Value based pricing for the NHS

Karl Claxton
Department of Economics and Related Studies,
Centre for Health Economics,
University of York.
www.york.ac.uk/inst/che
Some key questions

- What is value in the NHS?
- What will be the role of NICE appraisal?
- How can estimates of the ‘basic threshold’ be established?
- How can other aspects of social value be reflected in VBPs?
- Should a premium for innovation be included?
- When should VBPs be renegotiated?
- Will manufacturers agree lower prices for the UK?
- Will drugs with VBPs be used in the NHS?
- Different prices for the same drug with different indications or sub groups?
Good things

• Leaves sufficient room to do something sensible following consultation
• Centrality of NICE appraisal as the foundation of VBP
• Importance of an empirically based assessment of the ‘basic’ threshold
A scientific question of fact

• Previously (Martin et al 2008, 2009)
  – Variations in expenditure and outcomes within programmes
  – Reflect what actually happens in the NHS by PBC

<table>
<thead>
<tr>
<th></th>
<th>Cancer</th>
<th>Circulation</th>
<th>Respiratory</th>
<th>Gastro-int</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/05</td>
<td>£13,137</td>
<td>£7,979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05/06</td>
<td>£13,931</td>
<td>£8,426</td>
<td>£7,397</td>
<td>£18,999</td>
</tr>
</tbody>
</table>

• Need estimate the overall threshold:
  – How changes in overall expenditure gets allocated across all the programmes
  – How changes in mortality might translate into QALYs gained
  – More (all) programmes (types of QALYs displaced)
  – How uncertain is any overall estimate
  – How it changes with scale of expenditure change
  – How it changes over time
ΔB, variation in overall expenditure

Expenditure equations, programme expenditure elasticities (%ΔE/%ΔB)

ΔE Programmes 1, 2, .., 23

Outcome equations, outcome elasticities (%ΔM/%ΔE)

ΔMortality

Life years gained
QALYs gained
QALY/LYs loss

Residual (no mortality effects)

Prior or scenarios

‘Basic’ Threshold

k
Social value of different types of health?

- Value of health gained (and health forgone)
  - Burden and severity
    - $\Delta h$ lost as consequence of the condition with current treatment
  - Therapeutic improvement
    - Scale of $\Delta h$ (some threshold below which it is less valuable)
  - Wider social benefits (-$\Delta c_c$)
    - Cost of care born by patients and carers
    - External consumption effects
  - End of life

- Need to reflect the type and value of health and $\Delta c_c$ forgone
Social value of health forgone (a single threshold)

- **Unweighted QALYs**
  \[ k = \frac{1}{I}, \quad q_i = QALYs \text{ of type } i \text{ per NHS £} \]
  \[ \sum_{i=1}^{I} q_i \]

- **Weighted QALYs**
  \[ k^* = \frac{1}{I}, \quad w_i = \text{weight for QALYs of type } i \]
  \[ \sum_{i=1}^{I} w_i \cdot q_i \]

- **Weighted QALYs plus WSBs**
  \[ k^{**} = \frac{1}{I}, \quad w_i = \text{weight for QALYs of type } i \]
  \[ c_i = \text{WSC associated with QALYs of type } i \]
  \[ \sum_{i=1}^{I} w_i \cdot q_i - \sum_{i=1}^{I} c_i \cdot q_i \]

- **Some implications**
  \[ k > k^* \quad \text{if some } w_i > 1 \text{ when } q_i > 0 \]
  \[ k^* > k^{**} \quad \text{if some } c_i < 0 \text{ when } q_i > 0 \]
  \[ k^* \neq w_j \cdot k, \quad w_j = \text{weight associated with QALYs gained from technology } j \]
Other aspects of social value?

• **Innovation**
  – Already premium for greater benefits
  – Anticipating future benefits
    • Who should assess?
    • When should NHS pay?
  – Dynamic incentives
    • Little impact but signal anyway (be a good citizen)
  – Incentives for location
    • Product premium not excludable by location!
    • Other policies more effective
Other aspects of social value?

- Link to evidence and irrecoverable costs
  - Reappraisal and renegotiation triggers
  - Lower VBP at launch
    - Can’t do the research once in NHS use
    - Irrecoverable costs (NHS and patient level)
  - Must retain OIR as an option

<table>
<thead>
<tr>
<th></th>
<th>NHB (A)</th>
<th>NHB (B)</th>
<th>Max NHB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Average</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

---

**Value of access**

**Value of evidence**
Lack of critical detail

- Vehicle for price negotiation
  - Separate list price (L) from transaction price (T)
  - VB rebate of L-T* paid through PPRS

- Transparent rules (menu of Ti,Qi)
  - Single price (mirror other markets)
  - Incentive for uptake (some benefits for the NHS)
  - Avoid threats of hold up or all or nothing
  - Opportunity costs in some circumstances

- Combined with national volume agreements
  - L-T for T*, Q* and L-C for >Q*
  - C = MC = equivalent generic price
Lack of critical detail

- Either mandatory guidance or incentives
  - Limited uptake of new VBP drugs
- Incentives for local prescribing
  - Prescribers pay L-d, receive L or L-C from DH
  - Manufacturers receive L-d, pay L-T* to DH
  - If no agreement L-d falls on local budget
- Combined with volume agreements
  - Manufacturers
    - National agreements L-C for >Q*
  - Local prescribers
    - Estimate local Q*, only receive L up to local Q*
Prospects?

• Consultation document
  – Leaves sufficient room to do something sensible (or silly) following consultation
  – Centrality of NICE appraisal as the foundation for VBP
  – Importance of an empirical assessment of the threshold

• A pause for thought
  – Other aspects of value are ultimately zero sum
  – Little dynamic benefit (UK=3%)

• Maybe keep it simple?
  – Evolution not revolution ..... 
    .....‘with no clear plan of social reconstruction’
  – National rebate mechanism along side NICE guidance
    • Avoid the transaction costs of patient access schemes
    • Share responsibility in more constrained circumstances