Worcestershire Acute Hospitals NHS Trust

Clinical Guidelines for Paediatric Diagnostic Assessments excluding Electrodiagnostic Assessments

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

The organisation for which these guidelines are applicable to Children's Hearing Services provided by Worcestershire Acute Hospitals NHS Trust in a range of settings. In particular, all paediatric patients referred for a behavioural hearing assessment. To include patients who are 6 months -18 years of age with suspected or diagnosed hearing loss. Overall responsibility for the pathway is with the Countywide Audiology Services Manager.

This guideline is for use by the following staff groups:

Paediatric Audiologists, Audiologists within the team seeing Paediatric patients on an ENT Clinic.

Lead Clinician(s)

Add Name	Jessica Scully, Principal Audiologist, Paediatric Audiology Lead
Approved by *ENT Governance* ……. on:	13th November 2024
Review Date: This is the most current document and should be used until a revised version is in place	13th November 2027

Key amendments to this guideline

Date	Amendment	Approved by:

1. Scope of Document

This document provides minimal criteria for discharge where appropriate, ENT referral criteria for paediatric patients and review timescales for monitoring when required.

This document should be used in conjunction other departmental and trust policies and procedures where indicated.

This document includes:

- Minimal Accepted Pass Criteria for Audiological assessment
- Referral to ENT
- Management of children referred from the newborn hearing screening programme (NHSP)
- Pathway for children with normal hearing
- Pathway for children with transient conductive hearing loss
- Pathway for children with PCHI
- Pathway for children where behavioural assessment of children is not obtainable
- Pathway for children following Bacterial Meningitis/Sepsis
- Decision when to proceed with amplification
- Routine review timescales for audiological assessment for children who require ongoing monitoring due to being at risk of hearing impairment

It is beyond the scope of this document to detail the management guidance for children who are managed with audiological habilitation/rehabilitation pathway (patients who have hearing devices), including those individuals referred from the Newborn Hearing Screening Programme (NHSP) due to presence of Sensorineural hearing loss (SNHL)/ permanent Conductive hearing loss (CHL) audiological management.

It is the expectation of this document that clinicians will continue to use clinical judgement, knowledge in applying the general principles and recommendations contained in this document.

Recommendations may not be appropriate in all circumstances and the decision to adopt specific recommendations should be made by the practitioner considering the individual circumstances presented by each patient and available resources

2. Aims and Objectives

- To improve health outcomes for children with potential hearing issues.
- To ensure that children are seen within a maximum of 6 weeks from referral to diagnostic assessment.
- To identify those children who have a Permanent Childhood Hearing Impairment (PCHI) that were not picked up through the New-born Hearing Screen Programme and provide the correct management plan to ensure a good outcome.
- To ensure that children who have chronic Glue Ear are reviewed in line with NICE guidance on watchful waits.
- To refer patients to an Ear, Nose and Throat Consultant, where clinically indicated.
- To provide a guideline to staff undertaking assessments to ensure consistency between testers and across sites.

3. Definitions

Term	Definition
TEOAE	Transient Evoked Otoacoustic Emission
DPOAE	Distortion Product OAE
VRA	Visual Reinforcement Audiometry
SF	Soundfield - Test stimulus played through loudspeaker into freefield (binaural assessment – not ear specific)
Insert	Ear-specific audiological assessment using insert earphone transducers
Headphone	Ear-specific audiological assessment using headphones
PTA	Pure Tone Audiometry
Binaural assessment	Stimuli presented to both ears simultaneously, without ability to discern which ear responds
Ear-specific assessment	Stimuli presented to each ear separately
NHSP	Newborn Hearing Screening Programme
Tymps	Tympanometry – assessment of middle ear function
WNL	Within Normal Limits
CHL	Conductive Hearing Loss
SNHL	Sensorineural Hearing Loss
PCHI	Permanent Childhood Hearing Impairment
ENT	Ear, Nose and Throat clinic
WRH	Worcester Royal Hospital
KTC	Kidderminster Treatment Centre
ALEX	The Alexandra Hospital
APD	Auditory Processing Disorder
OME	Otitis Media with Effusion (Glue Ear)
Recurrent AOM	Recurrent Acute Otitis Media
Unilateral	One ear
Bilateral	Both ear
WNB	Was Not Bought

4. Roles and Responsibilities

4.1 Audiology Management Group

The Audiology Governance team are responsible for approving this document and ensuring that it is reviewed in line with Trust Policy.

