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Supplementary submission to the Standing Committee on Health, Aged Care and Sport inquiry into Hearing Health and Wellbeing of Australia

Dr Jim Hungerford, CEO

June 2017

Outcomes Report for The Shepherd Centre – for deaf children

The vision of The Shepherd Centre is that: *Every child with hearing loss can achieve their full potential in the world through their listening, spoken language and social skills.*

The children in our specialised early intervention service receive a transdisciplinary/interdisciplinary program incorporating specialist Listening and Spoken Language Specialists and therapists; Paediatric Audiologists; Child and Family Counsellors; and ENT Specialists (amongst other professionals). The children we support come from a broad range of cultural and linguistic backgrounds (including parents using the Australian signed language, Auslan); often have other disabilities; and have permanent hearing loss that may be bilateral or unilateral losses ranging from mild to profound. Overall only a third of our children have only hearing loss affecting their language, two-thirds have additional factors such as their disabilities, late diagnosis etc.

Children 'graduate' from our early intervention program with the same profile of spoken language skill as other children of the same age. More than 90% of all graduates go on to attend a mainstream school. The 'typical' (median) graduate has standardised language scores at the same level as the median child in the overall population. The statistics for the overall program – including the many children with additional needs, coming from a background other than English, with delayed diagnosis, etc – are outstanding, with the overall median language well within the normal range.

The Shepherd Centre Outcomes Report 2016 is provided to the Committee as requested, to document what can be achieved when children rapidly receive appropriately funded specialist service.



2016 OUTCOMES REPORT



About The Shepherd Centre

The Shepherd Centre is a registered charity, founded in 1970 by Dr Bruce Shepherd AM and his late wife Annette to provide a family-centred early intervention program to teach children born deaf or hearing impaired how to develop spoken language.

The Shepherd family's mission - to enable children who are deaf and hearing impaired to develop spoken language so they may fully participate in the world, and in doing so, reach their full potential - remains our organisational vision to this day.

Since its establishment, and with continued philanthropic support from our generous donors and benefactors, The Shepherd Centre has enabled more than 2,500 deaf and hearing impaired children to develop spoken language, attend mainstream schools and participate fully in society. Today, we provide a range of services to over 500 families across our five centres in NSW and the ACT, whilst also supporting Tasmania, rural and remote Australia and families living overseas.

The vast majority of children graduating from our world-leading program achieve spoken language at the same level as normal hearing children by the time they are ready for school. These outcomes have earned The Shepherd Centre an international reputation as a centre of excellence in helping children with hearing loss learn to listen and speak.





Contents

2016 Outcomes summary	4
What do these results tell us?	5
Helping children & families across Australia	7
A snapshot of our children in 2016	8
Our clinical outcomes	11
Language and vocabulary outcomes	15
Listening outcomes	15
Speech outcomes	16
Social skills outcomes	16
Family satisfaction	16
The Shepherd Centre's Theory of Change	18
Appendices - Clinical assessment results	
1. Language skills of our 2016 graduates	20
2. Vocabulary skills of our 2016 graduates	21
3. Listening skills of our 2016 graduates	22
4. Social skills of our 2016 graduates	23

2016 Outcomes summary

The results of the early intervention assessments for children graduating in 2016 demonstrate that:

The language and vocabulary of the children with hearing loss alone

EQUALLED

that of children with normal hearing.*

Listening skills of the

MAJORITY

of our 2016 graduates enabled them to start mainstream school just like their hearing peers.

The proportion of the children achieving speech clarity in the normal range or better was

85%

of the proportion expected for children with normal hearing.*

The majority of children demonstrated an improvement in social skills in the last 12 months of the program, to achieve

SOCIAL SKILLS PROFICIENCY

as would be expected of their hearing peers.**

** comparing the number of children in the graduating group who scored in the normal range or higher, to the number of children with normal hearing who would score in the normal range or higher.*

*** as measured by their Theory of Mind skills on graduation.*





**On average,
one Australian
child is identified
with hearing loss
each day.**

What do these results tell us?

Our outcomes demonstrate the ability of our graduates to match or surpass their hearing peers in measures of speech, language and listening; with the vast majority of children with hearing loss alone in our programs achieving age-appropriate results by the time they commence school.

