

Epidemiology Bulletin

REPUBLIC OF CHINA

- Contents -

Changes in the Epidemiological Pattern of Rubella in Taiwan Area (II)
Cases of Notifiable and Reportable Diseases, Taiwan Area, Weeks 9-13 Ending April 1989

Changes in the Epidemiological Pattern of Rubella in Taiwan Area (II)

Table 4-5 shows the distribution of diagnosed Rubella cases at out-patient department and in hospitalization of the National Taiwan University Hospital between 1980 and June 1987. Data from medical records show that there have been Rubella cases in the Taipei area since 1980 with significant increases in 1983-84 and 1986-87.

Table 4-6 is for the Mackay Memorial Hospital between 1984 and 1986. Serologically confirmed Rubella cases have been occurring each year since 1984 with peaks in March through June, though there are cases in every month except October. More cases have been found in 1984 and 1986.

Table 4-7 shows the number of Rubella cases in both Taipei City and County when Rubella was made a reportable disease on a pilot project basis. One can note that there have been cases of Rubella throughout the entire year between November 1986 and October 1987 with more cases in April and June.

Table 4-8 is taken from the Health Statistics of the Republic of China compiled by the national, provincial, and municipal health departments. It can be noted that there have been cases each year between 1977 and 1985 with more cases in 1977, 1979, and 1983-84.

VI. Discussion

For the limitation of manpower and funds, only around 200 samples were selected for each age group. Also, the collection of blood samples requires the consent of parents, and to avoid objections from parents, a class was used as a unit for sampling. Four cities in the northern, middle, southern, and eastern parts of Taiwan: Taipei, Taichung, Kaohsiung, and Hualien were selected for study. To understand the ethnical impact, if any, a group of aborigines in Tatung Township of Ilan County was also selected. Further, to understand the difference between urban and rural areas, a group of students in a remote area with population density less than 1,000 persons per square kilometer of land area in Nantou County was also selected for study. The antibody positive rates for each age group obtained through serological testings in this study though may not necessarily represent the prevalence rates of Rubella in Taiwan, the results seem to be sufficient to illustrate the epidemiological patterns of Rubella in Taiwan Area.

The sero-epidemiological study of 1986 shows that there already is a 26% Rubella IgG positive rate for children under six years of age, and this value increases with the age to about 50% for children above the age of 13 years (see Table 4-1).

There were Rubella outbreaks in Taiwan in 1968-69 and 1977. By estimation, those who are 20 years old and above now must have been exposed to these two outbreaks; those who are between 11 and 20 years of age now must have been exposed to the 1977 outbreak; and those who are younger than 10 years of age now would have not been exposed to neither of the two outbreaks. However, from Table 4-2, it is noted that there already is a 30% antibody positive rate in children under 10 years of age. The linear relationship of serum antibody positive rates for children between 5 and 10 years of age (Figure 4-2A) gives an estimate that each year about 3% of the children are infected by Rubella. This shows that there must have been outbreaks in the years between 1977 and 1986.

**Table 4-5 Rubella Cases in National Taiwan University Hospital,
January 1980 to June 1987**

Year	No. of cases at OPD	No. of hospitalized cases	Total
1980	5	0	5
1981	3	0	3
1982	14	3	17
1983	84	2	86
1984	75	3	78
1985	15	0	15
1986	88	1	89
1987*	41	0	41

*includes only cases in January through June 1987

**Table 4-6 No. of Serologically Confirmed Rubella Cases, Mackay Memorial Hospital,
January 1984 to July 1986**

Month	1984	1985	1986	Total
January	2	3	0	5
February	3	1	4	8
March	4	3	7	14
April	0	3	9	12
May	8	1	5	14
June	5	4	11	20
July	1	1	3	5
August	5	2	2	9
September	0	1	2	3
October	0	0	0	0
November	1	2	1	4
December	1	2	1	4
Total	30	23	39	92

**Table 4-7 Reported Rubella Cases in
Taipei City and County, November 1986 to October 1987**

Year	Month	No. of cases
1986	November	6
1987	December	23
	January	23
	February	39
	March	36
	April	71
	May	36
	June	87
	July	38
	August	6
	September	3
	October	6

Table 4-8 Rubella Out-Patient Cases in Taiwan Area, Reported by DOH, TPHD, THD, and KHD, 1977-85

Year	Month	No of cases
1977	June	270
1978	November	66
1979	May	342
1980	October	8
	April	23
1981	September	39
	January	11
1982	April	157
	May	191
1983	December	88
1984	May	619
	April	519
1985	November	49
	April	176
	September	56

The sero-epidemiological study of 1987 shows that the Rubella antibody positive conversion rate per year for each age group between 8 and 22 years old is about 11-22%. Medical record data of the National Taiwan University Hospital (Table 4-5) indicates that there are Rubella cases every year with more cases in 1983-84 and 1986-87. Rubella cases of the National Taiwan University Hospital are diagnosed clinically, and though clinical diagnosis without serological confirmation may sometimes be wrong, if done by experienced physicians, the validity is considered high. The National Taiwan University Hospital medical record data, thus, are sufficient to indicate that there have been Rubella cases each year in Taiwan. Furthermore, the ratio between Rubella cases with symptoms and without symptoms is about 1:1. Cases with symptoms rarely visit major hospitals. Therefore, the Rubella cases noticed in the major hospitals are only a small portion of the total Rubella cases. These data, thus, are sufficient to indicate that there have been Rubella cases in the Taipei area in these eight years. Rubella cases of the Mackay Memorial Hospital are serologically confirmed. The results (Table 4-6) show that there had been cases each year between 1984-86 with more cases in 1984 and 1986. The Department of Health in 1986-87 in both Taipei City and County made Rubella a reportable disease on pilot project basis. The survey results show that there had been cases in each month between 1986-87 with more cases in April and June. Reports by both public and private hospitals and clinics in the Taiwan Area also show that there have been Rubella cases each year since 1977 (Table 4-8). These serological data show that the distribution of Rubella antibody in Taiwan Area is different from the findings of Grayston, and that the epidemiological pattern of Rubella in Taiwan Area has changed from one major outbreak every ten years or so to a pattern of endemics with one outbreak every two to three years.

Rubella is likely to develop congenital rubella syndromes. Grayston's study of pregnant women in Taiwan infected with Rubella found that about 50% of those women who were infected with Rubella in their first trimester of pregnancy would deliver congenitally anomalous babies. They are burdens to both the individual families and the society as a whole. An ideal way to prevent congenital anomalies is to eradicate Rubella. In USA, UK, and Japan, effective measures have been taken to prevent Rubella. An effective way of prevention is through immunization of Rubella vaccines. There, however, have been many arguments as to the immunization program: (1) the cost-benefit assessment of the immunization program; (2) the most effective immunization strategy in the prevention of congenital rubella syndromes; (3) the possible immunization coverage rate and the effective period of the vaccines; (4) the side effects of the vaccines; and (5) the most adequate method of immunization.