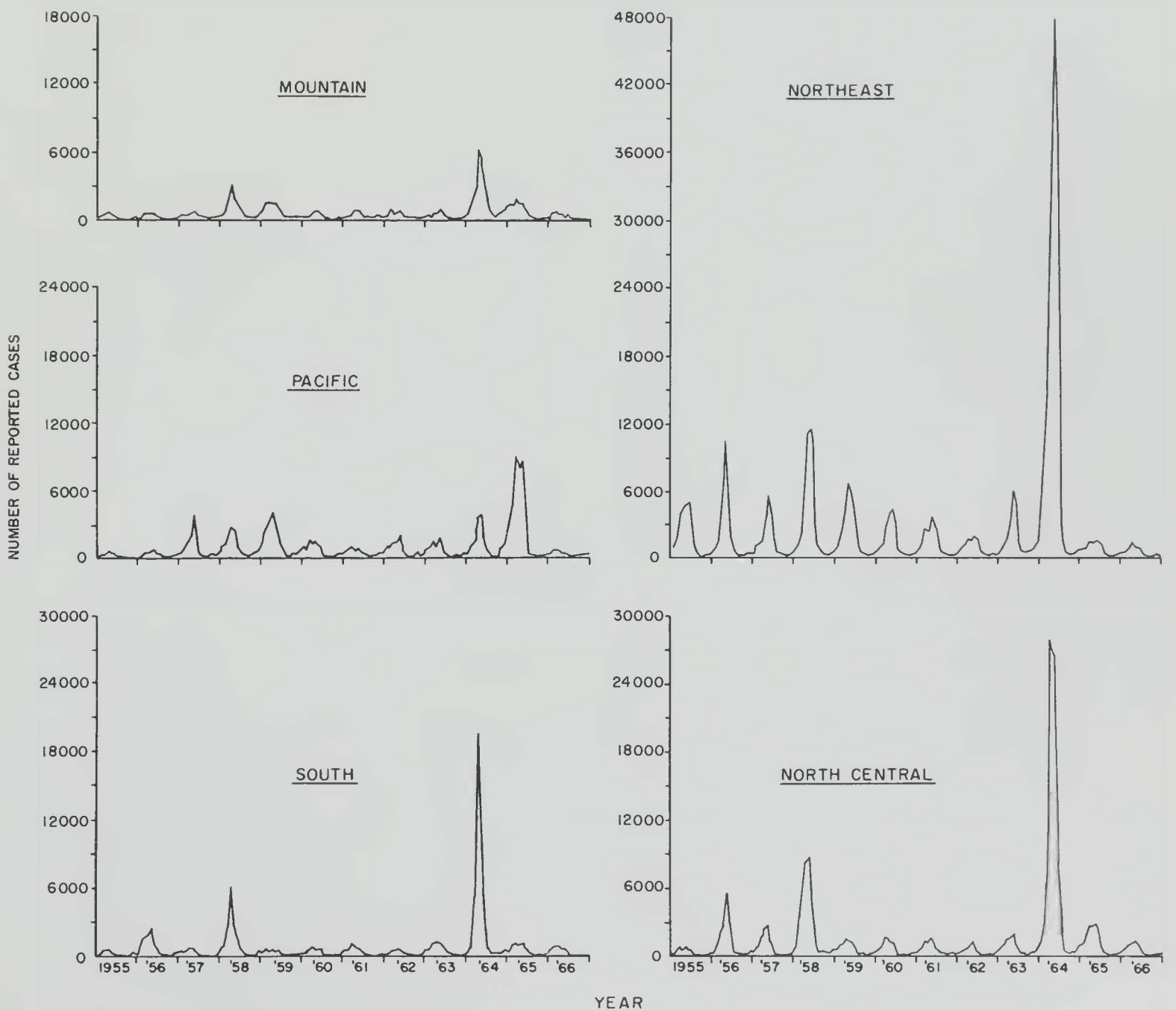


Figure 5.
 RUBELLA BY MONTH OF REPORT
 FOR SELECTED STATES
 1955-1966*



* 1966 BY 4-WEEK PERIODS

TABLE II
REPORTED CASES OF RUBELLA BY STATE,
1956 - 1965

AREA	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956
UNITED STATES	100,842	448,796	60,431†	37,265	43,810	50,958††	76,417††	172,411††	64,006††	114,431††
No. States Reporting	(35)	(35)	(32)	(32)	(33)	(31)	(30)	(28)	(30)	(30)
NEW ENGLAND										
Maine	953	7,463	953	514	1,436	1,451	1,605	1,054	1,354	1,883
New Hampshire	163	1,331	453	57	217	163	1,374	913	1,156	1,983
Vermont	-	-	-	-	-	-	-	-	-	-
Massachusetts	2,839	37,105	11,739	3,766	6,443	5,562	4,258	12,921	10,609	5,684
Rhode Island	234	11,399	1,324	129	313	138	1,145	1,282	70	958
Connecticut	1,719	40,737	3,945	1,338	2,748	3,750	4,688	11,304	1,798	8,612
MIDDLE ATLANTIC										
New York	2,505	61,624	8,158	4,246	4,465	8,816	15,478	22,297	6,144	17,297
New Jersey	-	-	-	-	-	-	-	-	-	-
Pennsylvania	-	-	-	-	-	-	-	-	-	16,036
EAST NORTH CENTRAL										
Ohio	2,348	19,194	2,953	979	1,607	3,621	2,954	6,854	1,786	5,564
Indiana	1,911	13,037	1,972	1,406	1,371	1,937	1,177	5,853	2,342	2,144
Illinois	4,850	29,685	2,108	2,030	3,438	1,723	2,146	15,431	4,866	6,314
Michigan	9,937	18,922	1,637	1,091	1,224	2,028	2,812	5,073	2,216	12,041
Wisconsin	9,570	96,583	4,731	4,365	5,418	4,841	7,075	44,953	9,902	16,765
WEST NORTH CENTRAL										
Minnesota	1,910	3,232	-	-	1	-	-	-	-	-
Iowa	3,798	18,481	1,727	416	482	438	1,254	4,139	994	1,282
Missouri	39	573	155	158	-	-	-	-	-	-
North Dakota	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	628	650