4.2 Audiology Staff

Audiology staff are responsible for accessing, reading, understanding and following this document where it applies to their job role.

4.3 Detailed Guidance

- Administrative Accountability – Administration Team Leader for Audiology & ENT
- Clinical Accountability – Audiologist Leading Clinic
- Other people involved – administrative staff, other clinicians.

Referral received and date stamped.

Referral received by e-mail letters from GP, school nurse, parents, paediatricians, health visitor, speech and language therapist and any other medical professional involved with child. If referral received from school screening, school audiogram should be saved to AB. Referrals must be checked to ensure that the following demographic and medical criteria are included on the referral form.

Demographic detail –

- Name of patient's GP and their contact details, including full address and telephone numbers
- Name, D.O.B, current address and contact phone number of patient
- Language spoken and whether an interpreter is needed.
- Name of referrer
- Reason for referral
- NHS Number

The demographic details are then crossed checked with PAS/AB to ensure that the patient is not already active with the department.

Referrals are triaged in line with the Standard operating procedure for Triage of Referrals and any with missing information are sent back to referrers to complete appropriately.

Patient details are then entered and stored on Auditbase, referral letter saved in documents, patients referral added on the referral page and added to appropriate waiting list. Where possible an appointment should be booked within 6 weeks, in line with DMO1 (6-week diagnostic target).

Clerical staff should post to the patient: -

- Appointment letter, including pre-appointment information
- Leaflet 'Having a Hearing Test'

4.3.1 Children Under the age of 4 assessment PD2– VRA/ Direct Access VRA

30 minutes per appointment. Lead Paediatric Audiologist Min Band 6, plus trained assistant (ATO or Audiologist)

The lead audiologist takes responsibility for the full medical history /completes all necessary testing and devises management plan.

4.3.2 Children over the age of 4, PTA - DA Paediatric

30 minutes per appointment. Audiologist, minimum band 5 with paediatric experience.

4.3.3 Complex Assessment

To be booked as a 45 minutes per appointment as directed by the lead audiologist. Lead Paediatric Audiologist Minimum Band 6 with experience of complex patients, plus Audiologist band 6 minimum.

These children are likely to fall into the following groups but should only be treated as a complex assessment if VRA appointment has been attempted and was unsuccessful.

- Down Syndrome
- Diagnosed ASD
- Chromosomal Abnormalities
- Complex/multiple medical problems

- Attend Chadsgrove, Fort Royal, Pitcher Oak, Rigby Hall, Vale of Evesham, Wyre Forest Special School
- Difficult to assess on previous visits

4.3.6 Assessments

Before Clinic

Audiologist and/or ATO will be responsible for pre-test stage A subjective check of audiometers, Tympanometers etc. used and record on relevant calibration spread sheet. Also ensure that all toys are cleaned, and background noise levels measured and that this is recorded on the calibration spreadsheet.

The rooms tidied and ready.

On Arrival

Patient is booked in by reception and an 'A' is placed by their name on Auditbase to indicate arrival. Demographic details are checked at this point by reception staff.

Role of Audiologist

- Patient should be marked with "B" on the AB booking screen when taken in for assessment
- Demographic details will be rechecked by the Audiologist before proceeding. Details to include DOB, Address, Post Code, GP, and telephone number.
- Parents/Carers should be asked whether the child has a PVP shunt or pacemaker either directly or by asking about any operations on the head or heart and probing further as needed.
- Full history to be taken to include parental concerns, history of infections/Otorrhea/otalgia, birth history, speech development, head injuries and any other relevant information. Use relevant hotkey (08 or 27) in Auditbase to record information.
- Children attending paediatric assessment appointments should have testing undertaken to BSA Guidelines and the most developmentally appropriate test strategy should be used for each child.
- Test procedure to be performed in line with BSA clinical guidelines, modified testing procedures may be used for as appropriate (this must be documented in the Journal and the comments section in Affinity).
- Otoscopy/Tympanometry and OAEs may be omitted if Hearing Thresholds are satisfactory overall and there is no parental concern regarding hearing, earache, or wax. Otherwise, they should be performed, where possible in each appointment.
- Otoscopic Examination – if undertaken and reveals substantial wax, patient can be referred to GP for wax clearance. If patient has infection or active discharge, they should also be referred to GP. This should not stop the child from being tested. Infection prevention procedures must be adhered to i.e., use headphone protectors/gloves etc. Children over 2 -18 years of age can be considered for referral to ENT Nurse Led wax clinic. They do not have to have to be a hearing aid user or have a documented hearing impairment. If they have been referred into audiology and wax is preventing an audiology examination or hearing test, then referral to ENT Nurse Practitioner can be considered. Children who have wax impacting on their hearing aid performance or preventing ear moulds been manufactured can also be considered for approval. When referring young children please consider if they would sit or lie still long enough for wax to be removed. Please see local SOP on Wax Removal Pathway Guideline. Children who are unlikely to cooperate or tolerate manual wax removal should not be referred, and alternative be provided with advice on wax management using softening drops such as olive oil.

