Pay for Performance: recent experiences and future challenges.

A UK perspective

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University of Cambridge
Lessons from two pay for performance schemes in England

• Quality and Outcomes Framework (QOF) (all UK general practitioners)

• Advancing Quality (all hospitals in North West England)
Lessons from two pay for performance schemes in England

• Quality and Outcomes Framework (QOF) (all UK general practitioners)

• Advancing Quality (all hospitals in North West England)

• No randomised controlled trials – evaluation relies on observational methods
2003 UK pay for performance scheme
Quality and Outcomes Framework (QOF)

25% of GPs’ income relates to a complex set of 136 quality indicators

£2 billion additional funding per annum
Financial incentives (Clinical indicators)

Coronary heart disease – secondary prevention
Cardiovascular disease – primary prevention
Heart failure
Stroke and Transient Ischaemic Attack
Hypertension
Diabetes mellitus
Chronic obstructive pulmonary disease
Epilepsy
Hypothyroid
Cancer
Palliative care
Mental health
Asthma
Dementia
Depression
Chronic kidney disease
Atrial fibrillation
Obesity
Learning disabilities
Smoking
CHD 7. The percentage of patients with coronary heart disease whose notes have a record of total cholesterol in the previous 15 months.

Point score: from 1 point (25%) to 7 points (90%)

CHD 8. The percentage of patients with coronary heart disease whose last total cholesterol (measured in the last 15 months) is 5 mmol/l or less

Point score: from 1 point (25%) to 16 points (60%)

Details of indicators at:
Electronic data collection

- All data extracted automatically from electronic GP records
- Diagnoses etc have to be coded by GPs
- Data drives payments
- Information on quality of care publicly available
<table>
<thead>
<tr>
<th>Clinical Indicator</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly Diagnosed Angina</td>
<td>Diagnosed before 1 April 2003 and referred for exercise testing or specialist assessment</td>
<td>100.0%</td>
</tr>
<tr>
<td>Incomplete Blood Pressure</td>
<td>Last blood pressure reading in the previous 15 months</td>
<td>97.0%</td>
</tr>
<tr>
<td>Poor Blood Pressure Control</td>
<td>Blood pressure 150/90 or less</td>
<td>90.5%</td>
</tr>
<tr>
<td>High Total Cholesterol</td>
<td>Total cholesterol 5 mmol/l or less</td>
<td>90.7%</td>
</tr>
<tr>
<td>Poor Cholesterol Control</td>
<td>Last measured total cholesterol in the previous 15 months</td>
<td>85.3%</td>
</tr>
<tr>
<td>Aspirin Use</td>
<td>Last measured total cholesterol in the previous 15 months</td>
<td>92.1%</td>
</tr>
</tbody>
</table>
Exception reporting for clinical indicators

- Patient refused
- Not clinically appropriate
- Newly diagnosed or recently registered
- Already on maximum doses of medication
Practice performance in first year of QOF

Doran et al. NEJM 2006; 355:375-384
Evaluation of Quality and Outcomes Framework (introduced in 2004)


- Time-series analysis of rate of change of quality scores. Within-practice variation partitioned into:
  - pre-QOF rate of improvement (gradient)
  - change in gradient
  - change in level allowing for pre-QOF gradient

Quality of care in a nationally representative sample of 42 GP practices for asthma, heart disease and diabetes

48 indicators. Max score for each condition = 100

Campbell S et al. NEJM 2009; 361: 368-78
Patients with CHD

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with blood pressure ≤ 150/90</td>
<td>48%</td>
<td>83%</td>
</tr>
<tr>
<td>% with total cholesterol ≤ 5mmol/l</td>
<td>17%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Quality improvements have been substantial

Campbell S et al. NEJM 2009; 361: 368-78.
What did P4P do to health inequalities?
Distribution of QOF scores by deprivation quintile (Doran et al Lancet 2008; 372:728-36)

<table>
<thead>
<tr>
<th>Year</th>
<th>Median Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004/05</td>
<td>4%</td>
</tr>
<tr>
<td>2005/06</td>
<td>1.5%</td>
</tr>
<tr>
<td>2006/07</td>
<td>0.8%</td>
</tr>
</tbody>
</table>
Unintended consequences

• Did GPs cheat?

• What about other unintended consequences?
Exception reporting for clinical indicators

- Patient refused
- Not clinically appropriate
- Newly diagnosed or recently registered
- Already on maximum doses of medication
## Exception reporting rates

<table>
<thead>
<tr>
<th></th>
<th>2004/05</th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall median (%)</td>
<td>5.4</td>
<td>5.3</td>
<td>5.5</td>
<td>5.3</td>
<td>4.9</td>
</tr>
<tr>
<td>Range (%)</td>
<td>0 - 86</td>
<td>0 - 28</td>
<td>0 - 26</td>
<td>0 - 22</td>
<td>0 - 19</td>
</tr>
</tbody>
</table>

Doran et al. NEJM 2008; 359: 274-84
What about the effect on unincentivised conditions?

