

# ***Epidemiology Bulletin***

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Japanese Encephalitis in Taiwan, 1989

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Japanese encephalitis is an infectious disease of high frequency in Taiwan Area. It was, therefore, made a reportable disease in 1955. The incidence rate per 100,000 population of reported cases in 1967 was 7.66. The Government began the mass immunization of children under two years of age in 1968, the number of reported cases declined sharply thereafter, and leveled off since 1975. Since 1986, the incidence rate of confirmed cases has declined, particularly so in 1989 as shown in Figure 1.

Between January and December of 1989, there had been 181 reported cases, giving an incidence rate of 0.91 per 100,000 population. Of which, 17 died, giving a mortality rate of 0.09 per 100,000 population, and a fatality rate of 9.4%. Of those who survived, blood specimens of acute and recovery periods could be collected from 147 cases (89.6%). Through hemagglutination inhibition test (HI), 15 cases had been confirmed, giving an incidence rate of 0.08 per 100,000 population. The accuracy of diagnosis is 10%. The clinical symptoms of Japanese encephalitis are not easily differentiated from clinical symptoms of other encephalitides. Therefore, since 1976, hospitals have been followed-up more frequently and physicians encouraged to report any suspected cases, the accuracy of diagnosis, thus, has been lower.

Japanese encephalitis in 1989 in cities and counties of Taiwan Area is shown in Figure 2. Except Chiayi City, there were reported cases in every city and county. Changhua and Ilan had the most confirmed cases. Hualien and Taitung counties used to have high incidence rates, no case was reported in these two counties in 1989. This shows that the geographical distribution of Japanese encephalitis varies from year to year.

As shown in Figure 3, the age distribution of the 15 confirmed cases is: 4 cases in the 5-9 years of age group, and 3 in the 10-14 age group. As the trend of the recent years indicates, the number of confirmed cases in ages 20 years and above has been increasing. This perhaps is due to the mass immunization of children. Currently, the immunization rate is more than 80%.

The monthly distribution of confirmed cases (see Figure 4) shows that there are more cases in June through October with the peak in June through August of a year. The first two doses of Japanese encephalitis vaccines, therefore, should be completed before end of April to have enough immunity against the disease before the season begins in June.

Of the 15 confirmed cases, two had completed the four doses of immunization, and one had had three doses. However, these three children had their last dose of immunization two years before the onset of the disease. Another three cases had had one dose (two had it five years before the onset of disease, one a year before the onset). The rest 9 cases (60%) had never had any immunization. It shows that most of the confirmed cases were not immunized.

Of the 13 confirmed cases followed-up, one died, 9 recovered, and 3 with sequelae: language difficulty, personality change and mental disorder. One of the three cases with sequelae had one dose of vaccine five years ago, two of them had never been immunized. The one who died had never been vaccinated.

Hospitals which reported cases of Japanese encephalitis in 1989 are shown in Table 1. Most cases are reported by quasi-regional hospitals and above. A half of both the quasi-regional and regional hospitals have not reported. They ought to be encouraged to report more. The policy should be to encourage hospitals to report any suspected cases to be confirmed later in laboratories. In this way, the under-reporting of disease can be reduced, and the prevention and control of disease can be enforced.

**Table 1. Hospitals Reporting Suspected Japanese Encephalitis Cases in 1989**

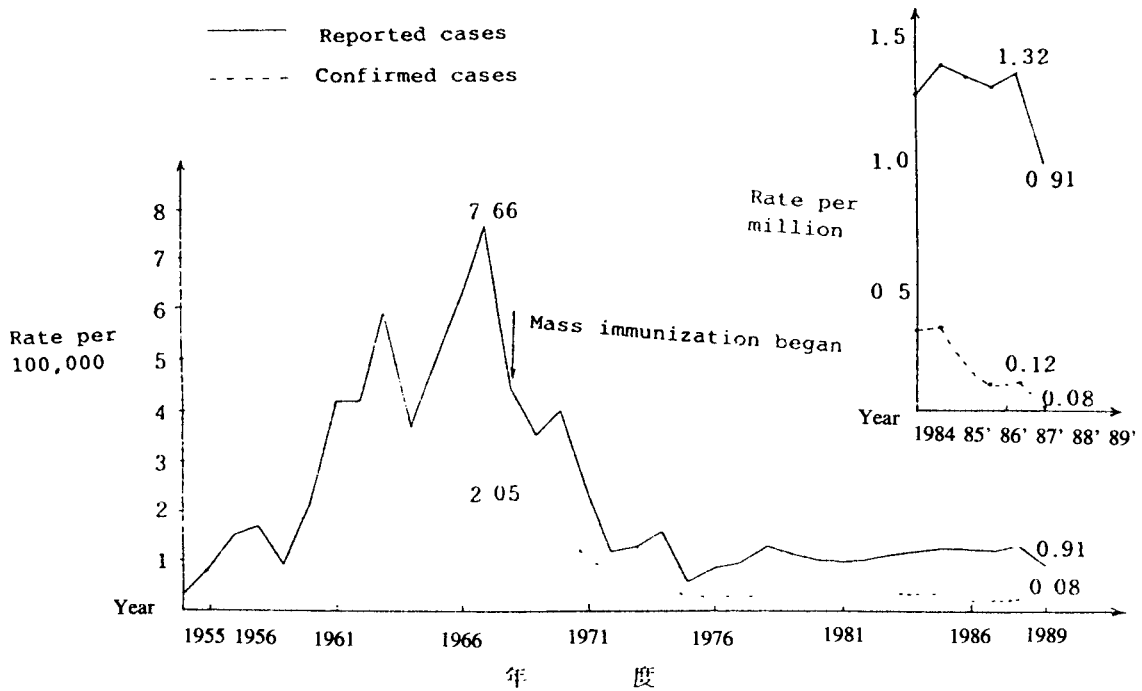
Type of Hospital*	No. of Hospital	No. of Hospital Reported	No. of Cases Reported	Average No. of Cases Reported per Hospital
Medical Center	4	4 (100 %)	34	8.5
Quasi-Medical Center	4	3 ( 75 %)	48	16.0
Regional Hospital	20	10 ( 50 %)	53	5.3
Quasi-Regional Hospital	17	10 ( 58.8%)	30	3.0
District General Hospital	66	5 ( 7.6%)	6	1.2
Others			10	3.3

\* Hospitals classified according to the accreditation of the Department of Health, 1988.

In summary, the characteristics of the Japanese encephalitis epidemic in 1989 in Taiwan Area are relatively similar to any epidemic of the previous years, with, however, smaller magnitude. This may have to do with the natural ecological changes of the Japanese encephalitis viruses and the mass immunization of children against Japanese encephalitis.

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## Reference:

**Fig. 1 Incidence of Japanese Encephalitis, Taiwan Area, 1955-1989****Fig. 2 Incidence of Japanese Encephalitis by City and County, Taiwan Area, 1989**