



When Behavioural Hearing Assessment Gets More Challenging

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Aims

- More detail on VRA
- Adaptations used for VRA
- Children who are more challenging to test

VRA – more detail

Procedure – conditioning

- If they don't condition to 65 dBHL warble go louder as may be inaudible, **must** be suprathreshold
- Try changing frequency as they may have a hearing loss at that frequency
- Consider using NBN or FRESH noise as may be more responsive (often very young children may respond better) – be aware less frequency specific
- If they still don't respond / react, increase intensity again, observing for any discomfort
- If a child with hearing aids usually condition with aids in initially to ensure audible

Difficulties in establishing conditioning

- If not responding the visual reward may not be interesting enough, try dimming lighting, using different rewards or combinations of rewards
- If child responds to sound and VRA reward but not sound alone the sound may be inaudible to them – increase the level of the presentation
- Use a vibrotactile stimulus to ensure they are developmentally capable of understanding the test even where sounds are inaudible to them
- Could try calibrated ling sounds – be aware of frequency limitations

Difficulties in establishing conditioning

- Consider conditioning using theme tunes e.g. Peppa Pig – not frequency specific for results but could be used to condition and then switch to warbles
- Some frequency filtered tunes available – still not frequency specific
- If only responses to band filtered sounds are obtained then consider wording e.g. *“responses to quiet levels to theme tune were obtained but these cannot give us any frequency or ear specific information in relation to hearing”*



Test set-up – BC & inserts

- Positioning of child does not need to be as specific as stimulus level is not dependent on child's position being over calibration spot
- Still need to have VRA rewards at 90° to elicit clear head turns

BC VRA

- Can use normal BC headband or soft headband to hold in place
- In difficult children 2nd tester (not parent) could take off headband and hold BC in place - note should be made on results sheet if modifications and **must be aware of limitations and interpretation**
- In all cases 2nd tester continually checks placement of BC



BC VRA

- In children who become very upset or intolerant of BC and will not tolerate at first appointment can try:
 - Encouraging parents to practise with things on child's head at home, hair bands etc.
 - Give parents a BC headband to take home to get child used to for a few weeks prior to bringing back to complete BC
 - Getting parent to wear a second headband
 - Getting toy / teddy to wear second headband
 - Getting child to put the headband on themselves (with appropriate checking)

Vibrotactile BC

- Where there are no responses to sound, the BC can be used at 500Hz to generate vibrotactile stimulus
- This can be used to judge if the child is conditioning correctly as even children with no hearing should be able to be conditioned to this if they are developmentally ready for VRA

Insert earphone VRA

- Otoscopy should be carried out, or if not possible a risk / benefit assessment for the individual patient should be considered
- Useful as can go louder than in soundfield
- **Ear specific** – localisation or any other soundfield testing are not ear specific



Insert earphone VRA

- Should we start with inserts or soundfield testing?
- Day (2000) showed more frequencies obtained when soundfield than insert testing (26% 2 or more frequencies for inserts and 59% 2 or more frequencies for soundfield)
- Data from AuD project showed 46% accepted with no fuss and a further 49% with minor fuss
- MUST be carried out where ear specific information is important

Insert earphones – discharge levels

- Further research needed
- Correction factors only for younger age group
- Correction factors were derived for those with “normal” hearing, no evidence if this can be applied to babies with hearing loss
- See BSA guidance for further details – need to make departmental decisions on discharge criteria based on guidance and emerging evidence

Insert earphones - masking

- Same principles as for pure tone audiometry
- When using inserts inter-aural attenuation is greater, so AC masking is needed less frequently (55 dB difference needed, not 40 dB)
- Better to have masking noise present from the beginning, so easier if done in a different test session / after a break
- To mask, you need to have **threshold** in the good ear, not just minimal response level

Otherwise, may result in over masking

Localisation in VRA

- As a last resort if cannot obtain ear specific information
- Any difficulties in localisation would warrant further testing using inserts / OAE's
- Can always bring back on another day
- Remember good localisation does not exclude a unilateral loss, so any suspicion or risk factor warrants ear specific testing

Visual impairment - VRA

Consider the following:

- Lower room lights (ideally dimmer switch)
- Entertain using toy which lights up or sensory / tactile toys
- Use stronger visual reward light (e.g. police strobe light)
- Move reward closer (if independent of speaker and consider soundfield calibration effects)
- Alternative sensory reinforcement e.g. air puffs



