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

Impact of the Quality and Outcomes Framework pay-for-performance scheme on quality of English primary care

An interrupted time series analysis

Evangelos Kontopantelis Stephen Campbell*
David Reeves Martin Roland

National Primary Care Research and Development Centre
University of Manchester
England

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Background
Quality Incentives in Practice (QuIP) study
Results

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Outline

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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.

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Improving quality of care.

A (very) juicy carrot...

- 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.

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Quality and Outcomes Framework.

Indicator details relate to Year 1.

- 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 $\leq$7.4 in the previous 15 months (16p).

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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...

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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:
  - Longitudinal time series with 4 time points: 1998, 2003, 2005 and 2007.
  - 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.

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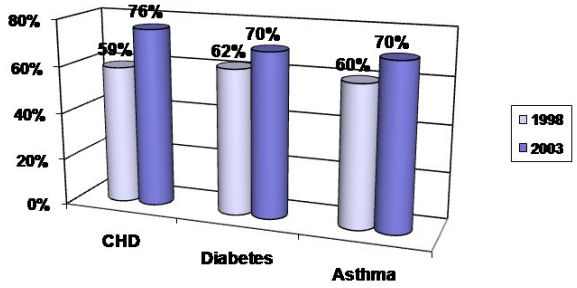
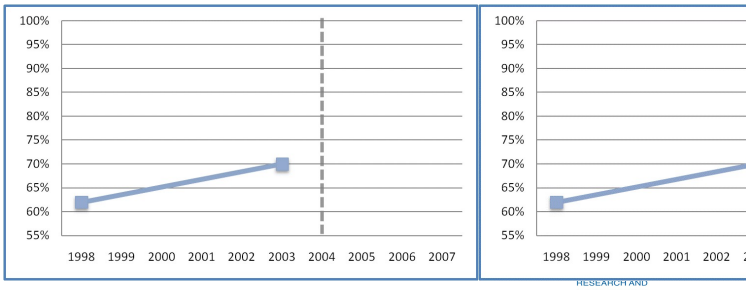
1998-2003.
Life before the QOF.

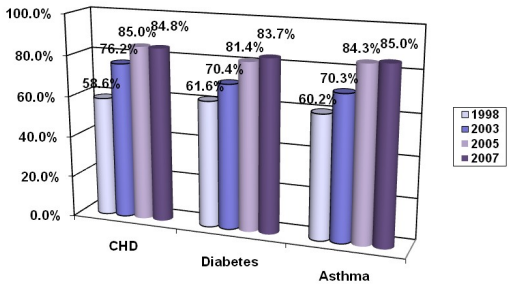
- Quality was already improving.
- How will the new contract affect quality of care...
  - No change?
  - Change in level but not slope?
  - Change in level & slope?
  - Change: quality fall?

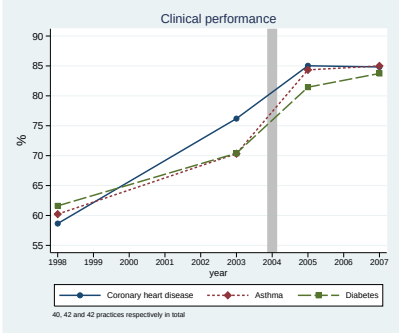




1998-2007.
QOF in the middle.

- 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?

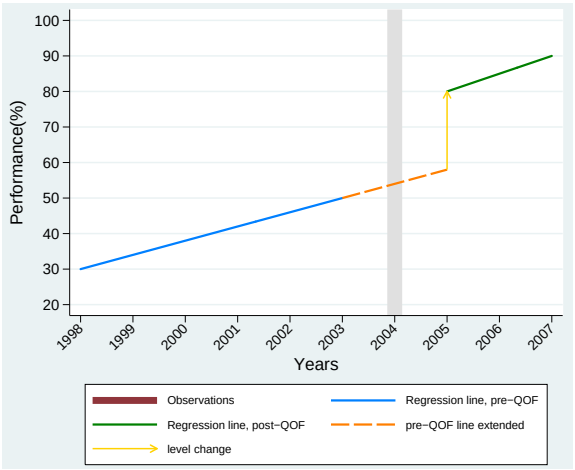




The approach.

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.



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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.

	Answer	p-value	effect (95% CI)
Significant average annual increase (pre-QOF)?	Yes	<0.001	0.177 (0.141, 0.213)
Observed 2005 score significantly above expectation from pre-QOF trend?	No	0.06	0.216 (-0.010, 0.441)
Significant change in rate of improvement between pre- and post-QOF trends?	Yes	0.02	-0.143 (-0.260, -0.025)

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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.

	Answer	p-value	effect (95% CI)
Significant average annual increase (pre-QOF)?	Yes	<0.001	0.116 (0.056-0.177)
Observed 2005 score significantly above expectation from pre-QOF trend?	Yes	0.001	0.680 (0.283, 1.078)
Significant change in rate of improvement between pre- and post-QOF trends?	No	0.16	-0.128 (-0.305, 0.050)

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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.

	Answer	p-value	effect (95% CI)
Significant average annual increase (pre-QOF)?	Yes	<0.001	0.081 (0.053-0.109)
Observed 2005 score significantly above expectation from pre-QOF trend?	Yes	<0.001	0.445 (0.278, 0.613)
Significant change in rate of improvement between pre- and post-QOF trends?	No	0.91	0.003 (-0.046, 0.051)

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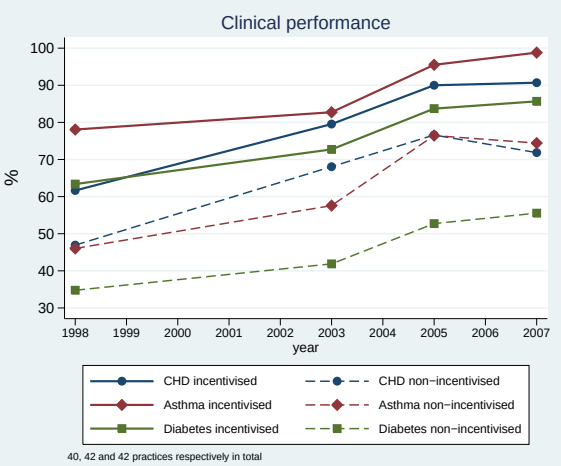
Comparing incentivised and non-incentivised indicators.

- 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.



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Conclusions.

- For the three investigated major chronic diseases, there were significant improvements in measurable aspects of clinical performance between 1998 and 2007.
- The P4P scheme accelerated improvements in quality for asthma and diabetes in the short term between 2003 and 2005.
- 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.

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- Comments, suggestions:
  e.kontopantelis@manchester.ac.uk

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Relevant references.

Just in care you are interested...

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