

# *Epidemiology Bulletin*

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Epidemiological Study of the Characteristics of Chronic Inpatients in Four Taipei Municipal Hospitals

## **Epidemiological Study of the Characteristics of Chronic Inpatients in Four Taipei Municipal Hospitals (1)**

### **1. Summary**

The purposes of the study are to describe the epidemiological characteristics of the chronic inpatients in the Taipei municipal general hospitals and to investigate into the factors affecting the hospital stay days (HSD) of these patients. Four types of patients, namely: Diabetes mellitus (DM), coronary heart disease (CHD), high blood pressure (HBP), and cerebrovascular disease (CVA) in four municipal hospitals, Chungshing, Hopping, Jenai, and Yangming, who are registered in Taipei City and were discharged between 1 January and 31 December 1987 have been selected for follow-up and study.

Of 1,174 cases selected, 735 have been successfully interviewed. The major findings are:

- 1) Of the 735 cases interviewed, one half (50.4%) are not covered by any insurance. 38.7% of the total medical costs during hospitalization of these self-paid patients exceed NT\$50,000. A national health insurance program should be promoted.
- 2) 81.9% of them have been admitted for the same disease more than once during the past year. Repeated admittance seems higher in chronic disease patients.
- 3) 53.7% of the discharged patients return to the same hospital for treatment. 16.5% of them visit the outpatient departments of general hospitals or clinics, only 1.1% visit the health stations.
- 4) The average hospital stay day (HSD) is 18.66 days. Although only 26.1% of them have an HSD of 21 days and more, their total days of hospital stay occupy 61.9% of those of all patients under study.

5) By applying the stepwise logistic regression, the determining factors for longer HSD are found to be:

- (1) age: the older ones tend to stay longer
- (2) disease: CVA patients and patients with more than two diseases stay longer.
- (3) insurance: patients under laborer's insurance program and social welfare program tend to stay longer.
- (4) special nurse: patients cared by paid special nurses stay longer.

## 2. Material and method

Four types of patients, DM, CHD, HBP, and CVA, in four municipal hospitals, Chungsing, Hoping, Jenai and Yangming, have been selected for study.

Of them, those who are registered in Taipei City and were discharged between 1 January and 31 December 1987 have been selected for follow-up.

Of the 1,174 cases selected, 735 have been successfully interviewed (656 cases at homes, and 79 in hospitals). 493 cases have failed the interview.

Reasons for failure are: 127 cases do not live at the registered addresses or have moved away; 92 have died after discharge; 80 are registered in other counties or cities, 61 are not met after three visits; 31 died before discharge; 23 refused the interview; and 25 cases for other reasons. The complete rate is 69.1% and the refusal rate, 3.0%.

The study is based on the medical records (for 1,174 cases) and the findings of the interview (735 cases):

## 3. Results

(1) to describe the epidemiological characteristics of chronic inpatients; (2) to study the factors affecting longer HSD's; and (3) to analyze the characteristics of patients with longer HSD's.

For the study of HSD's and the characteristics of patients, patients are divided into two groups:  $HSD \leq 21$  days, and  $HSD > 21$  days. Finally, the stepwise logistic regression is applied to identify factors affecting longer HSD's.

### 1) No. of patients

Less deaths and patients with unspecified HSD's, of all 1,047 cases, 73.9% are in the  $HSD \leq 21$  days and 26.1% in the  $HSD > 21$  days groups.

### 2) Total days of hospital stay

The total HSD's of patients in the  $HSD \leq 21$  day group occupy 38.1% of the total days of hospital stay for all patients; those of patients in the  $HSD > 21$  group occupy 61.9% of the total days of hospital stay for all patients.

### 3) HSD by disease

31.2% of CVA, 27.5% of DM, and 20.6% of CHD patients are in the HSD > 21 group. Of them, CVA patients occupy 67.7% of the total days of hospital stay of all CVA patients, CHD patients occupy 51.0% of the total days of hospital stay of all CHD patients.

### 4) HSD by hospital

In Chungshing Hospital, 68.3% of the patients are in the HSD  $\geq$  21 group, and 21.1% in the HSD > 21 group. The percentage of patients in the HSD > 21 in this Hospital is significantly higher than the average. In Heping Hospital, the ratios are 75.6% and 24.4% respectively. In Jenai Hospital, they are 73.9% and 26.1%. In Yangming Hospital, they are 90% and 10% respectively.

### 5) HSD by insurance

78.9% of the self-paid patients are in the HSD  $\leq$  21 group and 21.1% in the HSD > 21 group. For patients under the government employee insurance program, the ratios are 78.3% and 21.7% respectively. Both groups of patients tend to stay shorter. For patients under the laborer's insurance program, 72.6% are in the HSD  $\leq$  21 group and 27.4% in the HSD > 21 group. For patients under social welfare programs, the ratios are 56.8% and 43.2% respectively. They tend to stay in hospital longer.

### 6) HSD by admission

For patients admitted through outpatient departments, 75.7% are in the HSD  $\leq$  21 group and 24.3% in the HSD > 21 group. For patients admitted through emergency, the ratios are 75.9% and 24.1% respectively. No statistically significant difference is noted.

### 7) HSD by special nurse

For patients without paid special nurse during hospitalization, 65.5% are in the HSD  $\leq$  21 group and 34.4% in the HSD > 21 group. They seem to stay longer.

### 8) HSD by income

For patients whose income is less than NT\$10,000 per month before hospitalization or before retirement, 82.3% are in the HSD  $\leq$  21 group and 17.7% in the HSD > 21 group. For patients with income of more than NT\$100,000, the ratios are 68.7% and 31.3% respectively.

### 9) HSD by discharge

For patients discharged by the order of physicians, 71.6% are in the HSD  $\leq$  21 group and 28.4% in the HSD > 21 group. For patients discharged at own will, the ratios are 89.7% and 10.3% respectively. They tend to stay shorter.

To study the determining factors affecting longer HSD's, the stepwise logistic regression is applied. The dependent variable, the HSD (as Y), is divided into two groups: Y > 21 days and Y  $\leq$  21 days. The probable independent variables that may affect the length of hospital stay are: sex (X<sub>1</sub>), age (X<sub>2</sub>), diagnosis (X<sub>3</sub>), hospital (X<sub>4</sub>), discharge (X<sub>5</sub>), type of ward (X<sub>6</sub>), insurance (X<sub>7</sub>), special nurse (X<sub>8</sub>), complication (X<sub>9</sub>), route of admittance (X<sub>10</sub>), and income (X<sub>11</sub>). A formula to estimate the probability of longer HSD is given below: