



National Health Insurance Claims dataset in Taiwan – A Case Study

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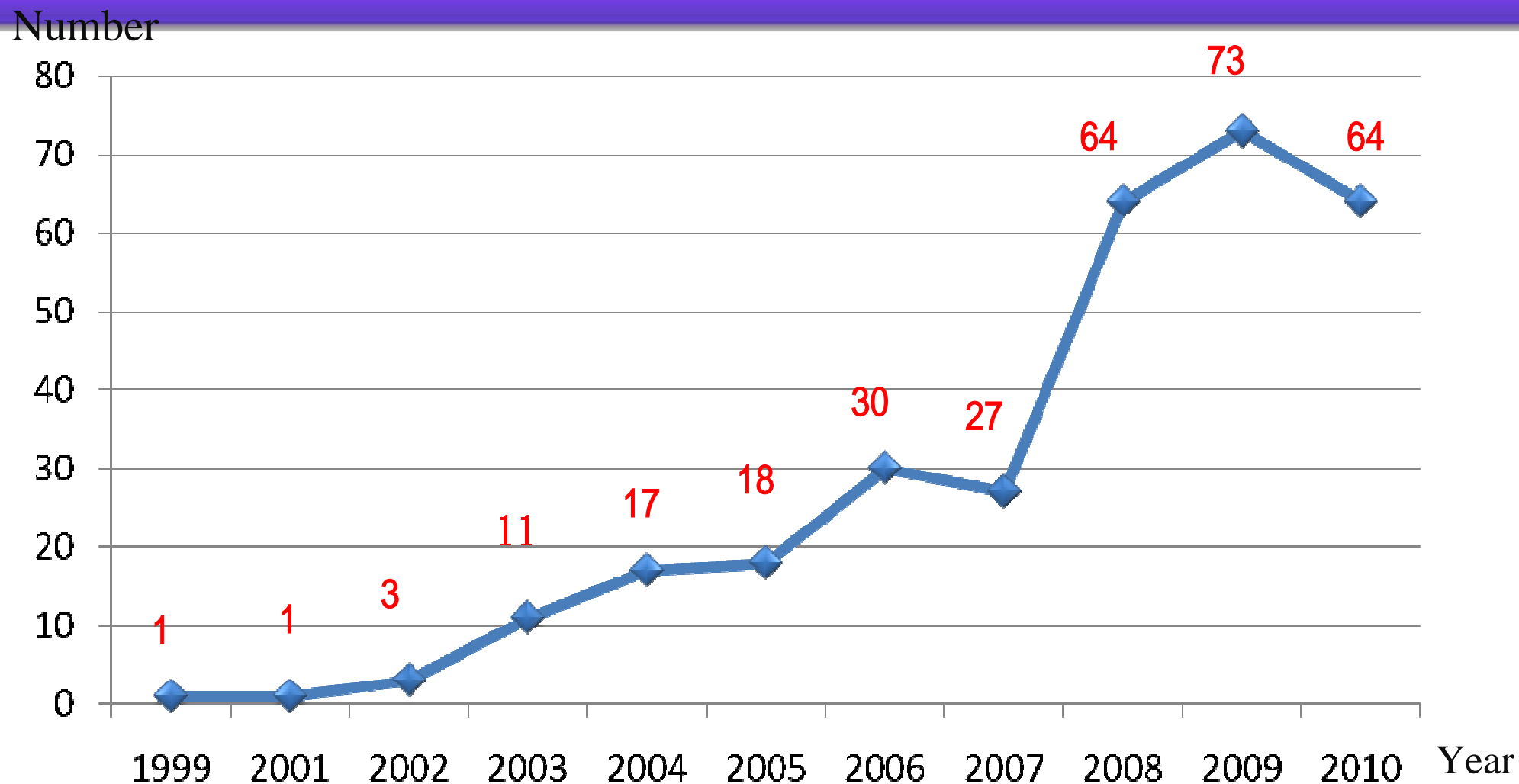


National Health Insurance Research Database

- Since National Health Insurance (NHI) program in Taiwan was implemented in 1995, it has accumulated the administrative and claims data.
- To rapidly and effectively respond to the current and emerging health issues in Taiwan, the National Health Research Institute (NHRI) cooperates with the Bureau of National Health Insurance Bureau (BNHI) to establish a *Nation Health Insurance research database (NHIRD)*.
- The NHRI routinely transfers the health insurance claims data from the BNHI and to make it available for research purposes.