- Tympanometry and TE OAE's to be performed on children where indicated and results recorded in AuditBase. DP OAE's may be used to monitor for early signs of hearing deterioration in children undergoing treatment with ototoxic drugs for example.
- Explain results to parent and devise individual management plan. Any management decisions made will be made by lead audiologist in conjunction with parents. It will consider hearing thresholds, condition of tympanic membranes, age, any parental concerns and the patient pathway (see appendices). All decisions made will be on a case-by-case basis according to the above. Write in the child's red book if this has been brought to appointment. Arrange referral to GP, review, or discharge as appropriate.
- Send the relevant results letter "Paed – (Ref ENT) or (SF/ES)" to school nurse, GP, referrer, and other health professionals involved. Advise whether a review or onward referral is indicated.
- Complete AuditBase journal. Indicate if further appointment is needed when to rebook and how long to book appointment for. If adding directly to Waiting list, ensure correct waiting list is selected and ensure that the initial wait is set to however long it should be e.g. 6m gives initial wait of 26 weeks and a suitable comment added to Waiting List
- Once assessment has been completed the appropriate outcome code should be selected on AuditBase. If patient WNB or cancels on day, update the outcome and specify if a further appt is required or follow the safeguarding policy (Policy - Non-attendance of hospital appointments - **WAHT-H&N-009**).

5. Guidance

5.1 Minimal Accepted Discharge Criteria for Audiological Assessment (BAA & BSA 2024)

Tests performed:			
VRA	Performance testing	Play Audiometry	PTA
Speech discrimination	Tympanometry	OtoAcoustic Emissions	BOA/Distraction*

5.1.1 Sound field VRA/Performance Test:

Frequencies

At least 3 frequencies (1 or 2 KHz and 4kHz and 500Hz) if child is cooperative then 4th frequency (1 or 2Khz) also performed. Fixed speakers should be used wherever possible to minimise uncertainty of measurement.

Minimum Discharge Levels Soundfield VRA

- 25dBHL @ at least 3 frequencies (to include 500Hz and 4kHz)
- Plot ear according to speaker used.

If minimum discharge levels achieved proceed to attempt insert testing

Minimum Discharge Levels Insert/Headphone VRA

20dBHl @at least 2 frequencies in each ear (either 500Hz and 2kHz or 1kHz and 4kHz) using either inserts or headphones.

If child uncooperative then proceed to attempt OAE

5.1.2. OAE

Minimum Discharge Levels P
3 band pass at 6dBSNR in each band.

The need for ear specific testing before discharge will depend upon the referral reason and risk factors for hearing loss and should be undertaken at the discretion of the clinical lead. It is acceptable to only test sound field responses in a pre-school child who is referred solely for speech and language concerns, has previously had ear specific testing (e.g. clear responses bilaterally upon the new born hearing screen) and if there are no factors from the history which may indicate a risk of unilateral loss e.g. trauma, infection, family history.

5.1.3 Play Audiometry/PTA

Frequencies
At least 3 frequencies (1 or 2 KHz and 4kHz and 500Hz) if child is cooperative then 4th frequency (1 or 2Khz) also performed. For older children 250Hz and 8kHz should be included, mid frequencies should be tested where there is a difference of more than 20dB between adjacent frequencies. Headphones or inserts should be used to minimise uncertainty of measurement.