Complex cases - VRA

- Children scared of the toys
 - can use video or turn off animation of reinforcers
 - Use reinforcer for very short period
- Example of child “hiding” from the toys
- Move tester 2 further away for very shy children
- Use bubbles as a distraction toy – will calm some children



Complex cases - VRA

- Be prepared to change stimulus type and frequency frequently to keep attention with some children
- There may be a delay in responses for children with cognitive impairment (only take if consistent)
- Prepare parents that child may not respond or may need a few appointments

Adaptations for ASD – VRA and other tests

- Every child with ASD is different – be patient centred and adapt to their needs.
- Information prior to appointment may be useful e.g. toys that they really dislike / like, what distresses them
- Use of social stories and pictures
- Have a range of seating options e.g. may leave in buggy
- May habituate quickly so be prepared to jump around frequencies
- Range of sensory toys to distract e.g. spinners - pay close attention to level of focus / attention



Other behavioural testing

Performance testing / play audiometry

- Again the principles of conditioning for more challenging cases are the same – ensure you go loud enough
- Ensure games are engaging and interesting
- Be prepared to change the games frequently to keep interest
- Ensure not guessing and remove toys for a false response
- Use the cross check principle e.g. do the results fit in with objective tests / speech discrimination testing / any other tests

Behavioural Observation Audiometry

- BSA Guidance is currently withdrawn pending review
- If can't get results from standard behavioural testing e.g. VRA, consider objective testing or a battery of test results

References

- Lowery KJ, Von Hapsburg D, Plyer EL & Johnstone P. (2009) A comparison of video versus conventional reinforcement in 7 to 16 month old infants. Journal of Speech, Language and Hearing Research doi:1044/1092 – 4388.
- Schmida MJ, Peterson HJ, Tharpe AM. (2003) Visual Reinforcement Audiometry Using Digital Video Disc and Conventional Reinforcers. American Journal of Audiology 12: 35-40.
- Karzon RK, Banerjee P. (2010) Animated Toys vs Video Reinforcement in 16-24 month children in a clinical setting. American Journal of Audiology 19: 91-99
- Day J, Bamford J, Parry G, Shephard M & Quigley A (2000). Evidence of the efficacy of insert earphone and soundfield VRA with young infants. British Journal of Audiology 34: 329 – 334.
- Visual Reinforcement Audiometry Recommended Procedure BSA (2014)
<https://www.thebsa.org.uk/wp-content/uploads/2014/06/Visual-Reinforcement-Audiometry-1.pdf> NB – updated guidance is due out in 2022



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Higher Training Scheme

Georgie Hill
HTS Committee

Higher Training Scheme



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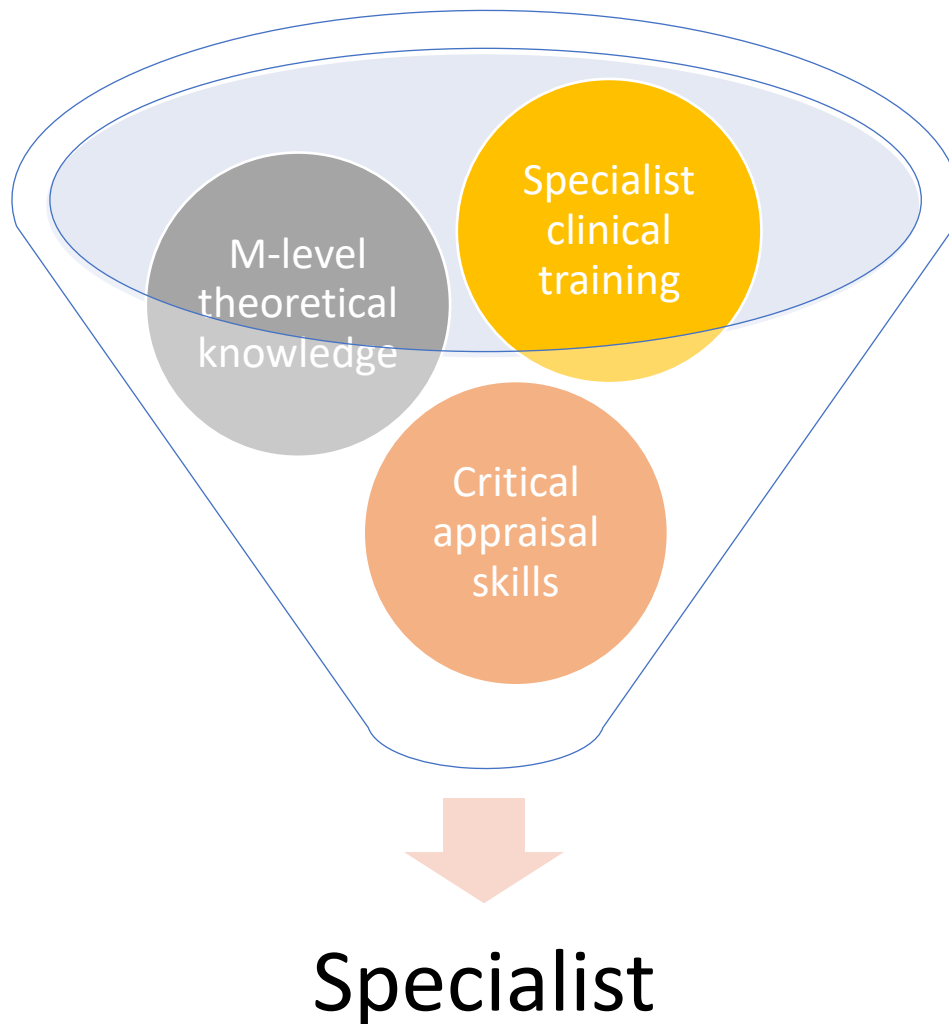
- Aims:
 - Build on the skills audiologists already have
 - Train them to a higher level to enable them to work in specialist clinical areas
 - Open to all BAA members who are working at level 5 or above*
 - Combines in-service training plus M-level study
 - Modular – can take individual modules as a standalone

