WP6: Costing and pricing of acute hospital services in England

Centre for Health Economics, York, UK
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• The flow of funds
• Types of contract
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The Structure of the NHS in England

Purchasing bodies
- Primary care trusts (304)

• Providers
  - GPs (28,000)
  - Treatment Centres (29)
  - Hospitals
    • NHS Trusts (275)
    • Foundation Trusts (31)
  - Dentists (18,000), optometrists (8,000)
Short history of contracting

<table>
<thead>
<tr>
<th>Year</th>
<th>Purchasing bodies</th>
<th>Hospitals</th>
<th>GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>Health authorities</td>
<td>NHS trusts</td>
<td>GP fundholding</td>
</tr>
<tr>
<td>1997</td>
<td>Primary care trusts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td>Foundation trusts</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td>Independent treatment centres</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td>Primary care commissioning</td>
</tr>
</tbody>
</table>

→ Introduce internal market (purchaser-provider split)
Flow of funds

Parliament

Department of Health (England)

Centrally funded initiatives and services eg:
- Market Forces Factor payments (PbR)
- National Specialised Services
- Research monies
- Training & medical education monies

Other services eg:
- Primary care prescribing

Primary Care trusts

General practice
- Provision of general medical services
- Practice-based commissioning

Other health providers
- Registered nursing care in nursing homes
- Dental practices
- Ophthalmologists
- Treatment centres

Community health services directly provided by PCTs

NHS trusts & foundation trusts
Types of contracts for hospital services

• Block
• Cost and volume – (main contract types pre 2004)
• Cost per case – (after 2004)
Hospital contracts pre-2004

• **Advantages**
  - Simple
  - Contain overall cost within fixed budget
  - Maintain stable business environment for hospitals and purchasers

• **Disadvantages**
  - Lack transparency
  - Lack incentive for increased productivity
  - Encourages waiting lists
  - Does not encourage patient choice or new providers
Purchasing hospital care after 2004

• New system called “Payment by Results”
• DRG tariff (known as HRGs in England)
• Per patient admission
• No caps on activity or marginal cost thresholds
• Based on average costs for all NHS trusts for the HRG
• Tariff set nationally -no price competition allowed
• Same rate for inpatient and day-case
• Hospital can keep/reinvest surplus
Transitional arrangements

• Phased transition from 2004-2008
• NHS Trusts
  – 2004 elective only
  – Introduce outpatients, emergency over time
  – Maximum change in income per year = 2%
• Foundation Trusts
  – Elective, outpatients and emergency from 2004
• Independent (non-NHS) sector
  – 5 year block contracts (in first wave)
## Tariff structure

<table>
<thead>
<tr>
<th>Includes</th>
<th>Excludes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Staff, consumables</td>
<td>• Intensive care (S)</td>
</tr>
<tr>
<td>• Overheads</td>
<td>• Outlier bed days (S)</td>
</tr>
<tr>
<td>• Capital charges</td>
<td>• High cost drugs (S)</td>
</tr>
<tr>
<td>• Diagnostic tests</td>
<td>• Specialist services (S)©</td>
</tr>
<tr>
<td></td>
<td>• Market forces factor ©</td>
</tr>
<tr>
<td></td>
<td>• Research funding ©</td>
</tr>
<tr>
<td></td>
<td>• Training and medical education funding ©</td>
</tr>
</tbody>
</table>

Notes: S: Supplementary tariff; © Centrally funded
Setting the HRG tariff

- Start from mean cost from 2 years previously
- Remove Market Forces Factor
- Adjust for specific national (NICE) guidance
- Convert from per HRG cost to per spell cost
- Increase for 2 years’ inflation (less efficiency targets) = 14.5 % for 2004/5 + 2005/6
Treatment of non-UK residents

- All qualify for very limited range of services
  - Emergency, family planning
- Students, refugees qualify for free treatment
- EEA nationals qualify for free treatment, if the need arose during the stay
- Treating hospital invoices nominated PCT, who notifies DH.
# Incentives and responses to PbR

<table>
<thead>
<tr>
<th>Provider incentives</th>
<th>Purchaser responses</th>
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</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
<td><strong>Increase activity if P&gt;MC</strong></td>
</tr>
<tr>
<td><strong>Patient choice</strong></td>
<td><strong>Compete for patients</strong></td>
</tr>
<tr>
<td><strong>Productivity</strong></td>
<td><strong>Reduce average costs to below tariff</strong></td>
</tr>
<tr>
<td><strong>Viability of high cost providers</strong></td>
<td><strong>If P&lt;AC:</strong></td>
</tr>
<tr>
<td></td>
<td>Reduce fixed costs or Withdraw services</td>
</tr>
</tbody>
</table>
Development of markets for provision of hospital services

- Hospital care remains free for patients
- Policy is to allow new NHS and non-NHS (independent) treatment providers to enter market → competition, lower costs & innovation

- Wave 1 → 6 new non-NHS entrants
  - Prices > PbR tariff to encourage entry
  - Currently focus on limited range of procedures where there are waiting lists

- Wave 2 → prices closer to PbR tariff structure
  - Some private providers switching to ITC business model

- DH does not get comprehensive information on internal costs of independent providers
Costing hospital services