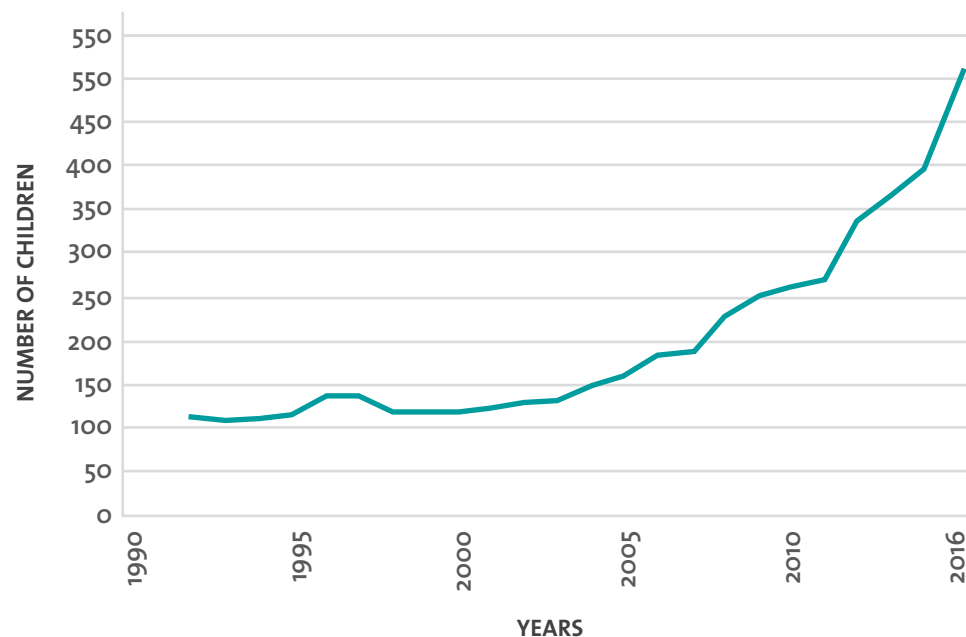
These results reinforce the critical importance of early diagnosis and early intervention on listening and spoken language outcomes and the continuing need for early intervention services such as ours to be Government funded.

The impact of early intervention is undeniable. Research demonstrates that without the ability to meaningfully communicate and connect with the world around them, children with hearing loss are at risk of poorer academic outcomes and are in danger of social and emotional isolation (First Voice, 2011).

Early intervention provides insurance against such a future, by giving children with hearing loss, regardless of their background, the ability to achieve a socially, culturally and emotionally-connected future.

The Shepherd Centre continues to advocate at all levels to ensure no child and no family are denied access to the transformative benefits of early intervention, and that every Australian child born with hearing loss is given the support they so desperately need – not just to succeed, but to thrive.

Our growth



The number of children being supported by The Shepherd Centre has grown dramatically. In recent years this recent growth has accelerated as more and more families hear of the outstanding language outcomes being achieved by children in our programs.

Our centres



NEWTOWN
WOLLONGONG
LIVERPOOL
MACQUARIE
CANBERRA
TELEINTERVENTION

Helping children and families across Australia

Like each child, each type of hearing loss is unique.

Our innovative Early Intervention Program is focused on meeting the unique needs of each individual family and child, to ensure they receive an appropriate, tailored support program that addresses their needs.

We support children with all levels and types of hearing loss, including customised programs for children with unilateral and bilateral mild hearing loss, designed to ensure that all children with hearing loss have the skills they need to enter school as confident, capable students.

Each one of our five centres in NSW and the ACT provides a full range of services so that families who live locally, in rural and remote areas of Australia, and throughout Tasmania,

can access everything they need in one place. For those who can't make it to a local centre, we deliver all of our services through our teleintervention programs.

Early intervention at The Shepherd Centre

Our world-renowned Early Intervention Program focuses on training parents to seize every opportunity in day-to-day life to teach their child to listen and speak. We know from experience that the most effective therapy takes place with the family, every day, through constant interactions with those around them, their parents, family and friends during everyday activities such as cooking, washing, going to the shops or for a walk outdoors. The Shepherd Centre works with families to create learning opportunities for their child from these everyday experiences, and to use them to develop their skills in

listening, speech and language, in order to learn to speak. Our focus is on teaching the parents, so they in turn can teach their child.

Our research proves that the best-practice model for optimal outcomes for deaf children developing spoken language is to combine individualised programs designed to suit a child and family's particular needs, with the skill and expertise of a team of speech pathologists, paediatric audiologists, counsellors and early education specialists to work with and support each family.

This is the life-changing service The Shepherd Centre provides to over 500 families each year.

