Priority setting at a national level
NICE - England

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Areas to cover

• The role of NICE in the UK health system
• General approach to appraising new drugs
• The cancer drugs fund
• Case study: appraisal of Bevacizumab (Avastin) for metastatic colorectal cancer:
  – Place in treatment
  – Evidence on effectiveness and cost-effectiveness
  – Considerations and final recommendations
• Conclusions
The English Health system
NICE’s purpose 2016

• To help improve the quality, sustainability and productivity of health and social care, by producing guidance, standards and information on effective practice, to enable people working in health and social care make better decisions.

• We take account of value for money in developing our guidance, by recognising that new forms of practice need to demonstrate a benefit against what they displace, and by recommending better targeting of interventions of limited value, and opportunities for disinvesting from ineffective practice.
Attempt to end care by postcode

Health Secretary Frank Dobson launched NICE on Wednesday

The government has officially launched the National Institute for Clinical Excellence, which is designed to standardise quality of care across the NHS, and increase the uptake of effective and cost effective new technologies.
Fears that offering jab instead of Pill 'will fuel sexual infections'.

Sentenced

dead by NICE

THE FINAL

INDIGNITY

THE SAKE OF

PROMISCUTY

Dying - For

£70 Per Day

NICE
NICE process

Independent Review of evidence

Input from topic experts

Independent decision-making Committee

Stakeholder Perspectives

Public Consultation

Decision

Guides efficient allocation of healthcare resources
Assessing cost effectiveness

- Imatinib for chronic myeloid leukaemia (blast phase)
- Trastuzumab for early stage HER-2 positive breast cancer
- Rituximab for follicular lymphoma
Other factors influencing decisions

Application of 'special circumstances' in the appraisal of some products with incremental cost-effectiveness above £30,000 per quality adjusted life year

<table>
<thead>
<tr>
<th>Topic</th>
<th>ICER (‘000s)</th>
<th>Severity</th>
<th>End of life*</th>
<th>Stakeholder persuasion</th>
<th>Significant innovation</th>
<th>Disadvantaged population</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riluzole (motor neurone disease)</td>
<td>38–42</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Trastuzumab (advanced breast cancer)</td>
<td>37.5</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Imatinib (chronic myeloid leukaemia)</td>
<td>36–65</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<td>✓</td>
</tr>
<tr>
<td>Imatinib (gastrointestinal stromal tumour)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Pemetrexed (malignant mesothelioma)</td>
<td>34.5</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Ranizumab (age-related macular degeneration)</td>
<td>≫30</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Omalizumab (severe asthma)</td>
<td>&gt;30</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Sunitinib (advanced renal cancer)</td>
<td>50</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Lenalidomide (multiple myeloma)</td>
<td>43</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Somatotropin (growth hormone deficiency)</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Chronic subcutaneous insulin infusion</td>
<td>n/a</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

End of life criteria

• In 2009, NICE introduced greater flexibility for patients with a life expectancy of fewer than 24 months through its ‘end-of-life criteria’.

• For these patients, if a drug extended life by more than 3 months and the affected patient population was small, NICE could recommend drugs with a cost-effectiveness ratio of up to £50,000.
Cost per QALY for cancer drugs, 2007-2014

29% of cancer drugs recommended by NICE had a cost per quality-adjusted life year above £30,000

Cost per quality-adjusted life year gained (£)

160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0

Individual cancer drug appraised by NICE

Note
1. This cost per quality-adjusted life year gained used here is NICE’s most credible estimate. There may be more than one cost per quality-adjusted life year gained estimate for a drug within a single drug appraisal.

Source: National Audit Office analysis of NICE data
Recommendations for anti-cancer agents

<table>
<thead>
<tr>
<th>Recommendations for cancer appraisals</th>
<th>1 March 2000 to 30 April 2016</th>
<th>1 January 2016 to 30 April 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STA</td>
<td>MTA</td>
</tr>
<tr>
<td>Yes</td>
<td>44 (53%)</td>
<td>59 (62%)</td>
</tr>
<tr>
<td>Optimised</td>
<td>8 (10%)</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>Only in research</td>
<td>2 (2%)</td>
<td>6 (7%)</td>
</tr>
<tr>
<td>No</td>
<td>29 (35%)</td>
<td>27 (28%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>83 (100%)</td>
<td>95 (100%)</td>
</tr>
</tbody>
</table>

STA, single technology appraisal; MTA, multiple technology appraisal

• NB: 14 non-submission recommendations and 1 withdrawn recommendation have been excluded
Patient Access Schemes

