In 2012, outcomes for children using cochlear implants are more predictable than in the past however overall outcomes are still variable.

In order to better predict outcomes and improve clinical practice, The Shepherd Centre analyses outcomes from formal and informal assessment in two groups: Standard and Non-Standard. This allows the comparison of children with a greater set of similarities, and also ensures that factors such as late onset of hearing loss or limited exposure to English do not unfairly skew group results, particularly for standardised testing. This allows us to better predict outcomes for individual children and also to match up families with a similar history so that families can benefit from one another’s individual experiences.

**Method**

Children access early intervention services at The Shepherd Centre from as early as 8 weeks of age up until the age that they commence school, typically around 5-6 years. A retrospective file review was conducted for 40 CI users in the graduating group of 5-6 year olds over the last 5 years.

**Demographics**

<table>
<thead>
<tr>
<th>Classification</th>
<th>English Only in Child’s Environment</th>
<th>Diagnosed Early (UNHS or &lt;12 months prior to UNHS)</th>
<th>No Diagnosed Additional Needs Impacting on Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>English only in child’s environment</td>
<td>Diagnosed early (UNHS or &lt;12 months prior to UNHS)</td>
<td>No diagnosed additional needs impacting on learning</td>
</tr>
<tr>
<td>NON-STANDARD</td>
<td>Other languages = English in child’s environment</td>
<td>Diagnosed late or passed UNHS (late onset)</td>
<td>Diagnosed additional needs impacting on learning</td>
</tr>
</tbody>
</table>

Clinically we have found it important to evaluate the group outcomes in early intervention by comparing children with similar backgrounds. To do this we identify children as ‘standard’ vs. ‘non-standard’ for the purposes of data analysis. WHY? Some factors e.g. late onset of hearing loss or limited exposure to English may unfairly skew children’s results on standardized assessment.

**Group Results for children with CI after Early Intervention**

Children were assessed at 5 years of age using PLS-4 to measure language and PPVT to measure vocabulary skills. Group and individual results are shown for all children able to complete these formal assessments.

**Standard vs. Non-Standard Results for children with CI after Early Intervention**

Breaking down results by ‘standard’ and ‘non-standard’ classification:
- **Standard** children have higher score on both language and vocabulary.
- **Standard** children at the Shepherd Centre consistent achieve age appropriate scores.
- **Non-Standard** children have scores within or proximal to the typical range despite their individual challenges (15 with additional needs, 6 from a CALD background, 2 with acquired hearing loss).

**The importance of focusing on the individual**

A close review of longitudinal individual progress provides valuable information to guide clinical practice and improved access to sound is rarely the single source of change. Dramatic increases in these group were due to more consistent access to sound, increased exposure to the test language and proactive clinical management of poor performance.

A decline in performance was due to the introduction of a second CI, significant change of learning environments and the introduction of a second sound, increased exposure to the test language but not only improved access to sound through technology but constantly evolving and individually guided habilitation plans.

**Graphs**

- Median Language & Vocabulary Outcomes (all children with CI at CA 5yrs)
- Standard vs. Non-Standard Results for children with CI after Early Intervention
- Median Language Outcomes (all children with CI at CA 5yrs)
- Median Vocabulary Outcomes (all children with CI at CA 5yrs)