A snapshot of our children in 2016

Number of children receiving services in 2016



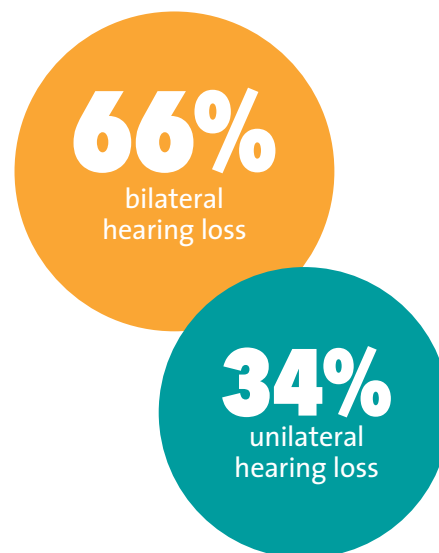
EARLY INTERVENTION 0-6y/o **340**

FIRST SOUNDS COCHLEAR
IMPLANT PROGRAM* 0y/o – ADULT **240**

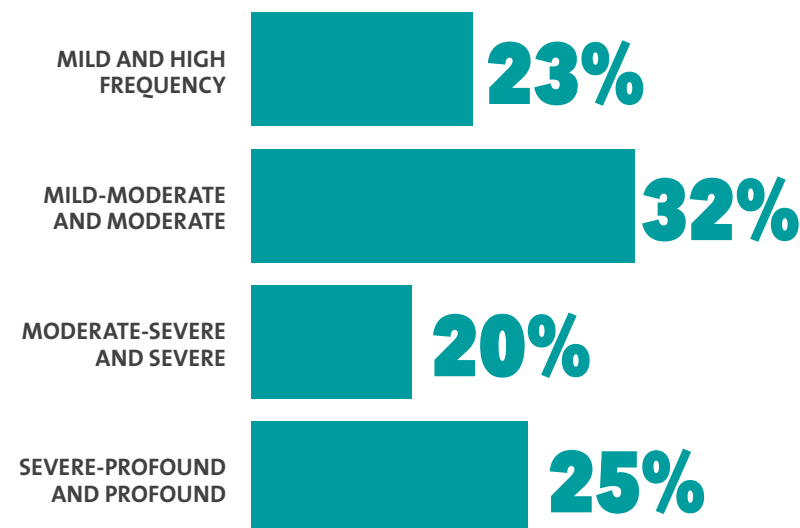
SCHOOL AGED 6-18y/o **55**

**Some First Sounds Cochlear Implant Program clients aged 0 – 6y/o are also included in early intervention service numbers*

Bilateral and unilateral hearing loss



Level of hearing loss (bilateral hearing loss only)



Children with additional needs

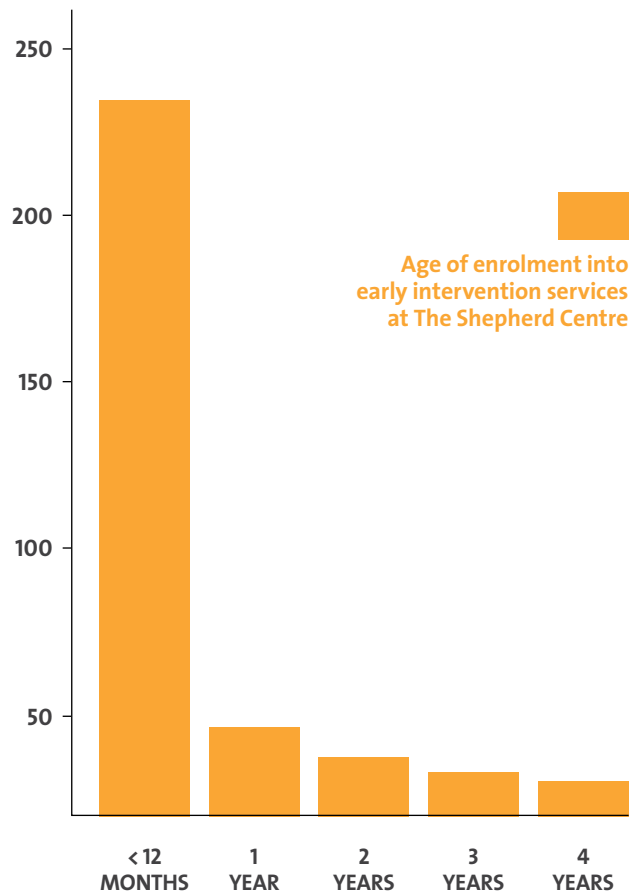
One in five children at The Shepherd Centre have diagnosed needs. Many more children have additional factors that need to be considered when developing a program tailored to their individual needs.



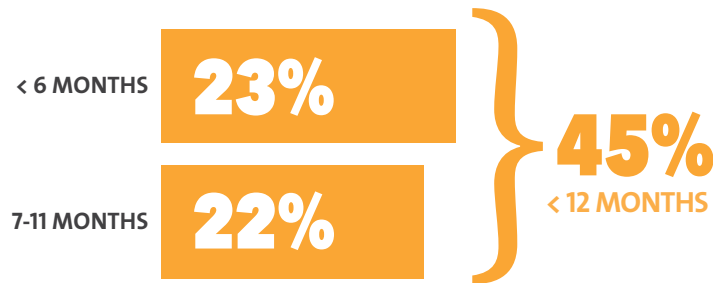
Age of entry to our early intervention services

The majority of our children join The Shepherd Centre early intervention services under the age of 12 months. This reflects the success of Universal New Born Screening practices across Australia.

