TelePractice
Delivering early intervention and audiology services to families in rural and remote areas
Presenters

Jackie Brown  BEd; Dip Teach; LSLS Cert AVT  
jackie@hearandsay.com.au

Jennifer McMaster  BEd (Special Ed) Hons  
jennifer@hearandsay.com.au

Co-Authors:

Emma Rushbrooke  MPhil; BA; DipAud; LSLS Cert AVT  
emma@hearandsay.com.au

Gabriella Constantinescu  PhD; BSpPath (Class 1 Hons)  
gabriella@hearandsay.com.au

Michelle Ryan  BSpPath; LSLS Cert AVT  
michelle@hearandsay.com.au
Three Arms of Hear and Say

Hear and Say Children and Families
- Auditory-Verbal Therapy
- Audiology
- Social Skills
- School Support Program

Hear and Say WorldWide
- Professional Training and Education
- Parent Education

Hear and Say Research and Innovation
- Evidenced-based clinical practice

© Hear and Say 2013
Children and Families

- **Auditory-Verbal Early Intervention**
  - Face-to-face
  - eAVT

- **Audiology Services**
  - Face-to-face
  - eAudiology

- **Additional Support Services**
  - Social Skills programs
  - Social Worker and Psychologist
  - Australian Microtia and Atresia Support Centre
  - School Support Program
Auditory-Verbal Early Intervention

- Parent-based early intervention program
  - Birth to school entry age
  - All degrees of permanent hearing loss
  - Emphasis on optimised auditory access and use of audition
  - Guides and coaches parents to become the primary facilitators of their child’s spoken language development

- Goal for children with hearing loss to reach full potential in listening and spoken language

- Follows the 10 Principles of Listening and Spoken Language Auditory-Verbal Therapy (Alexander Graham Bell Academy for Listening and Spoken Language)
Audiology Services

- Diagnostic Hearing Assessment (including Cortical Testing)
- Cochlear Implant Program
  - Candidacy assessment 0 to 17 years
  - Post implant services 6 years → all of life
- Other implantable devices (bone conduction)
  - Vibrant Sound Bridge (VSB)
  - BAHA (trial of external fitting)
  - Sofono
  - Pronto
Where is Hear and Say?

Queensland
- Atherton
- Townsville
- Proserpine
- Yeppoon & Rockhampton
- Emerald & Blackwater
- Mackay & Moranbah
- Tannum Sands & Gin Gin
- Bundaberg
- Hervey Bay
- Goondiwindi
- Mt Isa

International
- Singapore
- Papua New Guinea
- India

Interstate
- Walgett (Northern NSW)
- Darwin (Northern Territory)
<table>
<thead>
<tr>
<th>eAVT</th>
<th>Auditory-Verbal Therapy (parent guidance and coaching) provided via web video conferencing medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>eAudiology</td>
<td>Audiology services (including diagnostics and MAPping) provided remotely via a dedicated medium</td>
</tr>
<tr>
<td>eTraining and Education</td>
<td>Hear and Say professional training and education programs provided online through a dedicated medium</td>
</tr>
<tr>
<td>eAlumni</td>
<td>Communication, education, advocacy and peer support using online tools such as social media</td>
</tr>
<tr>
<td>eParent Support</td>
<td>Parent education and peer support through web-based presentations and parent log-in site</td>
</tr>
</tbody>
</table>
History of eAVT Program

- Established in 1998 – mail and phone
- Commenced Video Teleconferencing in 2000
- Formalised eAVT Program since 2005
- Many developments/improvements since then
- 8 AV Therapists providing eAVT
- Currently 42 children (19% of EI cohort)
- Families typically enrol in the eAVT Program following identification via UNHS
- Support provided until school entry, as need requires
Overview of Service Delivery

- Weekly webcam sessions (Skype/Lync)
- Lesson boxes (Toys/Resources)
- Hear and Say AV Therapists visits to families
  - Face-to-face lessons/assessments
  - Inclusive setting visits (home town)
  - Liaison with rural/remote professionals
- Families visits to Hear and Say
  - Parent Education
  - Group Social Skills Sessions (centre visits)
eAVT Format

- Weekly Skype/Lync contact with families
  - Planning Session one week
  - AV Therapy Lesson next week
  - Email/phone contact at other times as required

- Sessions run for 45 to 60 mins

- Recorded for feedback/mentoring

- Lesson boxes provided
  - Theme based
  - Monthly rotation
Example of Lesson Box

Construction Box
Visits to Rural Communities

- AV Therapist visits to rural/remote areas
  - Home visits
  - Inclusive setting visits
  - Family gatherings/networking
  - Liaison with rural/remote professionals
    - Therapists
    - Advisory Visiting Teachers (HI)
    - Class Teachers
    - Learning Support Staff
Families’ Visits to Hear and Say

- Twice per year (minimum)
- Face to face lessons
- Assessments 6 monthly
- Group Social Skills sessions
- Parent Education sessions
Audiology Constraints

