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

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**Abstract**

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Organisation
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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.

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Panning for Gold: Unearthing a Valuable Approach to Electronic Medical Data Research (EMD)

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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

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 a 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.