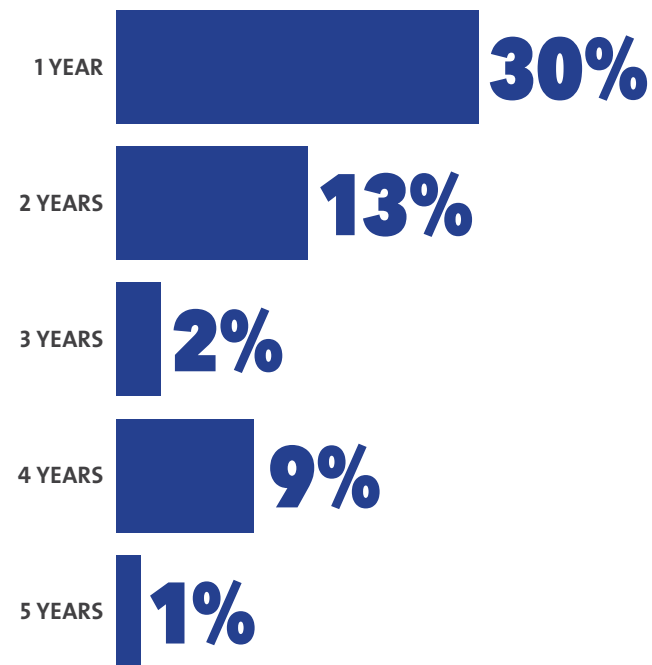
The incidence of hearing loss in children raises from 1 in 1000 at birth to 1 in 300 by the age of 5. We continue to advocate for the introduction of screening between ages 1 and 4 to pick up hearing loss developed after birth.



Age of first cochlear implant

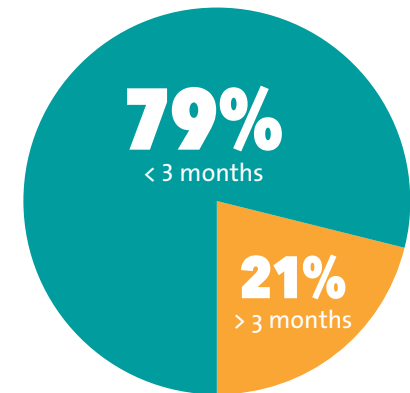


The American Academy of Paediatrics' Early Detection and Intervention standards recommend cochlear implantation between the age of 6-12 months. The Shepherd Centre's average age of implantation is 7 months.



Children who received early intervention services during 2016
(excludes children with unilateral hearing loss)

Age of diagnosis (for early intervention clients only)



Languages used

OVER 30%

of our children use a language other than English

Cantonese Italian
Mandarin
Arabic Tagalog
Vietnamese
Dutch Greek
Spanish Turkish
Portuguese

**Hearing loss
is the most
common disability
diagnosed
at birth.**



**The incidence
of hearing loss
more than doubles
in the first five
years of life.**

Our Clinical Outcomes

At The Shepherd Centre, we measure the achievements of the cohort of children graduating from our Early Intervention Program using standardised tests that measure language, vocabulary, listening, speech and social skills.

The Shepherd Centre is committed to evidence-based practice. Our programs are continually reviewed in light of national and international research and our own quality assurance evaluations. We conduct extensive assessments of our students at regular points and use this data to:

- 1 Obtain objective measurements of each child's speech and language development to inform their individual therapy plan and provide valuable progress information for parents.
- 2 Enable objective comparisons between children who are deaf or hearing impaired undertaking The Shepherd Centre's programs and children with normal hearing of the same age in order to determine whether their spoken language skills are equivalent to their hearing peers.
- 3 Monitor and evaluate the effectiveness of our programs through extensive research and evaluation, in line with our stated commitment to continuous improvement.

Completing our Early Intervention Program in 2016 was our largest-ever cohort of 46 graduates, 94% of whom went on to attend mainstream schools alongside their typically-hearing peers (i.e. children without hearing loss) in 2017.

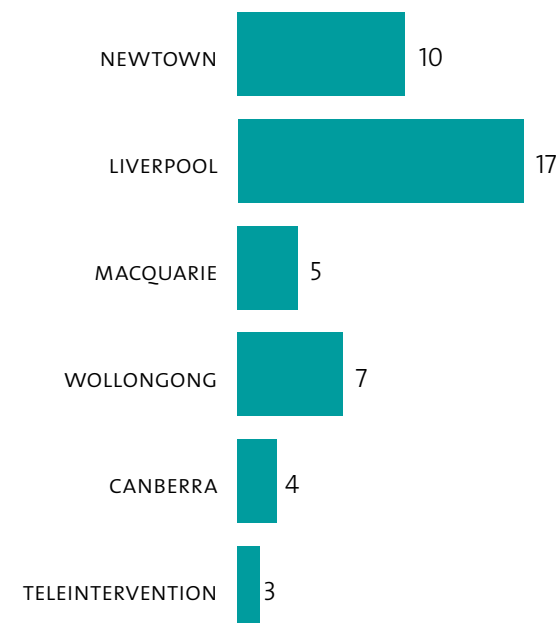
For each individual child in our Early Intervention Program, our ultimate aim is to, where possible, enable them to develop speech, language, social skills, vocabulary and listening skills on par with their hearing classmates by the time they reach school age. We measure these competencies using a set of standardised tests which measure the abilities of children without hearing loss, and enable us to consider the performance of our graduates against that of their hearing peers. Scores between 85 and 115 in speech, language and vocabulary assessments are considered to be the normal range for hearing children.

We are delighted to announce that our 2016 graduates (with hearing loss alone) achieved an average language score of 99 and a vocabulary score of 103, putting them on par with their hearing peers in each of these areas.