Minimum Discharge Levels
20dBHL @ at least 3 frequencies (between 500Hz and 4kHz)
For older children : 20dBHL @ 500Hz -4 kHz or 6 kHz where this has been completed)

If levels are above discharge level for sound field/insert/headphone testing, then perform:

5.1.3 Bone Conduction (not masked)

Frequencies
At least 3 frequencies (1 or 2 KHz and 4kHz and 500Hz) if child is cooperative then 4th frequency (1 or 2Khz) also performed.

Plot ear according to ear that bone vibrator is placed upon.

Masking where indicated should be performed on any child that is capable, and if not able then this should be documented.

5.1.4 Tympanometry

Note Otoscopy and tympanometry should be performed if there is parental concern about earache/wax or a history of ear infections, in the absence of hearing loss. If no concern, then no need to perform.

For infants or children who are hard to test, supplement with:

- Otoacoustic Emissions
- Speech Discrimination Testing – Ling/McCormick

*Occasionally Distraction and B.O.A techniques will be necessary for children with complex needs, however these must be interpreted with caution and used in conjunction with all other results obtained. They should not be used alone in determining discharge form service.

5.2 Management of Children with Normal Hearing

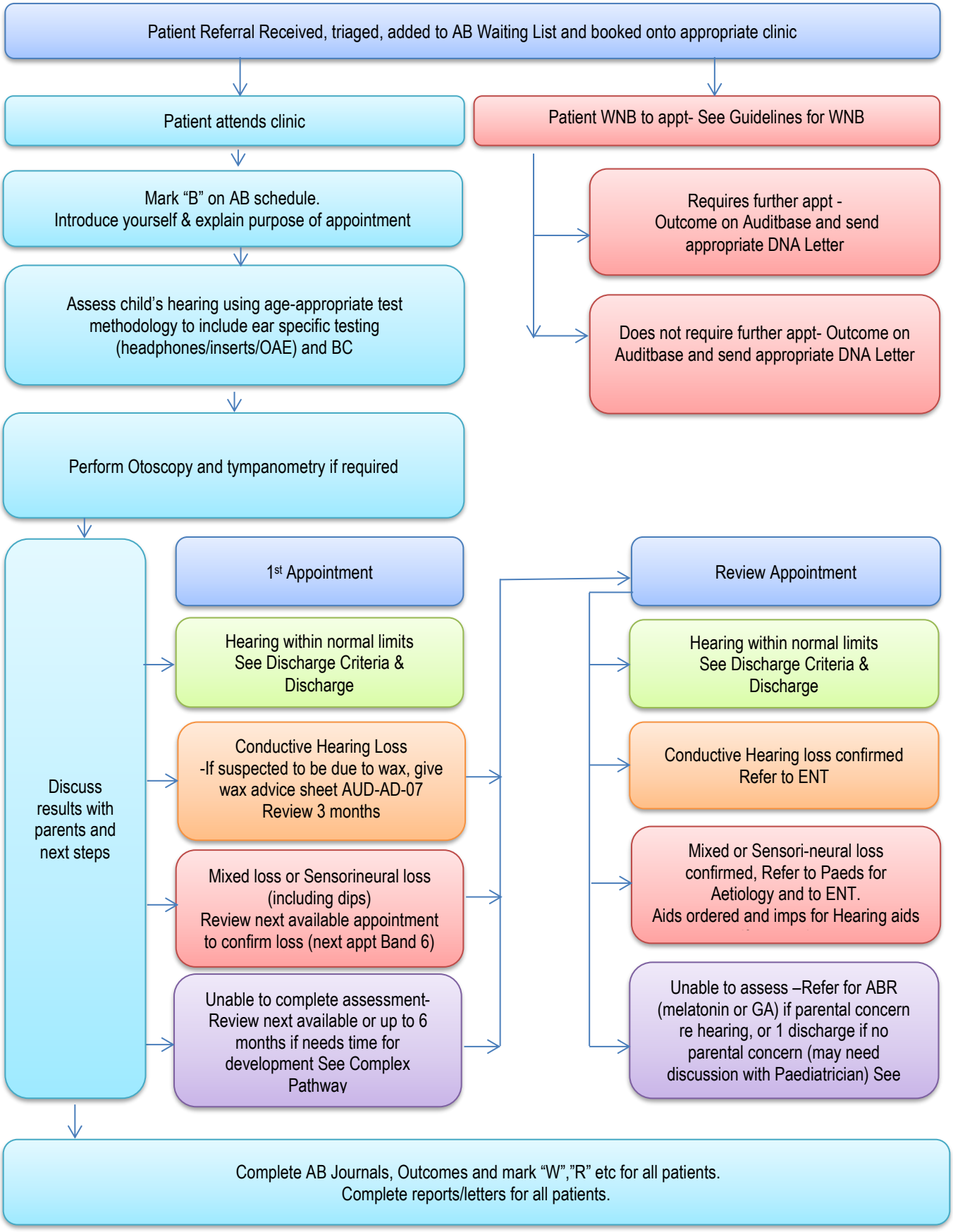
Most children will be discharged from the service when results are within normal limits for individual ears.