Number of original studies using NHIRD, by year, 1999-2010

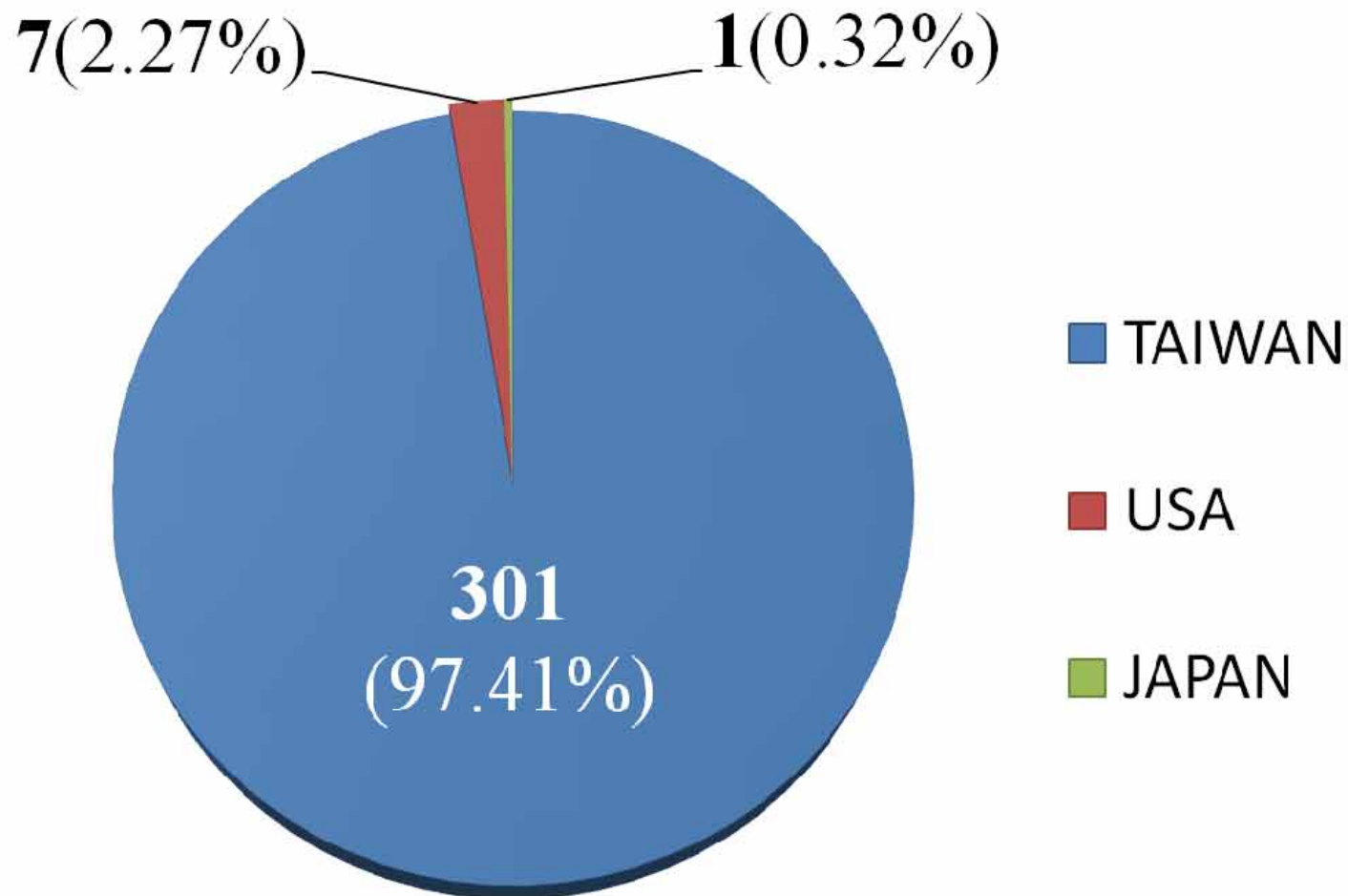


Note: keywords: National health insurance, population based study, Taiwan. Search engine: Scopus database; search filed: all field; search time period: up to 2010/08/04.

860 articles found, 651 deleted because its data source was not NHIRD



Number of original studies using NHIRD, by country of the first author, 1999-2010 (N=309)



Relapse and Long-Acting Injectable Risperidone: A 1-Year Mirror Image Study with a National Claims Database in Taiwan

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Introduction

- **Backgrounds**

- Achieving good compliance to antipsychotic medications for patients with schizophrenia remains the most challenging issue for relapse prevention.
- Long-acting injection of antipsychotics is a valuable strategy to improve medication compliance, and hence, could potentially improve treatment outcomes.

- **Objectives**

- The aim of this study was to test the hypothesis that RLAI can reduce 1-year medical utilization and relapses based on the NHI claims data in Taiwan.