Our graduates (with hearing loss alone) achieved an average listening score of 52/60, which is at the top end for this age group.

Further, the proportion of our graduates (with hearing loss alone) who have speech in the normal range or better, was 85% of that expected for children with normal hearing.

Graduating children by centre



** Standardised tests used by The Shepherd Centre include the Pre-School Language Scales-5, the Clinical Evaluation of Language Fundamentals Preschool-2, Peabody Picture Vocabulary Test Edition 4, the Diagnostic Evaluation of Articulation and Phonology. Turn to page 20 for detail of assessment measures and results.*

Hearing loss
can cause major
difficulty for the
development of spoken
language in children.
Early intervention and
support is crucial after
the diagnosis of
hearing loss.





Language and vocabulary outcomes

Language assessments measure each child's understanding and use of language. We measure outcomes by comparing the results of children in our Early Intervention Program against children of the same age without hearing loss.

In assessing our graduates' vocabulary outcomes we evaluate whether each child knows and understands the same range of words we would expect a child without hearing loss to know and understand.

The language and vocabulary of the children with hearing loss alone

EQUALLED

*that of children with normal hearing.**

Listening outcomes

We assess each child's listening by tracking and evaluating their listening abilities, and the continued development of these skills over time. Our graduates' listening outcomes were measured using the Functional Listening Index – a measure of auditory skill developed by The Shepherd Centre.

The listening skills acquired by the

MAJORITY

of our 2016 graduates enabled them to start their mainstream school education on par with their hearing peers.

*comparing the number of children in the graduating group who scored in the normal range or higher, to the number of children with normal hearing who would score in the normal range or higher.

Speech outcomes

Speech assessments measure the clarity and intelligibility of our graduates' speech to ensure they are developing sounds in a way that's similar to a child without hearing loss. These assessments allow us to evaluate if speech errors are typical (i.e. a child without hearing loss, at the same age, would make the same error), or if they are due to hearing loss.

The proportion of our graduates (with hearing loss alone) with speech outcomes in the normal range or better was

85%

*of that expected for children without hearing loss.**

Social skills outcomes

One of the ways social skills can be measured is through Theory of Mind which is the ability to attribute mental states, including beliefs, desires and intentions, to oneself and to others – the development of which can typically be delayed in children with hearing loss. We use the measure to compare the development of social skills (Theory of Mind skills) in children with hearing loss to that of a child without hearing loss.

The Shepherd Centre's graduates show
IMPROVEMENT
in their social skills at graduation bringing them to the level of skills expected of their hearing classmates.

Family satisfaction

As part of our commitment to continually improving the service we provide to families, The Shepherd Centre runs an annual family satisfaction survey to provide valuable insights into what families think. The Shepherd Centre does well and changes we can make to better support our clients. Based on the results of the survey we continue to grow and expand our services, identify the areas for improvement and report back on the progress of changes.

2016 Family Survey demonstrated

90% FAMILY SATISFACTION

with our core service delivery.

**comparing the number of children in the graduating group who scored in the normal range or higher, to the number of children with normal hearing who would score in the normal range or higher.*



**Over 90% of
children with
permanent hearing
loss are born
to hearing
parents.**

The Shepherd Centre's Theory of Change

The work we do and the way we do it is informed by years of research and experience in the field of paediatric hearing loss. The Shepherd Centre's Theory of Change identifies the short and long-term returns to our economy and society made possible by early intervention programs; and the positive impact these programs have on the lives of Australians with hearing loss.