- Families travel to Brisbane for CI MAPping
  - Strain on families
    - Children arrive tired
    - Takes parents away family/work commitments
  - Cost to families
    - Some assistance through Patient Transit Scheme
    - Always some expense for families

- Audiologists travel to regional and rural areas
  - Costly to organisation
    - Financially
    - Time demands
eMAApping

- Offers an alternative solution
- More equitable access to MAApping services for rural families
  - Also families where travel is difficult
- Third party assistance at remote end
  - Parent or volunteer
  - Older client on their own
- Some may require 2 clinicians (e.g. like F2F MAApping with a younger child)
Equipment

- eHAB telerehabilitation video conferencing system
  - Developed by the University of Queensland
  - Portable video-conferencing (VCF) system
  - Both audio and visual communication
  - Laptop computers at each site equipped with CI programming software and a programming interface
  - Remote session established using VPN line, enabling the audiologist to remotely program the child’s CI processor

- New eHAB systems
  - More compact/portable
  - VCF + software in one system
  - Tablet availability
Benefits of Tablet Availability

- Tablet has a number of USB ports
  - Allows the attachment of a second screen for the audiologist in the clinic
    - MAP visuals on one screen and visual of the client on other screen
  - USB allows the programming interface to be attached (POD)
  - Has built-in camera plus the option of attaching a more sophisticated camera
  - Option of attaching speakers and a docking station

- Professional training and support
Demonstration of eMAPping - Zia

- **Chronological Age**: 9 months
- **Hearing Loss**:
  - Left ear: Moderate to severe
  - Right ear: Severe to Profound
- **Hearing Age**:
  - 8 months (hearing aid)
  - 2 weeks (cochlear implant)
- **Devices worn**:
  - Left ear: hearing aid
  - Right ear: cochlear implant
No previous studies have validated TelePractice delivery of
• Auditory-Verbal Therapy
• Cochlear implant MAPping for children

Research is required to ensure
• Evidence-based practice of eAVT and eAudiology
• User satisfaction of the services
• Equitable services for families in rural/remote areas compared with families in metropolitan areas
- Participants completed questionnaires
  - 5 Auditory-Verbal Therapists
  - 13 of the 17 parents

- Evaluated level of satisfaction with
  - Audio and video quality
  - Equipment use
  - Parent-therapist interactions/communication
  - Service delivery and convenience
  - Overall satisfaction with eAVT program
Findings of Satisfaction Survey

- Showed high parent and therapist satisfaction with the eAVT program on all areas surveyed

- This satisfaction is a major factor in ensuring that the eAVT program is sustainable

Research - Effectiveness of eAVT

- Investigate the effectiveness of the eAVT Program in promoting the spoken language development of a group of young children with hearing loss
- Matched comparison of eAVT and F2F AVT
- Project approved by:
  - Hear and Say Research and Innovation Ethical Advisory Committee
  - The University of Queensland Behavioural and Social Sciences Ethical Review Committee
Effectiveness of eAVT continued

- Inclusion criteria:
  - Permanent bilateral HL identified through UNHS
  - Optimal amplification before 12 months
  - Enrolled in AVT before 12 months
  - No known physical/cognitive difficulties
  - Spoken English in home

- Matching criteria: 7 in eAVT and 7 in F2F
  - Age at optimal amplification
  - Severity of pre-amplified HL
  - Age at enrolment in eAVT/AVT
No significant differences between eAVT and F2F on PLS-4:

- Auditory Comprehension ($p = .406$);
- Expressive Communication ($p = .096$);
- Total Language ($p = 1.000$)
Discussion

- First study using a matched comparison group

- Telepractice is an effective service delivery model for providing AVT to children with HL

- Hear and Say eAVT Program is ensuring equitable listening and spoken language service for children with HL in rural and remote areas compared to metropolitan areas

To validate the remote CI MAPping procedure by comparing results from F2F and remote
• Three different age groups
• Compare the MAPping levels obtained
• Compare speech perception results
• Assessment of child, parent and audiologist satisfaction with the procedure

eMAPping Results

- Results showed no significant difference between MAPping levels obtained remotely vs. face-to-face, for these three groups
- Speech perception testing results showed no significant difference between these three age groups
- Satisfaction with the procedure was generally high
- Overall, eMAPping was valid and acceptable for children >3 years
TelePractice is an effective service delivery model for providing Auditory-Verbal Therapy and CI MAPping to children with hearing loss
  • Equitable service for all families, regardless of location
  • Service is sustainable

Clinical relevance
  • eAVT available to families regardless of location
  • eMAPpping available in H&S Regional Centres
  • AV Therapists take tablets on eAVT trips
  • Overseas families have software in their home
We wish to acknowledge the assistance of all members of the Hear and Say Team

and of course all of the families and their children who inspire us at Hear and Say
References

- AG Bell Academy for Listening and Spoken Language. (2013). The AG Bell Academy for Listening and Spoken Language. See http://www.listeningandspokenlanguage.org/AGBellAcademy/