- **Data sources**

- The data source used for this 12-month mirror image study was ***the Psychiatric Inpatients Medical Claims Data (PIMC)*** from the National Health Research Institute (NHRI), Taiwan.
- The PIMC is a longitudinal dataset which compiles all the medical utilization records (from *1996 up to 2009* now) for a cohort of 91,104 mentally ill patients who had at least one psychiatric hospitalization with ICD-9-codes 230-319 or A-codes A210-A219 during 1996-2001.



NHI claims data in PIMC

- Medical utilization data
 - Inpatient expenditures by admissions (DD) files
 - Details of inpatient orders (DO) files
 - Ambulatory care expenditures by visits (CD) files
 - Details of ambulatory care orders (OO) files
- Administration data
 - Registry for contracted medical facilities (HOSB)
 - Registry for catastrophic illness patients (HV)
 - Registry for beneficiaries (ID)
 - Registry for medical personnel (PER)
 - Registry for certified specialists (DOC)

Features of the DD file

- Contains all the information in an admission on ***an admission basis***
- Relevant variables:
 - age and sex of the patient;
 - date of admission; date of discharge;
 - 1 primary and 4 secondary ICD-9-CM codes;
 - number of days in chronic wards and in acute wards;
 - total charges by category (room & board, pharmacy, procedures, etc.) ;
 - discharge status;
 - Scrambled ID of the hospital
 - Scrambled ID of the attending physicians;...
- Admissions of the same individual can be identified by individual scrambled ID

Features of the DO file

- Contain details of each admission on ***a medical order basis***
- Three types of medical orders
 - Pharmacy
 - Procedures
 - Special materials
- Key variables: serial number of the associated admission; types of medical orders; NHI reimbursement code of the medical orders; quantity and unit price of the order; total medical charges of the order
- Does not provide the information on the specific date when the medical order occur during the admission period.

Features of the CD file

- Contains all the information in an outpatient visit (including Western medicine visit, Chinese medicine visits, emergency visits, dental visits, home care visits,) on ***a visit basis***
- Relevant variables:
 - age and sex of the patient;
 - date of the visit;
 - 1 primary and 2 secondary ICD-9-CM codes;
 - number of days of drugs prescription
 - total charges by category , including physician consultant fee; prescription fees; drugs; procedures; examination fees, etc.
 - scrambled ID of the hospital/clinic
 - scrambled ID of the attending physicians
- Outpatient visits of the same individual can be identified by individual scrambled ID

Features of the OO file

- Contain details of each outpatient visit on ***a medical order basis***
- Three types of medical orders
 - Pharmacy
 - Procedures
 - Special materials
- Key variables: serial number of the associated visit; types of medical orders; NHI reimbursement code of the medical orders; quantity and unit price of the order; total medical charges of the order

– Study subjects

- From June 1, 2004, the NHI program began to include the RLAI in its formulary.
- To the end of 2006, 1449 patients had been prescribed RLAI.
- An index date was defined as the date of the outpatient/emergency visit, or the discharge date of the hospitalization, when RLAI was prescribed for the first time.

- **The inclusion criteria:**
 - Patients who received at least 75 mg RLAI every 3 months consecutively for one year were considered to be undergoing regular treatment.
 - (1) could be observed for at least 1 year before the index date (pre-RLAI periods);
 - (2) had a primary diagnosis of schizophrenia (ICD-9-CM code 295) at the index visit/hospitalization;
 - (3) were regularly treated with RLAI for at least 1 year (post-RLAI periods).
- **The final sample available for analysis was 108 patients.**

- **Outcome measurement**
 - Mirror image study design
 - Medical utilization in 12 months before the initial RLAI use (the pre-RLAI period) and in 12 months after the initial RLAI use (the post-RLAI period) was compared.
 - Specific medical utilization measures
 - Numbers of acute admissions
 - Hospital days
 - Emergency room (ER) visits
 - Relapses (the sum of number of admissions and emergency room visits)

- Wilcoxon signed tests were performed to compare differences in health care utilization between the pre and post-RLAI period.
 - The total number of acute admissions was reduced by 55% (80 vs. 36 times, $p=0.0003$) and
 - Total hospital stays were reduced by 48% (4106 vs. 2127 days, $p=0.0021$) in the 12-month post-RLAI period.
 - Numbers of relapses were also reduced by 54% (114 vs. 53, $p=0.0005$)
 - A reduced number of emergency room visits was also observed (55 vs. 25 times) but was not significantly different ($p=0.126$).



Strengths of NHIRD

- Population-based
- Customer-tailored
- Low costs
- Large sample size on rare diseases
- Policy-relevant

Weakness of NHIRD

- Lacking the following info.
 - Severity of illness
 - Socio-economic variables
 - Such education, income, marital status, occupation...
 - Physiological and pathological indices
 - Such as height and weight, BMI, blood pressure
 - Life style variables
 - Such as smoking, drinking, exercise...
 - Exact date for the medical order occurred

*Thank you very much for
your attention!*