FINANCIAL INCENTIVES IN HEALTH

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“Whether dealing with monkeys, rats or human beings, it is hardly controversial to state that most organisms seek information concerning what activities are rewarded; and then seek to do (or at least to pretend to do) those things, often to the virtual exclusion of activities not rewarded.”

Kerr, 1995 “On the Folly of Rewarding A while hoping for B”.

What is the purpose?

- Improve quality.
- Improve health status.
- Increase quantity of activity.
- Increase compliance.
- Re-prioritise effort between activities.
For whom?

Providers of health care:
- overall
- head/CEO
- teams/departments
- individual workers

Public:
- patients
- citizens

Key = Behaviour Change
### What form?

<table>
<thead>
<tr>
<th>Rewards</th>
<th>Versus</th>
<th>Penalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit</td>
<td>Versus</td>
<td>Implicit</td>
</tr>
<tr>
<td>Universal</td>
<td>Versus</td>
<td>Targeted</td>
</tr>
<tr>
<td>Linear</td>
<td>Versus</td>
<td>Threshold</td>
</tr>
<tr>
<td>Absolute</td>
<td>Versus</td>
<td>Relative</td>
</tr>
<tr>
<td>One-off</td>
<td>Versus</td>
<td>Repeated</td>
</tr>
<tr>
<td>Large</td>
<td>Versus</td>
<td>Small</td>
</tr>
</tbody>
</table>
sed widely in other sectors:

Private sector
  – bonuses, performance-related pay, fines.

But “Business history is littered with firms that got what they paid for” (Baker et al, 1994)

Public sector
  – job schemes, schools and higher education, tax collection, recruitment.
Economic Perspective: Agency, Incentives and Information

Principal → Agent

Outcome to maximise

Design a reward system to maximise desired outcome
Design of Incentive Mechanism

Transition mechanism

Measuring outcomes

Multi-task environment

Unintended effects

Ratchet effect

Attribution

Beware the Unintended
Evidence
Rewarding doctors for quality improvement:

Quality and Outcomes Framework (QOF)

Interesting design issues.
Eight years experience.
Robust evaluations.
General Practice in the UK

All citizens registered with a doctor.
Average practice size of 6,500 patients.
Average 4 doctors per practice.
2/3 are independent contractors with NHS.
Always have worked in incentivised environment.
Contract piecemeal and lacked coherence.
New contract introduced in 2004.
The first time any large health system in any country will systematically reward [doctors] on the basis of quality of care delivered to patients.

High achievement against quality standards will bring very substantial rewards.
# Quality and Outcomes Framework

## 4 areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of Indicators</th>
<th>Maximum 1000 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical</td>
<td>86</td>
<td>650</td>
</tr>
<tr>
<td>Organisational</td>
<td>36</td>
<td>167.5</td>
</tr>
<tr>
<td>Patient Experience</td>
<td>3</td>
<td>146.5</td>
</tr>
<tr>
<td>Additional</td>
<td>9</td>
<td>36</td>
</tr>
</tbody>
</table>
Clinical Domain = 20 areas

- Coronary heart disease
- Cardiovascular disease
- Heart failure
- Stroke and transient ischaemic attack
- Hypertension
- Diabetes mellitus (17)
- Chronic obstructive pulmonary disease
- Epilepsy
- Hypothyroidism
- Cancer
- Palliative care
- Mental Health
- Asthma
- Dementia
- Depression
- Chronic kidney disease
- Atrial fibrillation
- Obesity
- Learning disabilities (1)
- Smoking
Organisational Domain = 5 areas

- Records and information
- Information for patients
- Education and training
- Practice management
- Medicines management
Patient Experience Domain = 3 areas

Length of consultations
Provision of appointments
Patient surveys
Additional Services Domain = 4 areas

Cervical screening
Child health surveillance
Maternity services
Contraceptive services
**Example:**  Clinical Domain

**Hypertension**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Points</th>
<th>Payment stages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Records</strong>&lt;br&gt;1. The practice can produce a register of patients with established hypertension</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Ongoing management</strong>&lt;br&gt;2. The percentage of patients with hypertension in whom there is a record of the blood pressure in the previous 9 months</td>
<td>18</td>
<td>40-90%</td>
</tr>
<tr>
<td>3. The percentage of patients with hypertension in whom the last blood pressure (measured in the previous 9 months) is 150/90 or less</td>
<td>57</td>
<td>40-70%</td>
</tr>
</tbody>
</table>

OF: How it Works

Practices gain points in some/all areas.

Points → £ £ £

Payment adjustments ← workload

prevalence of conditions

Auditing

Income

20% extra salary
Technical Aspects of QOF Indicators

Any indicators measured by ratio of treated patients to number of patients eligible for treatment.

Usually a threshold: points achieved increase with proportion treated between lower and upper threshold.

Threshold varies with condition (25% - 90%).
Technical Aspects of QOF

Exception Reporting

Recognises aspects outside of doctor control:

– patient not attend;
– refuse treatment;
– medication not suitable;
– newly registered patients.

