P12: HOW TO MEASURE AND VALUE HEALTH BENEFITS TO FACILITATE PRIORITY SETTING FOR PEDIATRIC POPULATION? DEVELOPMENT AND APPLICATION ISSUES

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EQ-5D-Y, comparison of instruments, and suggestions

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Conflict of interest & disclaimer

- Nan Luo is a member of the EuroQol Group, a not-for-profit international research organization

- The views of Nan Luo do not necessarily reflect the views of the EuroQol Group

EQ-5D family of instruments

- Three preference-based instruments
  - EQ-5D-3L (for adults since 1990)
  - EQ-5D-5L (for adults since 2009)
  - EQ-5D-Y (for children and adolescents since 2009)

- Descriptive system – to describe an individual’s health
  - EQ-5D-3L (available in 187 languages)
  - EQ-5D-5L (available in 169 languages)
  - EQ-5D-Y (available in 73 languages)

- Country-specific value set – to assign a utility score to a health state
  - EQ-5D-3L (available for 25 countries)
  - EQ-5D-5L (available for 12 countries)
  - EQ-5D-Y (forthcoming)
### Age range for EQ-5D-Y

<table>
<thead>
<tr>
<th>Age (year)</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>None</td>
</tr>
<tr>
<td>4-7</td>
<td>EQ-5D-Y (proxy version)</td>
</tr>
<tr>
<td>8-11</td>
<td>EQ-5D-Y</td>
</tr>
<tr>
<td>12-15</td>
<td>EQ-5D-Y or EQ-5D-3L</td>
</tr>
<tr>
<td>16+</td>
<td>EQ-5D-3L</td>
</tr>
</tbody>
</table>

### EQ-5D-Y modes of administration

- Self-complete version on paper
- Self-complete version on PDAs/ Smartphones
- Self-complete version on Tablets
- Proxy version
  - Version 1: caregivers (the proxy) to rate the child in their opinion
  - Version 2: caregivers (the proxy) to rate how the child would rate his/her own health-related quality of life
Study #1: does valuation perspective matter?

- Kind et al (2015) measured the value of hypothetical EQ-5D-Y health states to the general public using a visual analogue scale (VAS).
- The value of the health states is contingent on who experiencing the states. The value of the states is lower if those are experienced by a 10-year-old child compared to an adult.
- This study suggests that it could be inappropriate to apply EQ-5D-3L values for adults to EQ-5D-Y health states observed among children and adolescents.
Study #2: does valuation perspective matter?

- Kreimeier et al (2015) studied the effects of version (EQ-5D-3L vs EQ-5D-Y) and perspective (adult vs child) on time trade-off (TTO) valuation of the general public.

- Main findings:
  - Values are higher for health states experienced by a 10-year-old child compared to health states experienced by an adult.
  - Values are higher for EQ-5D-Y states than those for EQ-5D-3L states.
  - EQ-5D-3L value sets are not suitable for EQ-5D-Y.

Study #3: are preferences of adults and adolescents different?

- A Spanish study (2016) measured the value of EQ-5D-Y states from both adults and adolescents (11-17 years old) using a best-worst scaling (BWS) method.

- Main findings:
  - BWS is feasible for both adults and adolescents to value EQ-5D-Y health states.
  - Adolescents and adults valued EQ-5D-Y health dimensions differently.
Study #4: are preferences of adults and adolescents different?

- A UK study (2017) measured the values of EQ-5D-Y states from the general population and adolescents (11-17 years old) using a discrete choice experiment (DCE).

Main findings:
- It is feasible to measure relative utility of EQ-5D-Y states using the DCE method.
- Adolescents are capable of completing a DCE but appear to be less confident than adults in their choices.
- Adolescents and adults valued EQ-5D-Y states as experienced by children differently.

EQ-5D-Y valuation study design

- Two valuation methods
  - Use DCE to obtain latent scale values for EQ-5D-Y
    - sample of n=1000
    - online survey
  - Use composite-TTO to anchor the latent scale values
    - sample of n=150 (minimum requirement)
    - inclusion of a higher sample size is encouraged
    - face-to-face interviews
- Target population: the general adult population
  - Inclusion of adolescents is optional
Comparison of preference-based paediatric instruments

<table>
<thead>
<tr>
<th></th>
<th>CHU9D</th>
<th>EQ-5D-Y</th>
<th>HUI</th>
<th>AQOL-6D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age range</strong></td>
<td>6+</td>
<td>4+</td>
<td>5+</td>
<td>12+</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Worried, sad, pain, tired, annoyed, schoolwork, sleep, daily routine, ability to join in activities</td>
<td>Mobility, self-care, usual activities, pain/discomfort, anxiety/depression</td>
<td>Sensation (vision, hearing, speech), mobility, emotion, cognition, dexterity self-care, pain, fertility</td>
<td>Independent living, mental health, coping, relationships, pain, senses (seeing, hearing, communication)</td>
</tr>
<tr>
<td><strong>No. of health states defined</strong></td>
<td>1.95 million</td>
<td>243</td>
<td>HUI2: 24,000</td>
<td>HUI3: 972,000</td>
</tr>
<tr>
<td><strong>Source of preferences (perspective)</strong></td>
<td>Adolescents, adults (adult)</td>
<td>Adults (adolescent)</td>
<td>Adults (adult)</td>
<td>Adolescents</td>
</tr>
<tr>
<td><strong>Valuation technique</strong></td>
<td>BWS+TTO, SG</td>
<td>DCE+TTO</td>
<td>VAS, SG</td>
<td>TTO</td>
</tr>
<tr>
<td><strong>Available value sets</strong></td>
<td>Australia, UK, The Netherlands, China, Japan (work in process)</td>
<td>Coming soon</td>
<td>Canada, UK</td>
<td>Australia/New Zealand, Fiji, Tonga</td>
</tr>
</tbody>
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**Suggestions for valuation of HRQoL in paediatric HTA**

- **Is ‘reference case’ necessary?** *Yes!*
  - **Reasons:** variations in methods used in practice; systematic difference in values derived from different methods

- **Whose value to use, adults or adolescents?** *Adults*
  - **Reasons:** adolescents lacking experience, abilities, and maturity

- **What valuation technique to use?** *Not clear*
  - **Reasons:** TTO, DCE and SG are all feasible for adult respondents and there is no the best valuation method.

- **What instrument to use?** *Not clear*
  - **Reasons:** very little is known about the relative merits of different instruments.
Discussion points

- Whose value? Children or adults?
- Designate one particular instrument, e.g. EQ-5D by NICE?
- Age-specific instruments, e.g. 16D and 17D?
- Which health-state valuation method?
- Country-specific value set?