- Longitudinal analysis of 42 quality indicators from 2001 to 2007. 653,500 patients from General Practice Research Database

- 23 incentivised, 19 not incentivised

- Comparison of mean level of achievement against projected values from pre-QOF trends

Doran et al. British Medical Journal 2011; 342: d3590
What about the effect on unincentivised conditions?

- Significant improvements in incentivised indicators: above projections from pre-QOF trends at three years
- Non-incentivised indicators significantly below projections from pre-QOF trends at three years

Doran et al. British Medical Journal 2011; 342: d3590
What about the effect on unincentivised conditions?

<table>
<thead>
<tr>
<th></th>
<th>Incentivised prescribing indicators</th>
<th>Non-incentivised prescribing indicators</th>
<th>p value of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td>+4.3 (3.3 to 5.5)</td>
<td>-0.9 (-1.9 to +0.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td>+2.9 (2.0 to 3.7)</td>
<td>-1.7 (-2.7 to 0.0)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Doran et al. British Medical Journal 2011; 342: d3590
Example of an unintended outcome

Indicator: Patients should be able to make an appointment to see a doctor within 48 hours

Response: Advanced Access – offer unlimited appointments ‘on the day’

Consequence: Patients are unable to book ahead, and can only book on the day
Quality and Outcomes Framework: Initial evaluation

- Small positive impact on quality of care

- Greater impact on quality when combined with other quality improvement initiatives

- Some negative consequences
Quality and Outcomes Framework: More recent developments

Initial indicators sought to reinforce widely accepted clinical practice.

More recent developments more controversial (and potentially more damaging)

• Indicators which seek to change physicians’ clinical practice
• Indicators which appear aligned to cost rather than quality (e.g. reducing hospital admissions)
Does external regulation damage internal motivation?

Lessons for two pay for performance schemes in England

• Quality and Outcomes Framework (all UK GPs)

• Advancing Quality (all hospitals in North West England)
‘Advancing Quality’

• Financial incentives introduced in 2008 in all 24 NHS hospitals in the North West of England (population 6.8m)
• Quality indicators for acute myocardial infarction, heart failure, pneumonia, hip and knee surgery and coronary artery bypass surgery
• Tournament system in which only the top performers received a bonus

Indicators available at:
www.advancingqualitynw.nhs.uk/index.php
Evaluation of ‘Advancing Quality’

We studied 30 day in hospital mortality comparing mortality for MI, heart failure and pneumonia over 3 years, before and after the introduction of P4P

• Between-region difference in difference analysis comparing mortality over time for incentivised conditions with all other hospitals in England

• Within-region difference in difference analysis comparing mortality over time for incentivised conditions and non-incentivised conditions in the North West of England

Triple-difference analysis: effect on mortality, controlling for the effects of changes over time for conditions in the program owing to factors other than the initiative itself, in addition to changes over time in overall mortality in the northwest region and differences in mortality between the conditions included in the program and those not included in the program between the northwest region and the rest of England.

- Significant reduction in absolute mortality of 1.3% (relative reduction of 6%)

- Equivalent to 890 fewer deaths in North West England in the 18 month study period
How can we explain the reduction in mortality?

- Not solely on the basis of changes in process measures
- Wide range of quality improvement strategies:
  - New data collection systems and feedback on performance
  - Employment of new specialist nurses
  - Regular face to face learning events between hospitals
Overall conclusions

- P4P may be a useful part of efforts to improve quality of care
- Should not be seen as a stand-alone intervention
- The impact may be dependent on the detailed implementation of the scheme
- So far as possible, financial incentives should be aligned with professional incentives
- All incentives can have unexpected consequences
- Reputational incentives are also important
### How should doctors be paid?

<table>
<thead>
<tr>
<th>Method</th>
<th>Payment Description</th>
</tr>
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<tbody>
<tr>
<td>Salary</td>
<td>Pay independent of workload or quality</td>
</tr>
<tr>
<td>Capitation</td>
<td>Pay according to the number of people on a doctor’s list</td>
</tr>
<tr>
<td>Fee for service</td>
<td>Pay for individual items of care</td>
</tr>
<tr>
<td>Quality</td>
<td>Pay for meeting quality targets</td>
</tr>
</tbody>
</table>

[www.bmj.com/content/345/bmj.e5015?tab=responses](www.bmj.com/content/345/bmj.e5015?tab=responses)
<table>
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<tr>
<th>What would you get without professionalism?</th>
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www.bmj.com/content/345/bmj.e5015?tab=responses
<table>
<thead>
<tr>
<th>Salary</th>
<th>Do as little as possible for as few people as possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitation</td>
<td>Do as little as possible for as many people as possible</td>
</tr>
<tr>
<td>Fee for service</td>
<td>Do as much as possible, whether or not it helps the patient</td>
</tr>
<tr>
<td>Quality</td>
<td>Carry out a limited range of highly commendable tasks, but do nothing else</td>
</tr>
</tbody>
</table>

[www.bmj.com/content/345/bmj.e50 15?tab=responses](www.bmj.com/content/345/bmj.e50 15?tab=responses)
“Informing the development of a resource allocation framework in the German healthcare system” – report for KBV in 2011.

www.rand.org/pubs/technical_reports/TR946.html