Nebraska	13	-	-	-	-	-	-	†††	†††	†††
Kansas	-	-	-	-	-	-	-	-	5	76
SOUTH ATLANTIC										
Delaware	111	802	135	144	276	38	102	250	75	25
Maryland	248	3,583	299	258	391	211	305	2,281	274	1,129
District of Columbia	16	455	149	17	50	44	43	392	115	152
Virginia	-	-	-	-	-	-	-	-	-	-
West Virginia	2,091	6,774	1,438	960	748	314	597	2,569	316	1,499
North Carolina	-	-	-	-	-	-	-	-	-	-
South Carolina	-	†††	-	-	-	-	-	-	-	-
Georgia	285	497	85	315	34	140	69	-	-	-
Florida	892	8,661	1,008	501	732	834	953	1,005	84	205
EAST SOUTH CENTRAL										
Kentucky	1,190	18,027	2,158	914	2,034	1,696	874	3,392	2,067	3,432
Tennessee	-	-	-	-	-	-	-	-	-	-
Alabama	169	3,574	88	57	60	45	29	2,065	122	740
Mississippi	1,167	6,784	-	-	2	-	-	1,549	†††	-
WEST SOUTH CENTRAL										
Arkansas	428	1,025	370	59	168	218	28	3,883	481	2,285
Louisiana	-	-	-	-	-	-	-	-	-	-
Oklahoma	-	-	-	-	-	-	-	-	-	-
Texas	-	-	-	-	-	-	-	-	-	-
MOUNTAIN										
Montana	2,526	2,367	898	1,011	747	783	1,675	-	977	392
Idaho	1,088	462	82	116	87	52	212	653	255	-
Wyoming	-	25	-	-	-	-	-	-	-	-
Colorado	1,973	11,817	1,219	1,729	1,803	1,549	3,567	1,434	1,034	1,029
New Mexico	272	351	109	26	41	142	969	3,496	1,100	1,126
Arizona	2,076	6,653	1,608	1,732	1,751	1,493	2,665	4,298	1,882	1,724
Utah	1,489	588	85	111	110	143	451	1,076	167	348
Nevada	22	-	-	-	-	-	-	-	-	-
PACIFIC										
Washington	25,258	11,119	5,526	5,152	3,176	4,230	10,625	5,837	8,826	1,704
Oregon	12,956	4,190	2,114	3,318	2,298	4,167	7,098	6,157	2,361	1,352
California	-	-	-	-	-	-	-	-	-	-
Alaska	451	747	1,127	152	89	331	189	-	-	-
Hawaii	3,345	929	78	198	50	60	-	-	-	-
Puerto Rico	430	884	70	-	-	-	-	-	-	-

-No cases reported.