**We listen with
our brain. Our ears
are only the tunnel
through which
sound travels to
our brain.**



APPENDIX 1

Language skills of our 2016 graduates

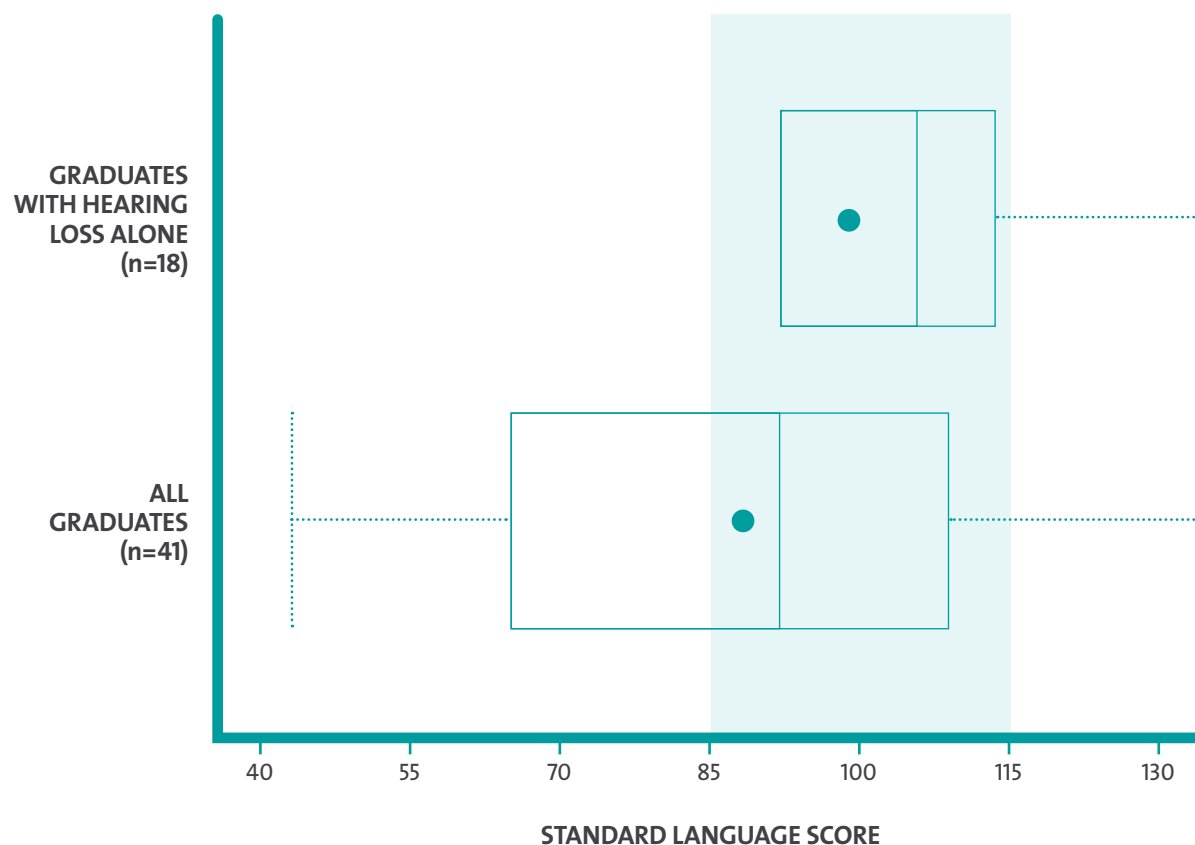
We measure the language skills of all children enrolled at The Shepherd Centre annually and where possible using the internationally recognised Clinical Fundamentals of Language-4 (CELF-4) and the Preschool Language Scales -5 (PLS-5). These assessments measure the receptive language skills (understanding) and expressive language skills (use) of children with typical hearing.

This box and whisker graph details the overall Standard language Scores for our 2016 early intervention graduates at their five year assessment. In the plot, the box covers the central 50% of children. The internal line in the box indicates the median score, and the central dot the average score. The whiskers indicate the range of scores from the bottom 15% of scores to the top 85% of scores. Standard scores between 85 and 115 indicate language skills within the normal range (shaded section). A number of our graduating children were assessed on different non-standard language measures due to the impact of additional factors including English as an additional language.

Outcomes

- 82% of graduates with hearing loss alone achieved language scores within the typical range or above.
- The median and average scores for both groups were within the typical range.
- Of the 39% of all graduates (including those with additional factors and English as an additional language) who were below the typical range, 88% were diagnosed with a hearing loss after 12 months of age or had a diagnosed additional need that impacted on their learning.

Total Language Scores for graduates of our Early Intervention Program in 2016



APPENDIX 2

Vocabulary skills of our 2016 graduates

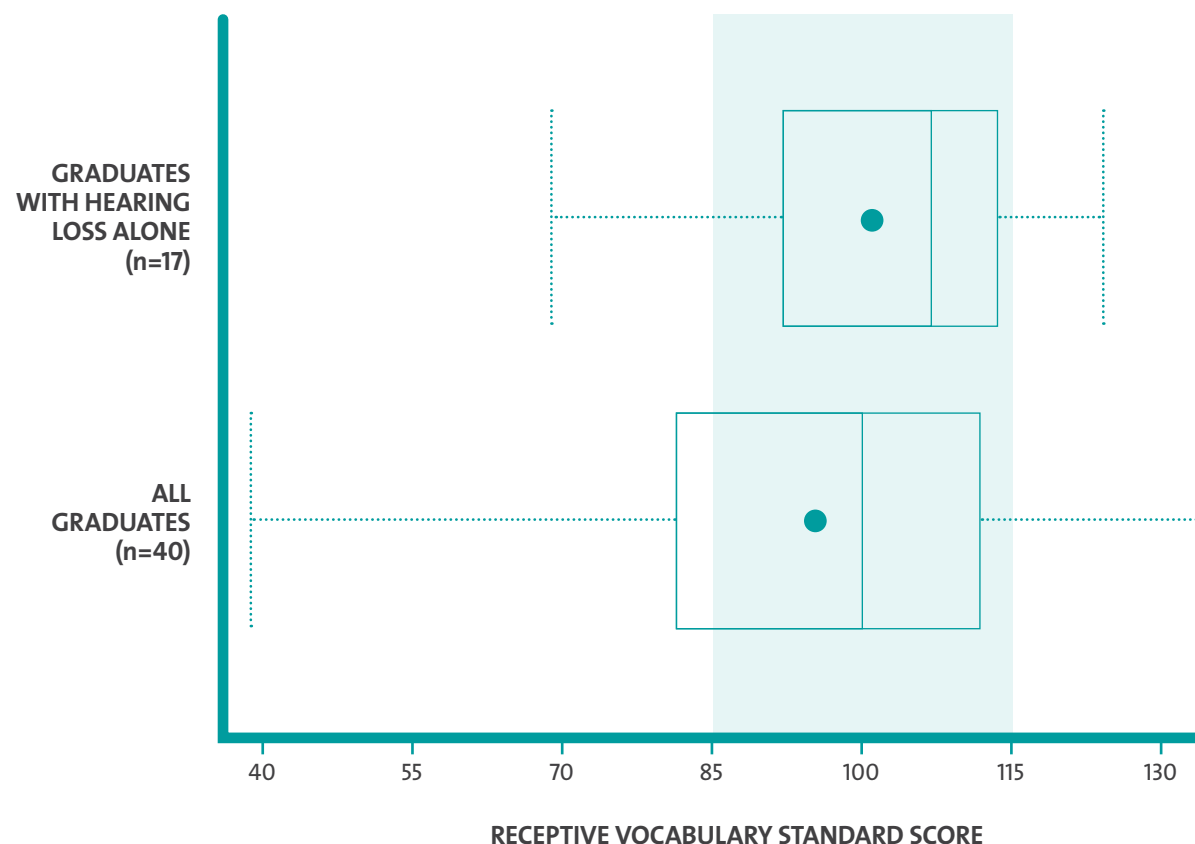
The breadth of words a child understands is measured at The Shepherd Centre annually using the internationally recognised Peabody Picture Vocabulary Test-4 (PPVT-4). This measures the receptive vocabulary skills (range of words) of children with typical hearing.

