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Impact of the Quality and Outcomes Framework pay-for-performance scheme on quality of English primary care
An interrupted time series analysis

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NAPCRG, 15th November 2009
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<th>Background</th>
<th>Quality Incentives in Practice (QuIP) study</th>
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<tr>
<td>Results</td>
<td>Manchester!</td>
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Kontopantelis  The QOF impact
1. Background
   - Change!
   - UK pay-for-performance scheme

2. Quality Incentives in Practice (QuIP) study
   - General information
   - At a glance
   - Method

3. Results
   - Overall clinical scores
   - Incentivised vs non-incentivised
   - Summary

Timeline.

- 80s: Determinism:
  - Quality cannot be measured.
  - There is no such thing as a bad doctor.

- Early 90s, a wind of change:
  - Government: improving health care became a priority. Care is too variable but can be expensive to improve.
  - Academics: developed methods for measuring quality.
  - Doctors: cultural shift towards accepting that quality needs to be measured and improved.

- By 1997, Reversal of perception, guidelines & standards:
  - Quality can be measured.
  - Care is too variable and can improved.
  - Providing high quality care is expensive.
  - Doctors want to be rewarded for providing high quality care.
A P4P program kicked off in April 2004 with the introduction of a new FP contract.
- Family practices are rewarded for achieving a set of quality targets for patients with chronic conditions.
- The aim was to increase overall quality of care and to reduce variation in quality between practices.

The incentive scheme for payment of FPs was named Quality and Outcomes Framework (QOF).

A continuation of disease specific non-incentivised quality improvement initiatives, introduced in previous years.

Estimated cost of $3b, over 3 years (escalated to $4.7b).
- FP income increased by up to 25%.
- 146 quality indicators.
  - Clinical care for 10 chronic diseases (76 indicators).
  - Organisation of care (56 indicators).
  - Additional services (10 indicators).
  - Patient experience (4 indicators).

Implemented simultaneously in all practices.

Some of the (clinical) indicators:
- % of diabetics with a record of HbA1c measurement, or equivalent, in the previous 15 months (3p).
- % of diabetics in whom the last HbA1c measurement, was ≤7.4 in the previous 15 months (16p).
More on QOF.

- QOF is reviewed at least every two years.
- Not compulsory but over 99% of practices participating.
- Required a complete computerization, carried out by various contracted companies.
- In effect, the FP sees a ‘pop-up’ on his/her computer screen with QOF-related advice about the specific patient.
- At the end of the year (March) performance is measured and a bit later lists of shame appear...

Design and the question.

- **Aim:**
  - To evaluate the impact of QOF and the ‘new’ 2004 contract for FP on the quality of care provided in family practice.
- **Design:**
  - Data extracted from medical records of random cross-sectional samples of patients with asthma, CHD or diabetes.
  - Sample of 42 representative English practices.
  - On average, around 12 patients per condition, per practice.
Life before the QOF.

- Quality was already improving.
- How will the new contract affect quality of care...
  - No change?
  - Change in level but not slope?
  - Change in level & slope?
  - Change: quality fall?

Kontopantelis
The QOF impact

QOF in the middle.

- Quality was higher in 2005 and 2007, compared to 1998 and 2003.
- Is the improvement observed in 2005 above what was expected from the pre-QOF trend?
- Is the post-QOF trend different to the pre-QOF one?
- Is the improvement limited to monetary incentivised indicators within QOF?
The approach.
Interrupted Time Series analysis on logit transformed scores.

- ITS multivariate regressions, allowed us to estimate:
  - The level difference between the observed and the estimated* score in 2005.
  - The change in slope from the pre- to the post-QOF trend.
- Due to the ceiling effect we applied the method to logit-transformed scores.

Overall clinical scores
Incentivised vs non-incentivised
Summary

Coronary Heart Disease.

- Quality had been improving for CHD prior to QOF (3.5% per year on average).
- In 2005, scores on quality rose slightly (but not significantly) higher than expected.
- The post-qof rate of improvement dropped.
Asthma.

- Quality had been improving for Asthma prior to QOF (2.0% per year on average).
- In 2005, scores on quality rose significantly higher than expected.
- The post-qof rate of improvement did not change significantly.

### Summary

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<tr>
<th>Question</th>
<th>Answer</th>
<th>p-value</th>
<th>effect (95% CI)</th>
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</thead>
<tbody>
<tr>
<td>Significant average annual increase (pre-QOF)?</td>
<td>Yes</td>
<td>&lt;0.001</td>
<td>0.216 (0.056-0.177)</td>
</tr>
<tr>
<td>Observed 2005 score significantly above expectation from pre-QOF trend?</td>
<td>Yes</td>
<td>0.001</td>
<td>0.680 (0.283, 1.078)</td>
</tr>
<tr>
<td>Significant change in rate of improvement between pre- and post-QOF trends?</td>
<td>No</td>
<td>0.16</td>
<td>-0.128 (-0.365, 0.050)</td>
</tr>
</tbody>
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Diabetes.

- Quality had been improving for Diabetes prior to QOF (1.8% per year on average).
- In 2005, scores on quality rose significantly higher than expected.
- The post-qof rate of improvement did not change significantly.

### Summary

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<tbody>
<tr>
<td>Significant average annual increase (pre-QOF)?</td>
<td>Yes</td>
<td>&lt;0.001</td>
<td>0.081 (0.053-0.109)</td>
</tr>
<tr>
<td>Observed 2005 score significantly above expectation from pre-QOF trend?</td>
<td>Yes</td>
<td>&lt;0.001</td>
<td>0.445 (0.278, 0.618)</td>
</tr>
<tr>
<td>Significant change in rate of improvement between pre- and post-QOF trends?</td>
<td>No</td>
<td>0.91</td>
<td>0.003 (-0.045, 0.051)</td>
</tr>
</tbody>
</table>
Comparing incentivised and non-incentivised indicators.

- Mean quality scores for incentivised aspects of care were higher.
- CHD: 2005 ‘jump’ was greater for incentivised aspects*. Post-QOF slope changes did not differ significantly*
- Asthma: post-QOF trends for the two groups diverged.
- DM: no differences.

For the three investigated major chronic diseases, there were significant improvements in measurable aspects of clinical performance between 1998 and 2007.

- Post-QOF rate of improvement dropped only for asthma (but 2003 to 2005 gains were very small for DM and CHD).
- The only clear difference that emerged from the inc vs non-inc comparison was for the asthma post-QOF trends.
Comments, suggestions:
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Relevant references. Just in care you are interested...