†††Included in measles.

†Includes data for Maine from State Report.

††Alaska not included in U.S. total prior to 1959;

Hawaii not included in U.S. total prior to 1960.

Source: *Reported Incidence of Notifiable Diseases in the United States; Annual Supplement for respective year.*

TABLE III
DEATHS ATTRIBUTED TO RUBELLA, UNITED STATES,
1955 - 1964

AREA	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955
UNITED STATES	53	16	8	14	12*	10*	24*	10*	21*	8*
NEW ENGLAND	3	1	-	-	-	2	-	2	2	-
Maine	-	-	-	-	-	-	-	-	-	-
New Hampshire	1	-	-	-	-	-	-	-	-	-
Vermont	1	-	-	-	-	-	-	-	1	-
Massachusetts	-	1	-	-	-	-	-	1	1	-
Rhode Island	-	-	-	-	-	1	-	-	-	-
Connecticut	1	-	-	-	-	1	-	1	-	-
MIDDLE ATLANTIC	10	2	-	2	2	3	4	2	2	3
New York City	2	1	-	-	-	-	-	-	-	-
Upstate New York	2	1	-	1	1	1	2	-	-	-
New Jersey	4	-	-	-	1	-	1	1	2	1
Pennsylvania	2	-	-	1	-	2	1	1	-	2
EAST NORTH CENTRAL	8	4	2	3	1	-	3	-	4	3
Ohio	4	1	-	-	1	-	-	-	2	1
Indiana	3	1	1	1	-	-	-	-	-	1
Illinois	1	1	1	2	-	-	1	-	2	-
Michigan	-	1	-	-	-	-	1	-	-	1
Wisconsin	-	-	-	-	-	-	1	-	-	-
WEST NORTH CENTRAL	4	1	-	-	-	-	3	2	2	-
Minnesota	-	-	-	-	-	-	-	1	1	-
Iowa	1	1	-	-	-	-	-	1	1	-
Missouri	2	-	-	-	-	-	2	-	-	-
North Dakota	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-
Nebraska	1	-	-	-	-	-	-	-	-	-
Kansas	-	-	-	-	-	-	1	-	-	-
SOUTH ATLANTIC	12	3	2	4	3	2	6	-	5	-
Delaware	-	-	-	-	-	-	-	-	-	-
Maryland	2	-	-	-	1	-	1	-	-	-
District of Columbia	-	-	-	-	-	-	-	-	-	-
Virginia	-	1	-	-	-	1	1	-	1	-
West Virginia	1	-	1	1	-	-	-	-	-	-
North Carolina	5	-	-	-	1	-	1	-	3	-
South Carolina	2	-	-	-	-	-	-	-	-	-
Georgia	2	1	1	1	1	-	2	-	1	-
Florida	-	1	-	2	-	1	1	-	-	-
EAST SOUTH CENTRAL	6	1	1	2	1	1	1	1	2	-
Kentucky	-	-	-	1	-	-	-	-	1	-
Tennessee	5	-	-	-	1	1	-	-	-	-
Alabama	1	1	-	-	-	-	1	1	-	-
Mississippi	-	-	1	1	-	-	-	-	1	-
WEST SOUTH CENTRAL	5	2	2	-	2	2	3	2	2	-
Arkansas	-	-	-	-	-	-	1	1	-	-
Louisiana	-	-	1	-	-	-	1	1	-	-
Oklahoma	2	1	-	-	1	1	-	-	1	-
Texas	3	1	1	-	1	1	1	-	1	-
MOUNTAIN	3	-	-	1	2	-	3	-	-	1
Montana	1	-	-	-	1	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	1	-	-	-
Colorado	-	-	-	-	-	-	2	-	-	-
New Mexico	2	-	-	1	1	-	-	-	-	1
Arizona	-	-	-	-	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-
PACIFIC	2	2	1	2	1	-	1	1	2	1
Washington	1	-	-	-	1	-	-	1	1	-
Oregon	-	-	-	-	-	-	-	-	1	-
California	1	2	1	2	-	-	1	-	-	1
Alaska	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-
Puerto Rico	-	-	-	-	-	-	-	-	-	-

* Alaska not included in U. S. total prior to 1959; Hawaii not included in U. S. total prior to 1960.