This box and whisker graph details the Standard Scores for our 2016 early intervention graduates at their five year assessment. In the plot, the box covers the central 50% of children. The internal line in the box indicates the median score and the central dot the average score. The whiskers indicate the range of scores from the bottom 15% of scores to the top 85% of scores. Standard scores between 85 and 115 indicate vocabulary skills within the normal range (shaded section). A number of our graduating children were assessed on different non-standard vocabulary measures due to the impact of additional factors including English as an additional language.

Outcomes

- 88% of graduates with hearing loss alone achieved vocabulary scores within the typical range or above.
- The median and average scores for both groups were within the typical range.
- Of the 30% of all graduates (including those with additional factors and English as an additional language) who were below the typical range, 88% were diagnosed with a hearing loss after 12 months of age or had a diagnosed additional need that impacted on their learning.

Receptive Vocabulary Scores for graduates of our Early Intervention Program in 2016



APPENDIX 3

Listening skills of our 2016 graduates

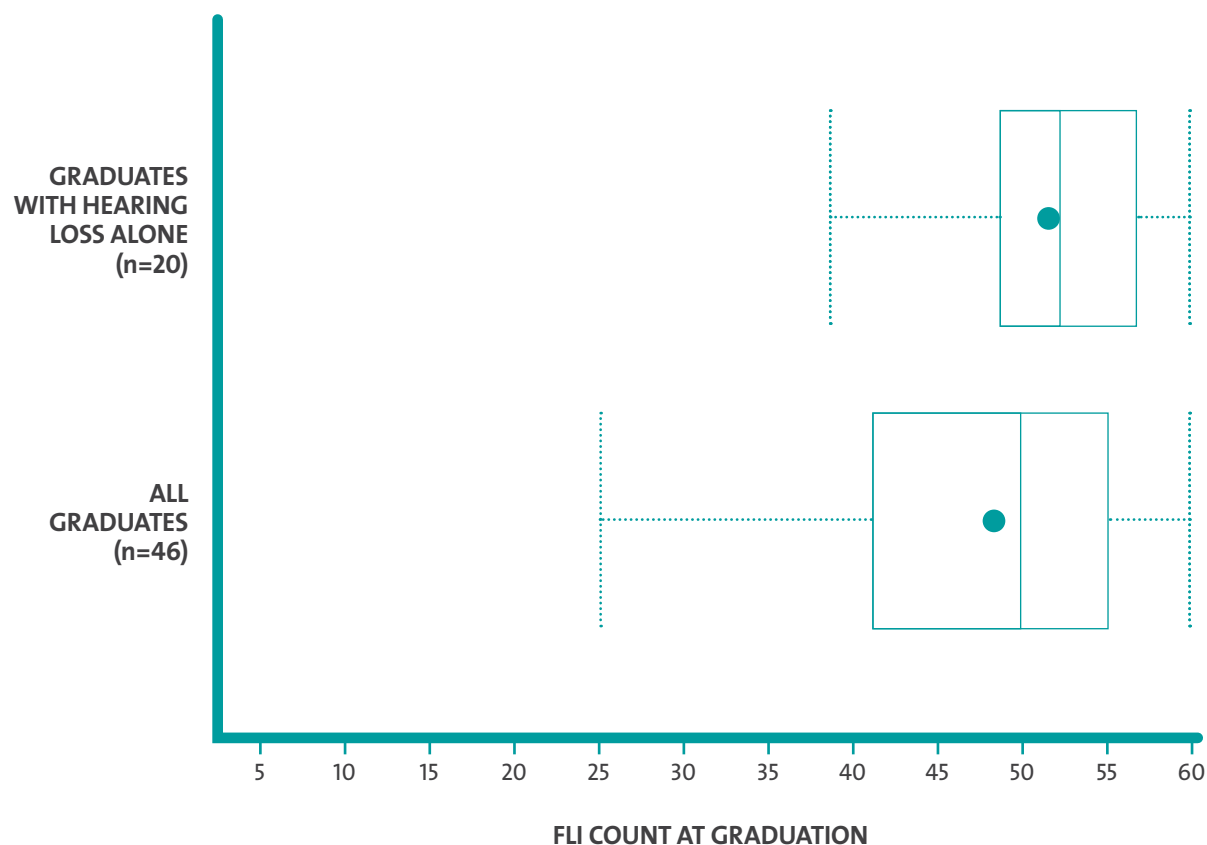
A child's listening skills are directly predictive of their later speech and language outcomes, and as such, regularly tracking a child's listening skills at The Shepherd Centre is an important measure towards a child's outcomes. These are regularly tracked using the Functional Listening Index (FLI). This is a tool that has been developed by The Shepherd Centre to enable a child's developing auditory skills to be tracked from birth thorough to six years of age, from early through to advanced skills. Statistical validation has shown it has high strong convergent, concurrent and predictive validity and can be used with children from different backgrounds and with a range of needs.