• Mechanisms to share the cost of new drug between the NHS and the company

• NICE considers a PAS only when formally referred by the Department of Health

• NICE runs a PAS Liaison Unit (PASLU) to formally consider proposed new schemes

• Schemes assessed against principles set out in the PPRS 2009

• Examples include simple discount schemes or free stock.
The Cancer Drugs Fund

- In July 2010, a report found that use of new cancer drugs in the UK was low compared with similar countries.
- In October 2010, the government set up the Cancer Drugs Fund (CDF) to allow people access to cancer drugs that would not otherwise be routinely available.
- It provided access to cancer drugs that:
  - Had not been appraised by NICE
  - Were still being appraised by NICE
  - Not been recommended by NICE
- Intended to run until March 2014, while a long-term pricing mechanism was worked out.
Cost of the CDF

<table>
<thead>
<tr>
<th>Cost (£m)</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>38</td>
<td>108</td>
<td>175</td>
<td>231</td>
<td>416</td>
<td>968</td>
</tr>
<tr>
<td>Budget</td>
<td>50</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>280</td>
<td>930</td>
</tr>
<tr>
<td>Cost as a percentage of allocated budget (%)</td>
<td>77</td>
<td>54</td>
<td>88</td>
<td>115</td>
<td>148</td>
<td>104</td>
</tr>
</tbody>
</table>

Notes
1. Costs are rounded to the nearest £ million.
2. Data for 2010-11 represent in-year funding provided by the Department of Health in October 2010.

Source: National Audit Office analysis of Department of Health data and NHS England data
The new Cancer Drug Fund

• Where NICE indicates that there is insufficient evidence to support a recommendation for routine commissioning

• Requires the drug to display plausible potential for satisfying the criteria for routine use (incl. application of the EoL criteria where appropriate)

• Subject to the company agreeing to:
  – fund the collection of a pre-determined data set, during a period normally < 24 months
  – a commercial access arrangement which makes the drug affordable within the CDF budget
The marketing authorisation permits bevacizumab at any line of treatment.
Bevacizumab: first line

Clinical-effectiveness

Research evidence, clinical opinion and patient experts showed that bevacizumab in combination with oxaliplatin-containing regimens gave a modest clinical benefit compared with regimens without bevacizumab.

Evidence from a clinical trial showed bevacizumab increased overall survival by 1.4 months, with concerns about the robustness of the evidence.

The end of life criteria were not met - no robust evidence for extension to survival of 3 months and not a small patient population.
Bevacizumab: first line

Cost-effectiveness

The Committee concluded that the cost-effectiveness estimates of bevacizumab were **ICERs of £105,000-£108,000 per QALY gained** (without the patient access scheme) and **£68,100-£70,500 per QALY** (with the PAS). However, the Committee agreed that these ICERs (without and with the PAS) were associated with **substantial uncertainty**.

The Committee recognised the novel mode of action of bevacizumab but did **not a substantially innovative technology**.
Managing colorectal cancer

First-line agents

**Bevacizumab in combination with oxaliplatin and either fluorouracil plus folinic acid or capecitabine**

The following recommendations are from NICE technology appraisal guidance on bevacizumab in combination with oxaliplatin and either 5FU or capecitabine for the treatment of metastatic colorectal cancer.

**Bevacizumab in combination with oxaliplatin and either fluorouracil plus folinic acid or capecitabine is not recommended for the treatment of metastatic colorectal cancer.**

2010: Bevacizumab with oxaliplatin & either fluorouracil plus folinic acid or capecitabine
2013: Static list
Bevacizumab: second line

Clinical and cost-effectiveness

There was no evidence to show how much bevacizumab in combination with non-oxaliplatin (fluoropyrimidine-based) chemotherapy would extend life as second-line therapy. From the first appraisal, the manufacturer stated that a cost-effective case as a second-line treatment could not be made.

The ICERs for the cetuximab combination were very high (£90,000 and £88,000 per QALY gained respectively). End of life criteria were not met for bevacizumab - unknown effect size and cumulative patient populations not small.
Managing colorectal cancer

Bevacizumab in combination with non-oxaliplatin chemotherapy

The following recommendation is from NICE technology appraisal guidance on cetuximab (monotherapy or combination chemotherapy), bevacizumab (in combination with non-oxaliplatin chemotherapy) and panitumumab (monotherapy) for the treatment of metastatic colorectal cancer after first-line chemotherapy.

Bevacizumab in combination with non-oxaliplatin (fluoropyrimidine-based) chemotherapy is **not recommended** for the treatment of people with metastatic colorectal cancer that has progressed after first-line chemotherapy.

2007: Bevacizumab & cetuximab
2012: Update to include panitumumab
2015: Static list
CDF – who benefited?

- In the last 5 years about 80,000 people received drugs through the Fund
- 2014: Bevacizumab delisted from the CDF
Conclusions

• NICE’s assessment of new drugs is informed by data on clinical and cost-effectiveness

• The process for approval includes a cost-sharing mechanism for the NHS

• The new CDF provides interim funding from a draft positive recommendation, and data collection for a defined period.