Allows doctors to exclude these cases from calculation of achievement scores.
What happened?

Expected attainment = 75%

Actual attainment

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade points %</td>
<td>91.3</td>
<td>96.2</td>
<td>95.5</td>
<td>96.8</td>
<td>95.4</td>
<td>93.7</td>
<td>94.7</td>
</tr>
<tr>
<td>Practices with %</td>
<td>2.6</td>
<td>9.7</td>
<td>5.1</td>
<td>7.5</td>
<td>2.0</td>
<td>1.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Reduction due to changes in indicators.
Evidence of Impact

The “Evaluation” Problem

Non experimental.
One of many “quality” policies.
Incentivised versus non-incentivised activity.
Overall improvement versus distribution of improvement.

Intended Impacts

Unintended Impacts
Improved quality

- Diabetes
- Coronary Heart Disease
- Stroke

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Diseases/Patient Groups</th>
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<tr>
<td>Inside QOF</td>
<td>Inside QOF ✓</td>
</tr>
<tr>
<td>Outside QOF</td>
<td>Outside QOF X</td>
</tr>
</tbody>
</table>
Results (2)

CHD6
Blood Pressure < 150/90 in last 15 months for patients with CHD

CHD8
Cholesterol < 5 mmo/l in last 15 months for patients with CHD

STROKE6
BP < 150/90 in last 15 months for patients with stroke

STROKE8
Cholesterol < 5 mmo/l in the last 15 months for patients with stroke
Results (3)


Overall practice measure of quality (% “necessary care” provided) range from 0-100%.

Indicators with and without incentives in each of three conditions.

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- Coronary Heart Disease
- Asthma
- Diabetes
Results (3) (Continued)

Figure 2: Mean scores for clinical quality at the practice level for aspects of care for Coronary Heart Disease, Asthma, and Type 2 Diabetes that were linked with incentives and aspects of care that were not linked with incentives, 1998-2007

Initial improvements in overall quality over and above the trend BUT a plateau after 2005.

Mean quality scores for indicators with incentive

Source: Campbell et al. NEJM 2009;361:368-78.
“It’s bad news - your illness isn’t on our performance targets.”
Significant improvement for incentivised indicators.
Smaller improvement for non-incentivised *indicators* in conditions linked to QOF.

**Figure 1:** Quality indicators achieved in 2003 and 2005 by incentive category

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**Key:**
- Incentives for indicator (P<0.001)
- Incentives for condition but not indicator (P<0.001)
- No incentive for condition or indicator (P=0.19)

**Source:** Steel et al. *Brit J. General Practice* 2007;57:449-454.
Results (5)

Five risk factors and five diseases in QOF.
Range of other clinically effective indicators.

- Compared rates of recording by doctors.

Rates of recording \(\uparrow\) for all risk factors and all groups.
Most rapid increase where they are incentivised in QOF.

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Positive spillover effect to unincentivised factors for target patients.

Targeted Patients
19.9 percentage points

Non-targeted Patients
5.3 percentage points
### Results (6)

Comparison of ‘achievement’ rates pre and post incentive

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Quality Achievement 2000-2007

![Graph showing comparison of 'achievement' rates pre and post incentive](image)
**Unintended Impacts**

**Positive**

Some evidence of quality in non-incentivised areas, i.e. “spillovers”.

Estimated that this may reduce by half the cost of the scheme (Sutton *et al* 2009)

Some evidence that doctors do more than the minimum required to maximise their income.

In 2005/6 doctors could have reduced number of patients seen by 12.4% without affecting revenue from QOF (Gravelle *et al* 2007)
Unintended Impacts

Negative

May have been some initial adverse impact on equity in early years:
– gaps in quality/targets/care especially for ethnic groups;
– but overall evidence suggests not a major problem.

Gaming/cheating may have gone on in early years:
– possible through manipulation of ‘exception reporting’ and prevalence rates;
– seems especially the case in areas with more deprived populations (McLean et al, 2006; Sigfrid et al, 2006);
Combined Impact of ‘Exception Reporting’ and ‘Threshold’ Effect

Calculation of ‘gap’ between % of maximum incentive gained and % patients who receive indicated care (2005/6).

Figure 1: Pay:Performance gap for top 15 indicators (average = 13%)

Gap between maximum performance and attained performance:

- 52% due to thresholds < 100%

Issues
Greater changes in indicators with incentive compared to those without.
Possible extra benefits in areas with no incentives.
No major adverse effect on indicators/areas without incentives.
No substantial adverse impact on equity.
Possible “cheating”, but not large-scale.

T
Was it too “easy”? Rewarded substantially for what they were already doing?
More pay for same work”
Emerging evidence of small negative impacts on non-incentivised areas.
Achieving targets does not improve health necessarily.
Payments may not reflect cost-effectiveness of interventions.
“Any questions regarding our financial incentive?”