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# "Panning for gold: unearthing reliable variables for electronic medical data research"

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# "Panning for gold: unearthing reliable variables for electronic medical data research"

## **Abstract**

Abstract of a poster presentation at the 2015 PHC Research Conference, Adelaide, 29-31 July, 2015.

## **Disciplines**

Medicine and Health Sciences | Social and Behavioral Sciences

## **Publication Details**

Barnett, S., Hodgkins, A. J., Ghosh, A., Henderson, J. P., Harrison, C., Dijkmans-Hadley, B. R. & Munkmann, A. (2015). "Panning for gold: unearthing reliable variables for electronic medical data research". 2015 Primary Health Care Research Conference: Abstracts and Presentations (pp. 1-1). Australia: Primary Health Care Research & Information Service.

## **Authors**

Stephen Barnett, Adam J. Hodgkins, Abhijeet Ghosh, John P. Henderson, Christopher Harrison, Bridget R. Dijkmans-Hadley, and Alyssa Munkmann

Adelaide, 29-31 July, 2015

**"Panning for gold: unearthing reliable variables for electronic medical data research"**

Author(s)

Stephen Barnett\*, Adam Hodgkins\*, Abhijeet Ghosh, Joan Henderson, Christopher Harrison, Bridget Dijkmans-Hadley, Alyssa Munkmann

Organisation

University of Sydney - Sydney School of Public Health, University of Wollongong - Graduate School of Medicine, University of Wollongong, University of Sydney - Family Medicine Research Centre, Illawarra and Southern Practice Research Network, Electronic Medical Data Group, Illawarra and Shoalhaven Medicare Local

Aims & rationale

There is enormous potential to use the electronic medical data (EMD) which is routinely entered into GP computer systems, for research purposes, unlocking the potential to gather large volumes of data to run powerful longitudinal studies. Controversy remains about accuracy and validity. This study benchmarked EMD data from GP practices against the BEACH dataset.

Methods

De-identified data obtained through an SQL query of Best Practice™ software from six ISPRN GP practices were compared with BEACH Inner-regional data on: total patient encounters in 12 months; number and type of prescription (ATC codes); and patient age, gender and smoking status. Mean point estimates were compared using BEACH 95% confidence intervals.

Findings

The SQL query yielded data on 196,515 patient encounters, median age 59 years (IQR = 36 - 74, Range = 0 - 113). There were more encounters with patients aged 75 years or older in the EMD dataset, but no statistically significant difference in gender between datasets. There were several small, statistically significant differences between prescription datasets, however the overall prescribing patterns were very similar.

Relevance to policy, research and/or practice needs

It is unlikely that all EMD elements are either totally reliable or totally unreliable. Comparing individual EMD elements with valid, representative BEACH data will identify which variables are reliable. Validating these variables improves their potential for use in large, statistically powerful longitudinal studies, to complement the cross-sectional BEACH dataset, and further inform clinical care and health policy.

Presentation type

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# Panning for Gold:

## Unearthing a Valuable Approach to Electronic Medical Data Research (EMD)

**AUTHORS:** Dr Stephen Barnett, Dr Adam Hodgkins, Mr Abhijeet Gosh, Dr Joan Henderson, Dr Chris Harrison, Ms Bridget Dijkmans- Hadley

### Aims and Rationale

- There is enormous potential to use routinely collected EMD for longitudinal studies
- Controversy remains about EMD accuracy and validity
- This study benchmarked selected EMD variables (patient age, sex, smoking status, average scripts per visit, distribution of scripts) from GP practices against the BEACH dataset

### Methods

- SQL query developed for Best Practice GP software
- Run in 6 general practices
- Data encrypted, transferred and analysed
- Point prevalence of EMD compared with BEACH confidence intervals

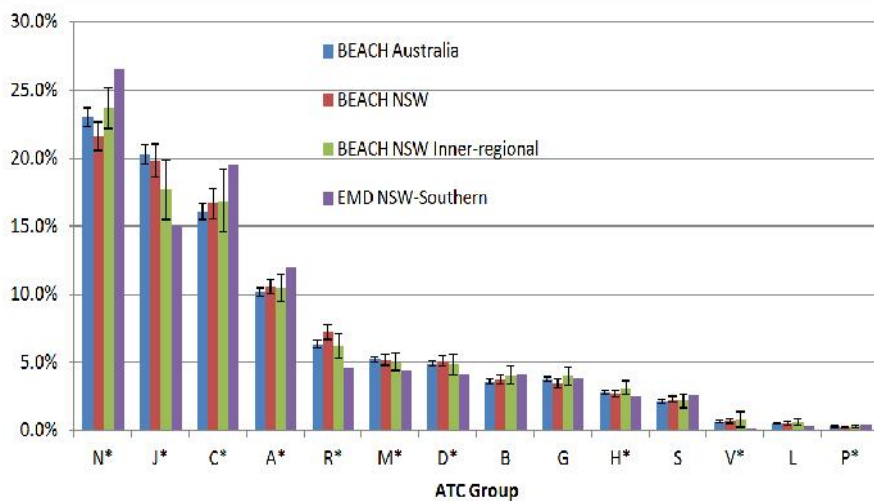


Fig 1: Scripts by ATC Code, comparisons between EMD and BEACH encounters April 2012 to March 2013.

\* Indicates that the EMD point estimate has a statistically significant difference from the BEACH NSW-Inner Regional confidence intervals

### Findings

- 196515 patient encounters
- Median age 59 years (IQR=36-74, range =0-113)
- No significant difference in gender between datasets
- More >75 year olds in EMD
- Small, statistically significant differences between prescription datasets, but overall pattern very similar

### Relevance of Findings

- There is much EMD that is not usable, but there are some nuggets of gold
- Finding similarities between EMD and BEACH shows value of benchmarking EMD against large, validated dataset.
- Validated EMD variables can be used reliably for longitudinal studies, complementing the cross-sectional BEACH dataset. Further validation testing of diagnosis variables is ongoing.

