Section title: Health Economics

AN OBSERVATION ON THE TREND OF OUTPATIENT DEPARTMENT UTILIZATION AFTER DIAGNOSED AS DEMENTIA-AN EIGHT YEAR FOLLOW UP STUDY

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PROFILE

- Population: 23.5 million
- Land area: 36,191 km²
- Aging population
  (2016): 3,106,105 (13.2%)
- Life expectancy
  (2013): 77.01(M) / 83.62 (F)

Source: Directorate-General of Budget, Accounting and Statistics; ROC; MOHW
Aging Population in Taiwan

- **Population ages 65 and above (% of total)**
  - **1993**: 7.1% (1490K)
  - **2016**: 13.2% (3106K)
  - **2018**: 14.5% (3434K)
  - **2026**: 20.6% (4881K)
  - **2061**: 38.9% (7152K)

- **Aging society**
  - **1993**: 2.1% (445K)
  - **2016**: 5.6% (1324K)
  - **2018**: 5.9% (1399K)
  - **2026**: 7.9% (1881K)
  - **2061**: 23.5% (4323K)

Note: 2018 population is estimated amount.
Reference:
BACKGROUND

TAIWAN DEMENTIA POPULATION ESTIMATED

Reference:
1. Chu et al. (2011). Epidemiological Study of Dementia (including Mild Cognitive Impairment) and Research for Dementia Care
Dementia population rate

2016 Dementia population analysis, very mild dementia (VMD) and mild dementia accounted for 74%.

<table>
<thead>
<tr>
<th>level</th>
<th>CDR</th>
<th>Dementia population (Rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Mild dementia (VMD)</td>
<td>0.5</td>
<td>101,860 (39%)</td>
</tr>
<tr>
<td>Mild dementia</td>
<td>1</td>
<td>91,410 (35%)</td>
</tr>
<tr>
<td>Moderate dementia</td>
<td>2</td>
<td>31,340 (12%)</td>
</tr>
<tr>
<td>Severe dementia</td>
<td>3</td>
<td>36,570 (14%)</td>
</tr>
</tbody>
</table>

CDR: Clinical dementia evaluation scale, total scores from 0-5, if the scores are higher then the dementia risk are also higher.

Reference:
1. Chu et al. (2011) Epidemiological Study of Dementia (including Mild Cognitive Impairment) and Research for Dementia Care
OBJECTIVES

- To know the changes of health utilization after diagnosed and the difference among three type of dementia.
  - Outpatient visits
  - Outpatient expenditure
  - Admissions
  - Length of stay
  - Inpatient expenditure
BACKGROUND OF TAIWAN’S NHI PROJECT

- Implemented in 1995
- Universal coverage (>99%)
- Single-payer system → Uniform data profile
- 92.47% of health provider signed contracts with the BNHI
METHODS-DESIGN AND DATA SOURCE

- Longitudinal study
- Data source (2004-2013)
  - Longitudinal Health Insurance Database (LHID) 2005 (1 million random samples of all beneficiaries in 2005)
    - Registry for beneficiaries (ID)
    - Ambulatory care expenditures by visits (CD)
    - Details of ambulatory care orders (OO)
    - Inpatient expenditures by admissions (DD)
    - Details of inpatient orders (DO)
METHODS – STUDY POPULATION & OUTCOME VARIABLE

- Study population
  - >=50 years old
  - >=2 visits or one hospitalization included a primary or secondary diagnosis of dementia
  - ICD-9-CM: 290.xx, 294.1x, 331.0
    - Alzheimer disease (AD): ICD-9-CM=331.0
    - Vascular dementia (VaD): ICD-9-CM=290.4x
    - Others: 290.0 Senile dementia, uncomplicated ;290.1 Presenile dementia ;290.2 Senile dementia with delusional or depressive features ;290.3 Senile dementia with delirium ;294.1 Dementia in conditions classified elsewhere
  - The first date of dementia diagnosis was year 2005 (index date)
  - The first date of been diagnosed as dementia was defined as index date.

- Study periods
  - Follow up from index date for eight year period.

- Outcome variables (utilization)
  - Visits per case per year
  - Outpatient expenditure per case per year
  - length of stay per case per year
  - inpatient expenditure per case per year
RESULTS 1-TYPE OF DEMENTIA

- AD: 5%
- VaD: 11%
- Others: 84%
RESULTS 2 - DEMOGRAPHIC DATA OF STUDY POPULATION

Distribution by Sex

- Female: 898, 48%
- Male: 988, 52%

Distribution by age groups

- 50-64 yrs: 50%
- 65-74 yrs: 27%
- 75-84 yrs: 18%
- >=85 yrs: 10%
OUTPATIENT VISITS (TIMES)

1st year 2nd year 3rd year 4th year 5th year 6th year 7th year 8th year
30 32 34 36 38 40 42 44

AD (Alzheimer dementia) VaD (vascular dementia) Other dementia
OUTPATIENT EXPENDITURE (NT DOLLARS)

1US dollar=30 NT dollars; 1NTD=3.7 Japanese Yen
INPATIENT EXPENDITURE (NT DOLLARS)

1US dollar=30 NT dollars; 1NTD=3.7 Japanese Yen
CONCLUSIONS

- VaD patients had used more health care resources during the 1st to 5th year periods (Include outpatient and inpatient department).

- Dementia represents a substantial burden in Taiwan, especially the vascular dementia patients had used more resources.

- The long term health care utilization remain high. We need more study to investigate the relationship between utilization and quality of life.
THANK YOU