**for Therapeutic Skills module, PG cert Hearing Therapy*

Elements of the scheme



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New modules



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Paediatric
assessment (6
months +)

Paediatric
assessment
(newborn)

Paediatric
habilitation

Advanced adult
assessment &
rehabilitation

Therapeutic skills

Assessment and
rehabilitation of
adults with
additional needs

Tinnitus and
hyperacusis

Balance assessment

Balance
rehabilitation

Cochlear
implants

Module specifications



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- Scope
- Minimum requirements
- Theoretical knowledge
- Learning outcomes
- Part A procedures
- Part B case types
- Examination details
- Examination marking guidance



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Module Specification: Adult auditory assessment & rehabilitation (patients with additional needs)
Version 1 FINAL

Purpose of this specification

This document makes explicit the knowledge and skills that are expected from an HTS candidate relevant to the scope of this module, and outlines additional elements needed to be completed prior to examination, such as secondments and case studies. All the prescribed elements of the module must be completed prior to application for the final examination.

It is important that this document is read together with the HTS regulations which clarifies requirements and gives further guidance.

This specification includes the following details:

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2.0 Minimum requirements for this module	2
3.0 Theoretical knowledge	2
4.0 Learning outcomes	3
5.0 The range of procedures in which competence needs to demonstrated (Part A)	4
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1.0 Scope of this Module

This module relates to M-level training to develop theoretical knowledge and practical skills to enable competency in audiological assessment and management for adults with cognitive needs. This includes assessment and management for adults with a range of cognitive needs that are sufficient to affect a person's ability to complete a hearing assessment or engage with rehabilitation. These factors can include dementia, intellectual disabilities, autism or traumatic head injury.

Cases should include new referrals and patients under review. It assumes the trainee is already competent at adult assessment techniques.

This module is classed as a large HTS module.

How do I find out more?



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The screenshot shows a web browser window with the URL <https://www.baaudiology.org/members-home/higher-training-scheme/>. The page features a dark blue header with the BAA logo and navigation links for Search, Logout, and Members area. Below the header is a white navigation bar with dropdown menus for About, Professional, Members, Public, Events, Careers, BAA Online, and BAA Corporate Partners. A left-hand sidebar lists various member resources. The main content area is titled "Higher Training Scheme" and includes a descriptive paragraph, a contact email (htsenquiries@baaudiology.org), and a promotional banner for the scheme. The banner features a photograph of two women in a professional setting and the text: "Take your career to the next level with the BAA Higher Training Scheme".

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Scope of Practice

Higher Training Scheme

The Higher Training Scheme (HTS) is a modular, in-service programme that builds on your existing audiology skills; ideal for those that want to become an advanced practitioner or work in specialist clinical areas such as paediatrics, balance, therapy or tinnitus counselling.

The HTS is run by a voluntary committee reporting to the BAA Education, Accreditation and Registration Team. If you have any questions or wish to contact the committee please email htsenquiries@baaudiology.org

Please scroll down for more information on the HTS.

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