

# How Insurance Claim Data can Help in Health Outcomes Research: An Indian Perspective

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## INTRODUCTION

- Evidence-based medicine (EBM): The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients<sup>1</sup>
- The best evidence in EBM is provided from Systematic reviews and meta-analyses, which in turn are derived from randomized clinical trials (RCTs). RCTs are also the basis for most treatment guidelines.
- Thus, RCTs form the bedrock of evidence-based medicine (EBM)

## Major Disadvantages of RCTs

- Clinical practice is more complex than trials<sup>2</sup>
- RCT outcomes cannot be adequately generalised over the population<sup>2</sup>
  - Due to strict inclusion and exclusion criteria
  - Certain populations (patients with comorbidities, extremes of ages, racial minorities etc) are usually excluded from RCTs → restricts generalizing<sup>3</sup>
- Potential conflicts of interest
  - RCTs are expensive: there will be always a higher demand for RCTs than supply
  - Since RCTs are expensive, the priorities are influenced by the interests of sponsors
- Publication bias: not all studies are published, especially those with negative results
- Not all conditions have RCTs, especially rare conditions
- Lack of access to clinical trial data
- 'Statistically significant' benefits may be 'marginal' in actual clinical practice<sup>4</sup>

## Data-based Medicine

- RCT data may not truly represent the real-world outcome of any treatment
- If real world data is analyzed, the resulting data may represent the actual outcome of an intervention – the so-called Data-based Medicine (DBM)
- DBM is an emerging concept
- It depends on the analysis of the extensive health records that are available across a particular geographic data from all possible sources (often termed as 'Big data') for taking healthcare decisions.
- Big data analysis can provide multiple forms of health-related information about any condition:
  - Natural history of disease
  - Effectiveness of any treatment modality
  - Impact of an intervention on any objective parameter
  - Cost-effectiveness of any treatment modality

## History of Decision Making in Medicine: Role of Data-Based Medicine

Ancient Medicine	Individual Preference-Based	Experience-Based Medicine	Evidence Based Medicine	Data-Based medicine
Religious and spiritual theories	Highly subjective decision making	Based on individual or group observations	Followed the introduction of epidemiological methods	Depends on the analysis of 'Big Data'

## DBM: Sources for Data

Sources include:

- Patient registries
- Disease registries
- Insurance claims databases
- Electronically recorded hospital records
- Private practitioners who record data electronically

## Insurance Claims Data for Outcomes Research

- Health insurance claims data are a source of invaluable real-world data
- Lewis and colleagues reported as early as in 1993 about the benefits of using insurance claims database in outcomes research<sup>5</sup>
- Claims data are increasingly being used for pharmaco-economic and outcomes research in regions like North America, Europe, Australia, and New Zealand.

## Advantages of Claims Data

- Information about episodes of care across different healthcare services and settings located at geographically distinct locations can be captured<sup>5</sup>
- The effect of drug therapy on cohorts of patients and specific patient subpopulations can be examined<sup>5</sup>
- They are population-based, and do not involve exclusion of patients with or without certain comorbidities (unlike what is seen in RCTs), and hence more generalizable<sup>6</sup>
- Relatively inexpensive to obtain than RCTs<sup>6</sup>
- Include large numbers of cases which vary in their presentation and outcomes<sup>6</sup>
- Outcomes of long-term follow-up can be analyzed<sup>6</sup>
- Unaffected by recall bias
- Large sample size will make the statistical methods more consistent

## Disadvantages of Claims Data

- The population characteristics are largely influenced by the insurance plan, plan benefit design, and the variables of the database<sup>5</sup>
- The nature of information is primarily administrative rather than clinical<sup>6</sup>
- The huge amount of data requires expertise to analyse<sup>6</sup>
- Confidentiality issues: inappropriate release of sensitive data can be troublesome not only for the researchers but also for the involved insurance companies<sup>7</sup>
- Frequent merger and acquisitions of insurance companies can lead to incomplete data<sup>7</sup>

## Role of Claims Data as Resource for Outcomes Research in India

- Claims data in India are insufficiently used for health outcomes research.
- An important reason for this is that the penetration of health insurance is not up to the mark in India.
- It is expected that in the near future health insurance will become more popular in India, since:
  - (a) Indian health care expenditure is predominantly out-of-pocket, and the healthcare costs are escalating day-by-day
  - (b) Many corporate hospitals have empanelled various insurance schemes
  - (c) Various government-sponsored insurance schemes have been initiated at state-levels (eg Tamil Nadu) and also central level (eg PMSSY)

To make claims data more productive, the following points should be considered during data collection:

- Claims information reporting should be made uniform and standardised<sup>5</sup>
- In addition to administrative and economic variables, adequate clinical data should also be captured<sup>5</sup>
- In addition to routine clinical and lab data, information related to severity of illness, quality of life, and satisfaction to intervention should be included<sup>5</sup>
- The claims information should capture treatments across different Indian Systems of Medicine (ISMs)

## Recommendations

With the increased penetration of health insurance in India, appropriate analysis of the resulting claims data can provide invaluable insights into demographics, disease trends, efficacy and effectiveness, and real-world information, from the Indian perspective

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