In the plot, the box covers the central 50% of children. The internal line in the box indicates the median score, and the central dot the average score. The whiskers indicate the range of scores from the bottom 15% of scores to the top 85% of scores. The maximum score for all items is 60, and an expected range of auditory skills at graduation from early intervention is between 45 and 55.

Outcomes

- The average scores for all graduates and those with hearing loss alone is within the expected range (44-55).
- Many children graduated having acquired all listening skills on the index included advanced skills such as listening to speech in background noise, repeating and processing lengthy sentences, following instructions of 5+ elements and listening to and participating in conversations – all vital skills for the school and classroom environment.

Results of the Functional Listening Index (FLI) for graduates of our Early Intervention Program in 2016



APPENDIX 4

Social skills of our 2016 graduates

In 2016, one of our key measures of social skills of our graduates was a recognised 7-item Theory of Mind task (Wellman & Liu 2004). Theory of Mind (ToM) is the ability to attribute mental states, including beliefs, desires and intentions, to oneself and to others. Theory of Mind is widely regarded as a critical factor in the development of social skills.

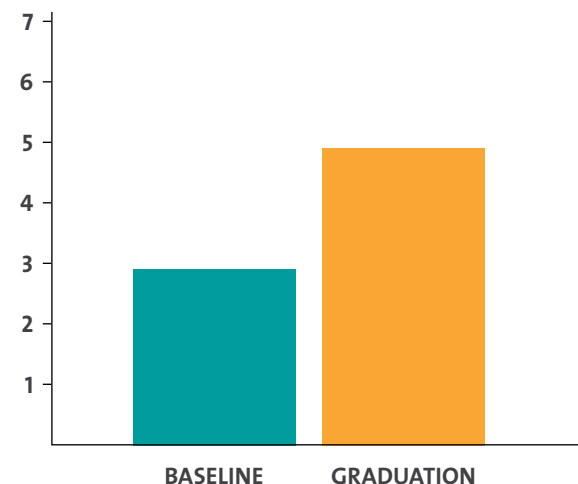
A 7-item ToM assessment was used, with the target score being the child's age +/- 1 point. For example, a four year old child would be expected to achieve a score between 3 and 5. At the beginning of the year, the 2016 graduates had an average ToM score of 2.9, which is a point below where we would expect them to be.

Outcomes

- By graduation, the mean ToM score had lifted to 4.7 – exactly where you would expect it to be for children heading off to school.

Assessment Point	Baseline	Graduation
Mean ToM Score	2.9	4.7
Mean age at assessment (in years & months)	4 years and 7 months	5 years and 3 months

Change in Theory of Mind score



WHAT OUR FAMILIES SAY ABOUT US

We love
The Shepherd Centre and
can't imagine how our son
would have developed and
become the confident clever
little man he has without it.

We love you all and
will never forget the
amazing things you
have done for our child
and our family. Thank
you sincerely!

I'm so blessed to have been
able to access a service this
good. My kids are growing and
I trust everything the people
at The Shepherd Centre
have to tell me.

The Shepherd Centre has
helped us to give our child
the best start of her life. We
couldn't have done it without
you. Thank you.

We are so
grateful for all the help
that we have received
and loved being part of
The Shepherd Centre
family.



The Shepherd Centre is a not-for-profit organisation and has Deductible Gift Recipient (DGR) status with the Australian Tax Office. ABN 61 000 699 927

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