Trends in quality of care for diabetes before and after the introduction of the UK pay for performance scheme

Evan Kontopantelis  Tim Doran*  David Reeves  Jose Valderas  Martin Roland

National Primary Care Research and Development Centre
University of Manchester England

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Outline

1. **UK pay-for-performance scheme**
   - The idea
   - The framework

2. **The General Practice Research Database**
   - General points
   - Extracting the information

3. **Results**
   - Prevalence
   - Process indicators
   - Control indicators
   - Summary
Improving quality of care.
Organise first, then use a juicy carrot...

- Non-incentivised quality improvement initiatives put into action prior to the P4P scheme.
  - e.g. the National Service Framework for Diabetes introduced in 2001.
- The P4P program kicked off in 2004 with the introduction of a new GP contract.
  - Family practices are rewarded for achieving a set of quality targets for patients with several chronic conditions, including diabetes mellitus.
  - The aim was to increase overall quality of care and to reduce variation in quality between practices.

Quality and Outcomes Framework. Year 1.

- QOF is the incentive scheme for payment of GPs that was introduced as part of the ’new’ General medical services (GMS) NHS contract in April 2004.
- £1.8 billion (€2.5) invested over 3 years.
- GP income increased by up to 25%, dependent on performance.
- 146 quality indicators.
  - Clinical care for 10 chronic diseases (76 indicators).
  - Organisation of care (56 indicators).
  - Additional services (10 indicators).
  - Patient experience (4 indicators).
- QOF is reviewed at least every two years.
More on QOF.

Year 1.

- Each indicator worth between 1 and 56 points.
- 1,050 point in total.
- Each point earns £76 (€105), on average.
- Maximum of...
  - €111,000 per practice.
  - €34,700 per GP.
- Diabetes domain includes 18 of the 76 clinical indicators (largest) and 99 of the 550 total available clinical points (3rd largest).

Some of the indicators for diabetic patients.
Percentage of diabetics...

- with a record of HbA1c in previous 15 months (3p).
- in whom last HbA1c is $\leq 7.4$ in previous 15m (16p).
- who have a record of BP in the past 15m (3p).
- in whom the last BP is $\leq 145/85$ (17p).
- with a rec of serum creatinine testing in previous 15m (3p).
- who have a record of total cholesterol in previous 15m (3p).
- whose last measured total cholesterol in previous 15m is $\leq 5\text{mmol/l}$ (6p).
- who have had influenza immunisation in the preceding 1Sep-31Mar (3p).
GPRD holds event data for more than 270 English practices, from 1999.

Database is broken down to numerous tables, because of the volume of data.

Initial sample of 100,000 patients from 100 UK ‘representative’ practices (4GB in size).

Final sample will be 600,000 patients from the same practices (24GB in size).

We can investigate quality of care at the patient level.

Event files.

- Clinical: all medical history data (symptoms, signs and diagnoses).
- Referral: information on patient referrals to external care centres.
- Immunisation: data on immunisation records.
- Therapy: data relating to all prescriptions issued by a GP.
- Test: data on test records.

Lookup files.

- Medical codes: READ codes, 111,865 available.
- Product codes: 77,198 available.
- Test codes: 304 available.
The process.

Step 1

- Size of the tables prohibits looking at codes one by one.
- Instead we use search terms to identify potentially relevant codes in the lookup tables and create draft lists.

Example (Search terms for diabetes)

- String search in Medical codes: 'diab' 'mell' 'iddm' 'niddm'.
- READ code search in Medical codes file: 'C10' 'XaFsp'.
- String search in Product codes file: 'insulin' 'sulphonylurea' 'chlorpropamide' 'glibenclamide'.

Step 2

- Clinicians go through the draft lists and select the relevant codes.
- Three sets of codes are created, that correspond to:
  - QOF criteria.
  - Conservative criteria.
  - Speculative criteria.
- Using the finalised code lists we search for events in the Clinical, Referral, Immunisation, Therapy and Test files.
- The whole process involves much work in code writing, therefore usage of an appropriate statistical package like STATA or SAS is essential.
Prevalence. Based on QOF criteria.

DM5. % with a record of HbA1c in previous 15 months (3p).
**DM11.**
% who have a record of BP in the previous 15 months (3p).

**DM14.**
% who have a record of serum creatinine testing in the previous 15 months (3p).
DM16. % who have a record of total cholesterol in the previous 15 months (3p).

DM18. % who have had influenza immunisation in the preceding 1 Sep-31 Mar (3p).
DM6.
% in whom last HbA1C is ≤7.4 in the previous 15 months (16p).

DM12.
% in whom the last BP measurement is ≤145/85 (17p).
Conclusions.

- QOF seems to have had little impact in improving quality of diabetic care (relative to the underline trend), with the exception of testing for serum creatinine (DM14).
- There has been a reduction in health care inequalities under the QOF scheme, with lower achieving practices catching up with the better performing ones. However, in most cases inequalities started to reduce prior to the scheme’s introduction.
- It is possible that practices were already focusing on diabetic care prior to the introduction of QOF, due to interventions such as NSFs.
Overview.
So, what is new with GPRD?

- Advantages...
  - Patient level data: breakdown by age, sex, year of diagnosis etc.
  - Data on many time points are available.
  - We are able to investigate non-incentivised conditions and processes or combinations.

- Disadvantages...
  - Too much work!
  - The typical English practice was not computerised back in 1999.
  - Absolute reliance on codes and GPs getting them right.
  - Quality of data before the introduction of QOF is questionable.

Kontopantelis Diabetes: pre and post QOF

Appendix Thank you!
UK P4P references

Comments, suggestions:
e.kontopantelis@manchester.ac.uk
Relevant references. I
Just in case you are interested...

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