The Inter-rater reliability of Categories of Performance-11 (CAP-11)

Aims:
1. To produce two new categories for the Categories of Auditory Performance (CAP)

Background
- The CAP was devised by Archbold, S et al 1995
- The scale consists of 8 items hierarchically ordered which measure the development of speech recognition ability and functional hearing in hearing impaired children. Parents or professionals rate the skills from their knowledge of the child.
- The highest level of achievement equates to a number, 0 being the lowest skill and 7 the most advanced.
- The scale is designed to give a readily assessable measure to non-specialists including parents and those who have no experience of the assessments of hearing impaired children.
- CAP has been used internationally in many language environments.
- More complex listening skills have been added to the original to reflect the improved abilities of children who have been implanted early and who may have also been bilaterally implanted.

Method
- Videos were made of six rehabilitation workers (3 SLT and 3 ToD) describing a child on their case load.
- Open questions were asked about the children’s abilities which illustrated a range of CAP 2 levels.
- The videos were shown to 33 naive adult listeners who rated each of the children’s abilities using the CAP-2.
- The videos were randomly presented each time to control for order effects.
- The subjects offered feedback.
- The project was given approval by the Safety and Ethics Committee of the Institute of Sound and Vibration Research.

Results
- Two new categories representing more complex skills were created.
- Responses from subjects were subjected to statistical analysis and the CAP-2 was found to have very good inter-rater reliability.
- No significant difference was shown in the inter-rater reliability between non-native English speaker subjects and native English speakers.

Conclusions and Clinical Implications
- CAP 11 has been found to have good inter-rater reliability.
- The rating scale can be used in different languages with confidence.
- CAP 11 can be effectively used to monitor the auditory progress of children following cochlear implantation.

Table 1: Correlations for native and non-native English speakers (Spearman’s rho Correlation Coefficient)

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria (new categories in italics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Use of phone with unknown speaker in unpredictable context</td>
</tr>
<tr>
<td>8</td>
<td>Follows group conversation in a reverberant room or where there is some interfering noise, such as a classroom or restaurant</td>
</tr>
<tr>
<td>7</td>
<td>Use of telephone with known listener</td>
</tr>
<tr>
<td>6</td>
<td>Understanding of conversation without lip-reading</td>
</tr>
<tr>
<td>5</td>
<td>Understanding of common phrases without lip-reading</td>
</tr>
<tr>
<td>4</td>
<td>Discrimination of some speech sounds without lip-reading</td>
</tr>
<tr>
<td>3</td>
<td>Identification of environmental sounds</td>
</tr>
<tr>
<td>2</td>
<td>Response to speech sounds (e.g. “go”)</td>
</tr>
<tr>
<td>1</td>
<td>Awareness of environmental sounds</td>
</tr>
<tr>
<td>0</td>
<td>No awareness of environmental sounds</td>
</tr>
</tbody>
</table>

All subjects >0.75
Native English speakers >0.739
Non-native English speakers >0.631

Figures 1. Percentage agreement for all subjects and Kappa Statistics

References: See attached sheet

Julie Brinton (jhb@soton.ac.uk), Louise Gilmour & Dr Carl Verschuur
South of England Cochlear Implant Centre, UK www.soecic.org