- All NHS providers submit “Reference Costs” annually
- Step-down method
- Unit of activity is the HRG for inpatient and daycase; attendance for outpatient and accident & emergency
- Costs include all hospital expenditure in the year including depreciation and capital charges, but net of private income, research income and training income
Costing hospital services (2)

- Costs grouped together into cost pools
- Classified as direct (attribute), indirect (allocate) or overheads (apportion)
- Apportioned to other cost pools or to patient services by point of access
- Inpatient and daycase costs are further disaggregated to HRGs
  - Using a micro-costing method to estimate costs of main procedures within each HRG
  - Remainder is aggregated at patient service level and used to estimate a standard cost for less frequent HRG (proportional to length of stay)
Calculating costs for NHS Trusts

Total expenditure in the year, less research/training/private patient income, plus capital charges and depreciation

- Capital charges
- Catering
- Central office
- Laundry
- Wards
- Outpatients
- Theatres
- Pharmacy
- Doctors
- Elderly
- Orthopaedics
- General surgery
- Accident & emergency
- Inpatient elective
- Inpatient emergency
- Day case
- Outpatient
- Intensive care

- Micro-costed HRGs
- Truncated HRG costs
- Outlier (excess) bed day costs
- Standard-costed HRGs

- Procedure 1
- Procedure 2
- Procedure 3

Average weighted HRG cost
Example: Stroke

- Speciality: Elderly medicine
- Point of delivery: inpatient non-elective
- HRG: A22: Non-transient stroke >69 or with complication
- ICD code: I634: Cerebral infarction due to embolism of cerebral arteries

<table>
<thead>
<tr>
<th>Costing Pool</th>
<th>Pool type</th>
<th>Measure</th>
<th>Units</th>
<th>Cost/measure</th>
<th>Total cost</th>
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</thead>
<tbody>
<tr>
<td>Ward</td>
<td>Time</td>
<td>Bed days</td>
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<td>900</td>
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<tr>
<td>Ward</td>
<td>Event</td>
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<tr>
<td>Nursing</td>
<td>Time</td>
<td>Bed days</td>
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<td>Event</td>
<td>Tests</td>
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<td>100</td>
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<tr>
<td>Pathology</td>
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<td>100</td>
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<td>Therapies</td>
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<td>26.11</td>
<td>235</td>
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<tr>
<td>Total cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2055</td>
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</tbody>
</table>
Example: stroke HRG

- Speciality: Elderly medicine
- Point of delivery: inpatient non-elective
- HRG: A22: Non-transient stroke >69 or with complication

<table>
<thead>
<tr>
<th>ICD</th>
<th>Description</th>
<th>Cost</th>
<th>#</th>
<th>Total £</th>
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<tbody>
<tr>
<td>1 I634</td>
<td>CEREBRAL INFARCTION DUE TO EMBOLISM OF CEREBRAL ARTERY</td>
<td>2,055</td>
<td>40</td>
<td>82,200</td>
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<td>2 I650</td>
<td>OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY</td>
<td>1,748</td>
<td>20</td>
<td>34,960</td>
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<td>3 I661</td>
<td>OCCLUSION AND STENOSIS OF ANTERIOR CEREBRAL ARTERY</td>
<td>2,147</td>
<td>10</td>
<td>21,470</td>
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<td></td>
<td></td>
<td>70</td>
<td>138,630</td>
</tr>
</tbody>
</table>

Weighted average cost of HRG A22 (138630 / 70) 1,980
Example: stroke HRG

• Published reference costs for 2003/04:
  – A22 Non-transient stroke >69 or with complications
  – Mean (inter-quartile range) =£2330 (1288-3636)
  – Average length of stay (excluding outliers) =21.6 days
  – Number of episodes =63000
  – Number of providers submitting data= 970
Costing WP9 services

- Reference costs provide average hospital costs including all overheads
- per HRG for inpatients, daycase
- per attendance for outpatients
- Separate cost for intensive care per day
- basic resource profiles may be available from some providers for some procedures
Costing WP9 services (2)

- **Surgery**
  - some hospitals may have existing resource profiles for these procedures & unit costs
  - Reference costs provide average cost per day in ITU including all drugs, consumables and overheads

- **Cataract surgery**
  - Performed by NHS Trusts, NHS treatment centres and independent providers

- **Oncology**
  - Care pathway (Outpatients+surgery+radiotherapy+chemotherapy)

- **GP attendance**
  - PSSRU may be a good source, standard 7min consultation

- **Emergency contraception (GP consultation)**
  - Excludes cost of drug

- **Ambulatory physiotherapy**
  - PSSRU or reference costs may be adequate average costs
Conclusions - costing

• Reference costs provide average hospital costs including all overheads

• Variations between providers due to:
  – Different policies on treatment
  – Casemix that is not reflected in HRG distinctions
  – Local costs of staff, land and buildings
  – Allocation of overheads
  – Technical efficiency
Conclusions - pricing

• Expected benefits of “payment by results” tariff
  – Incentives for efficiency
  – Incentives for purchasers to reduce referrals
  – Transparency on costs and financial flows

• Expected risks
  – Threaten financial viability of high cost providers → potential loss of services
  – Risk to purchasers if unplanned use of services increases
  – Weak incentives for improved quality (competition?)

• Possible changes or compromises
  – ‘Rescue’ of providers at risk of closure
  – Further risk sharing arrangements (2-part, activity caps)
  – Tariff-sharing arrangements (diagnostics, rehabilitation)