The value of innovation

noun
1 the action or process of innovating.
2 a new method, idea, product, etc.

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Outline

• The value of an innovation to the NHS?
  – Value, price and NICE guidance
• The potential value of innovation
  – The future benefits of innovation
  – Taking account of future prices
  – Uncertain benefits
• Sufficient incentives?
  – Patent protection
  – Costs of research and development
  – Public subsidies to research and development
• Other aspects of value
  – Other socially valuable aspects of health
  – Non health social value (perspective)
Value price and NICE guidance?

- Price = \(\text{P}^3\) £60,000
- Price = \(\text{P}^*\) £40,000
- Price = \(\text{P}1\) £20,000

Cost-effectiveness Threshold £20,000 per QALY

Net Health Benefit
- 1 QALY
- -1 QALY
NICE offers full appropriation

Patent expires and generic entry at year 15
Generic price are 25% of the brand
Discount rate of 3.5%
The potential value of innovation?

- The future benefits of innovation (lead to future innovations)
  - Incremental and new innovations
  - New indications
- When should the NHS pay for them?
  - Who should anticipate future benefits?
  - Why should the NHS pay twice?
- Problem for incentives?
  - Full appropriation of future value is not necessary or efficient
  - Patent sufficient to raise initial capital
  - Total rewards and how rewards are shared
  - Only get more reward if the NHS does indeed pay twice!
Taking account of future prices

Accept price > $P*$ during patent because price < $P*$ when generics enter

Private sector share

Value of the innovation

NHS share
Potential but uncertain benefits?

- Close to launch evidence is least mature
  - Limited evidence of long term effects etc
- NICE methods
  - Best use of all evidence (permissive)
  - Extrapolation over time and to different setting
- Benefit of early access and value of evidence
  - Coverage with evidence development
  - Only in research
- New PPRS (flexible pricing, outcome based patient access)
- Rewards for good evaluative research and demonstration of claimed benefits
Sufficient incentives?

• Patent protection
  – Length, width and height
  – Requires comparison with other sectors (other government agencies)
  – Similar or greater returns

• Costs of research and development
  – Are the costs of regulation justified?
  – Cost of failures (should have been abandoned earlier)
  – A more rigorous demand side (NICE) may reduce costs

• Public subsidies to research and development
  – Infra-structure
  – Fundamental research
  – Translation and evaluative research
Other aspects of value?

- Other socially valuable aspects of health?
  - Not specific to innovations
  - Not enough to identify additional benefits
  - How much life expectancy willing to give up
  - Would simply reallocate rewards

- Non health social value (perspective)
  - Not specific to innovations
  - Effective technologies can offer benefits or impose costs
    - Non NHS costs of care
    - External effects for society
  - Some Implications
    - Non marginal effects
    - Price to appropriate all social value
    - Socially undesirable reallocations and conflict with other social objectives
  - DH commissioned review (summer 2009)
Conclusions

- Appropriate incentives should:
  - Disincentivise innovation that is not sufficiently socially valuable to provide an adequate return on investment
  - Reward those innovations that are sufficiently valuable
  - Not impose barriers to entry of new and more efficient innovators

- Clear and predictable signal of collective demand
  - NICE – a more predictable signal than in other markets

- Sufficient incentives?
  - Other policy tools and areas of government (not the NICE remit)
  - Requires comparison with other sectors
  - More predictable demand may reduce costs

- Other aspects of value
  - Not specific to innovation but all technologies and activities
  - Not enough simply to observe other benefits
  - Not increase rewards to innovation but reallocates them