W7: SHARING REAL-WORLD DATA EXPERIENCES OF USING TAIWAN'S NATIONAL HEALTH INSURANCE RESEARCH DATABASE

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Disclosure

All speakers have no financial interest/arrangement or affiliation that could be perceived as an actual or potential conflict of interest in relation to this presentation.

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Outline

- **Introduction** of the Taiwan National Health Insurance Research Database (NHIRD)
- **Use of the database and application** – Studies using NHIRD as a research data source
- **Health outcomes research** – An example to share research experience in a retrospective cohort study using NHIRD
- **Health econocmic modeling** – An example to demonstrate how NHIRD can be used in a budget impact analysis
- **Summary; Q&A**

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Introduction of the Taiwan National Health Insurance Research Database (NHIRD)

Ming-Hui Tai, PhD
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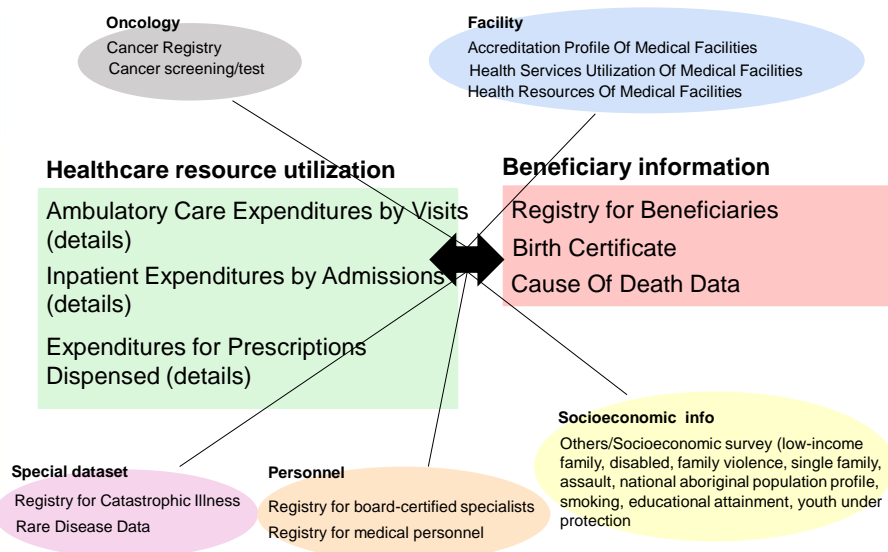
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Taiwan National Health Insurance

- The national health insurance was established in 1995 to provide a universal coverage for about 23 million residents in Taiwan
  - A single-payer, government-run compulsory health insurance program
  - In 2010, the program covered 99.5% of residents
- Comprehensive and uniform benefit package
- Freedom of choice and accessibility
- Cost containment and affordability

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What information in the NHIRD?

Oncology
Cancer Registry
Cancer screening/test

Facility
Accreditation Profile Of Medical Facilities
Health Services Utilization Of Medical Facilities
Health Resources Of Medical Facilities

Healthcare resource utilization
Ambulatory Care Expenditures by Visits (details)
Inpatient Expenditures by Admissions (details)
Expenditures for Prescriptions Dispensed (details)

Beneficiary information
Registry for Beneficiaries
Birth Certificate
Cause Of Death Data

Socioeconomic info
Others/Socioeconomic survey (low-income family, disabled, family violence, single family, assault, national aboriginal population profile, smoking, educational attainment, youth under protection

Special dataset
Registry for Catastrophic Illness
Rare Disease Data

Personnel
Registry for board-certified specialists
Registry for medical personnel

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Data source: Taiwan Ministry of Health and Welfare, Department of Statistics

Slide 1

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The uniqueness of the NHIRD

Table. Comparison of Some Nationwide Research Databases

Characteristic	Taiwan	Sweden	Korea
Year started	1995	1955	1989
Size, million	23	10	50
Single payer	Yes	Yes	Yes
National health insurance data			
Inpatient	Yes	Yes	Yes
Outpatient	Yes	Yes	Yes
Pharmacy data	Yes	Yes	Yes
Over-the-counter drugs	No	No	No
Chinese medicine	Yes	No	Yes
Clinician information	Yes	Yes	No
Hospital information	Yes	Yes	No
Linkage to other databases			
Registry			
Household	Yes	No	No
Birth certificate	Yes	Yes	Partial (date of birth, no information on parents or place of birth)
Death certificate	Yes	Yes	Yes
Cancer	Yes	Yes	Partial (through text mining)
Immunization record	Yes	No	Partial (through text mining)
Reportable infectious disease	Yes	No	No
Population-based mass screening program	Yes	No	Partial (if related to insurance)
Myopia registry	Yes	No	No
School children urine survey	Yes	No	No
Adult preventive care service[a]	Yes	No	No
Neonatal screening for congenital adrenal hyperplasia	No	Yes	No
Multigeneration registry	Possible[b]	Yes	No
Biobank	Being collected	Being designed	No

Universal Health Coverage:
- Japan (1961), Korea (1989), Taiwan (1995).
- The Philippines, China, Thailand and Vietnam are all currently taking major steps towards universal coverage.
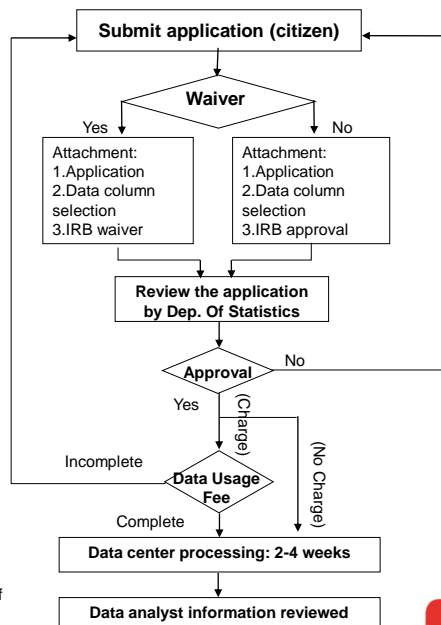
Biobank
- Undertaken by Academia Sinica at the behest of government, Taiwan biobank collects the DNA of a large group of people on the population base and track their health and lifestyle for at least 10 years.

JAMA Intern Med. 2015 Sep;175(9):1527-9

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How to access the dataset?

Submit application (citizen)

Waiver

- Yes →
  Attachment:
  1. Application
  2. Data column selection
  3. IRB waiver

- No →
  Attachment:
  1. Application
  2. Data column selection
  3. IRB approval

Review the application by Dep. Of Statistics

Approval — No

Yes → (Charge) / (No Charge)

Incomplete

Data Usage Fee

Complete →

Data center processing: 2-4 weeks

Data analyst information reviewed

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Data source: Taiwan Ministry of Health and Welfare, Department of Statistics

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Data Validation

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- Determine the validity of acute myocardial infarction (AMI) diagnosis coding in the National Health Insurance Research Database (NHIRD) by cross-comparisons of discharge diagnoses listed in the NHIRD with those in the medical records obtained from a medical center in Taiwan. J Epidemiol. 2014;24(6):500-7. Epub 2014 Aug 30.

- Validation of the National Health Insurance Research Database with ischemic stroke cases in Taiwan. *Pharmacoepidemiol Drug Saf.* 2011 Mar;20(3):236-42.

  - Among these confirmed cases, 344 (94.51%) were assigned 'ischemic stroke' as the principal diagnosis in the NHIRD.

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Thank you

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