Economic evaluation of Childsmile

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Study

• Good example of how cost data can be incorporated into an effectiveness study to provide information on efficiency
  – Good demonstration of the data challenges also!
• Nice example of ideal outcome in terms of cost-effectiveness
  – Intervention more effective & cost saving → no judgment required!
• Interesting context
  – Substantial resources go into dentistry – total fees paid to dentists in 2013 = £265,043,455
  – Limited evidence base in dentistry
Generic questions

1. Robustness of methodology to assess effectiveness
   - Observational data using changes over time – e.g. how well did the analysis control for other factors that might have changed over same period

2. Are all relevant costs and benefits identified, measured and valued
   - Requires clinical as well as health economics expertise

3. How generalisable are the results to local context
   - Variations across health boards
Figure 1. Mean $d_3$mft and percentage of nurseries toothbrushing over time for 15 Health Boards, Scotland, 1986-2009. Mean $d_3$mft indices are lagged by -1 year from the original dates of dental inspections. Solid line, mean $d_3$mft; thick dotted line, percentage of nurseries participating in toothbrushing program; thin vertical dotted line, reference Year 0 (a year before the start of toothbrushing program).
Cost-effectiveness

- Intervention both effective and less costly
- No judgment required in terms of value for money
  - Should always implement
Frequency distribution of 1433 incremental cost effectiveness ratios for health interventions.

9% of all interventions

Incremental cost effectiveness ratio ($1000/QALY)

Bell C M et al. BMJ 2006;332:699-703
Without surgery: 
0.2 \times 3 = 0.6 \text{ QALYs}

With surgery: 
0.9 \times 10 = 9 \text{ QALYs}

\Rightarrow \text{ QALYs gained} = 8.4
Outcomes in dentistry

- Effectiveness measure: $d_3mft$ - decayed, missing and filled teeth
- Some of the issues
  - How does $d_3mft$ impact on health related quality of life?
  - Does the programme have wider (non-health) benefits?
  - How do we assess whether £25,000 per $d_3mft$ is good value for money?
- Need outcome measures that incorporates all relevant benefits and is comparable across interventions
Potential solutions

- Condition specific QALYs (Quality Adjusted Life Years)
  - Measure oral health related quality of life
- Use alternative techniques to value wider benefits such as Discrete Choice Experiments
  - Can incorporate any type of benefit that is important to patients including patient experience factors
Questions for discussion

• How can we better use routine data to generate information on cost-effectiveness of (existing) interventions
  – Also how we use these data to inform local decision making
• QALYs often not appropriate in case of public health and dental health interventions – what alternative outcomes measures are required for use in economic evaluation and how do we promote their use?