Source: National Vital Statistics Division, *Vital Statistics of the United States*, Vol. II, for respective year.

TABLE IV
A. DEATHS ATTRIBUTED TO RUBELLA AND POPULATIONS BY GEOGRAPHIC AREAS*, 1960 - 1964

AREA	1964		1963		1962		1961		1960	
	Deaths	Pop. (000)	Deaths	Pop. (000)	Deaths	Pop. (000)	Deaths	Pop. (000)	Deaths	Pop. (000)
North East (6)	6	28,496	3	28,218	—	27,831	1	27,411	1	26,996
South (7)	4	19,937	2	19,583	1	19,236	4	18,884	1	18,525
North Central (4)	9	28,300	4	27,927	2	27,697	3	27,469	1	27,250
Mountain (5)	1	5,849	—	5,792	—	5,698	—	5,557	1	5,339
Pacific (2)	1	4,848	—	4,813	—	4,761	—	4,672	1	4,627
Total	21	87,430	9	86,333	3	85,223	8	83,993	5	82,737

Source: Population Estimates, Series P-25, No. 324.

B. RUBELLA MORTALITY RATES AND DEATH-CASE RATIOS BY GEOGRAPHIC AREAS*, 1960 - 1964

AREA	Mortality Rates Per 100,000					Deaths/Cases Per 100				
	1964	1963	1962	1961	1960	1964	1963	1962	1961	1960
North East (6)	0.02	0.01	—	0.004	0.004	0.004	0.01	—	0.01	0.01
South (7)	0.02	0.01	0.01	0.02	0.01	0.01	0.04	0.03	0.09	0.03
North Central (4)	0.03	0.01	0.01	0.01	0.004	0.01	0.05	0.04	0.04	0.01
Mountain (5)	0.02	—	—	—	0.02	0.005	—	—	—	0.02
Pacific (2)	0.02	—	—	—	0.02	0.01	—	—	—	0.01
Total	0.02	0.01	0.004	0.01	0.01	0.01	0.02	0.01	0.02	0.01

* For selected States. The number of States is shown in parentheses and the States included are shown in map inset.



B. Rubella Mortality

Rubella recorded as a primary cause of death is tabulated in Table III by state and geographic region from 1955-1964. There was an average of 17.6 deaths per year for this period with a range from 8 in 1955 and 1962 to 53 in 1964.

Ten states (Alaska, Arizona, Delaware, Hawaii, Idaho, Maine, Nevada, North Dakota, South Dakota, and Utah) reported no deaths due primarily to rubella from 1955 to 1964.

The 124 selected states for which morbidity data are available reported 46 deaths due to rubella during 1960-64 (Table IV, A, B). The North Central and North-east areas, with 19 and 11 respectively, had the highest number of deaths during this 5-year period. However, these two areas have relatively large populations. (See Table IV, part B.) The mortality rates and the case/fatality ratios are nearly uniform in all five areas.

In addition to deaths recorded as primarily due to rubella, data are available on the number of infant deaths attributed to maternal rubella.+ From 1955 to 1964, a total of 112 deaths including 33 among immature infants* were recorded in this category. A total of 40 (35.7 percent) were noted in 1964.

+ Vital Statistics of the United States, Deaths and Death Rates for each Cause, 1955-1964.

* International classification of disease, W.H.O., 7th revision rubric 796.7: "Attributed to maternal rubella with immaturity."

Key to all disease surveillance activities are those in each State who serve the function as State epidemiologists. Responsible for the collection, interpretation and transmission of data and epidemiological information from their individual States, the State epidemiologists perform a most vital role. Their major contributions to the evolution of this report are gratefully acknowledged.

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