There will be children with parental or professionals' concerns re: Tinnitus, Hyperacusis or Auditory Processing Disorder and these parents should be given advice/reassurance and information on conditions where available.

If there are still significant concerns these children may be referred to an external service specialising in these conditions.

Some children will have had hearing aids previously and will have had hearing return to normal. These children may also be discharged (sometimes after a period of watchful wait) and devices can then be reclaimed at this point.

5.3 Paediatric Assessment Pathway



5.4 Management of Children with Transient Conductive Hearing Loss

Results	Management
CHL with evidence of OME (1st appointment)	Review in 3 months
CHL with Evidence of OME and evidence of occluding Wax	Advise olive oil, refer for dewax and retest

Please see local protocol for offering PIFU for low risk CHL with OME

5.5 Management of Children identified and confirmed as having a PCHI

Diagnosis	Management
New Diagnosis following referral but does not meet clinical need for amplification	Review at 8 – 9 months old and monitor annually Transition to adult services at 18 years old
New Diagnosis following referral and meets clinical need for amplification	Commence with hearing aid management and refer to ENT, TOD, Comm Paeds for aetiological assessment where indicated
Significant deterioration or progression of known hearing loss previously not requiring amplification	Commence with hearing aid management and refer to ENT, TOD, Comm paeds for aetiological assessment where indicated

5.6 Referral to ENT

ENT clinics run at RWH, Alex and KTC, these are mixed adult and paediatric clinics.

The below table provides guidance on referring the patient to the appropriately to ENT.

Reason for Referral	Considerations	Referral Outcome
Diagnosis of SNHL at assessment appointment (unilateral or bilateral)	History of sudden hearing loss occurring **<72 hours within last 30 days**	Refer to Emergency ENT – On call SHO Bleep 866
Diagnosis of SNHL at assessment appointment (unilateral or bilateral)	History of hearing loss following **Bacterial Meningitis or Sepsis**	Refer to Urgent ENT
Diagnosis of SNHL at assessment appointment (unilateral or bilateral)	History of sudden hearing loss occurring <72 hours, **with event taking place more than 30 days ago**	Refer to next available ENT
Diagnosis of SNHL/ Permanent CHL at assessment appointment (unilateral or bilateral)	No history of sudden hearing loss	Refer to ENT
Diagnosis of significant permanent deterioration in hearing thresholds	See ENT red flag Criteria below	Refer to ENT
Meets referral criteria for transient CHL with evidence of OME and parental management choice for grommet insertion	2 tests 3 months apart with evidence of OME at both appointments. Provide Bone Conduction Headset Device whilst RTT exceeds national targets. Scenario: Management | Management | Otitis media with effusion | CKS | NICE	Refer to ENT
Meets Recurrent AOM referral criteria	3 or more separate episodes of AOM in the previous 6 months, or 4 or more episodes in the previous 12 months with at least one episode in the past 6 months. (NICE Management | Otitis media - acute | CKS | NICE)	Refer to ENT
Red Flag criteria for referral to ENT*	Any Patient with a red flag as shown below	Refer to ENT

5.6.1 ENT Red Flag criteria:

Unilateral or Pulsatile Tinnitus	
Complete or Partial obstruction of the external auditory canal that cannot be managed effectively by ENT nursing staff (despite topical treatment with olive oil).	• Wax • Foreign Body
Abnormal appearance of the Tympanic Membrane/ External Auditory Canal including:	• Undiagnosed Perforated Tympanic Membrane • Active Discharge not managed effectively by GP that does not fall under Recurrent AOM pathway ❖ Persistently discharging ear for at least 6 weeks despite one course of topical antibiotic ear drops. ❖ Blood in ear canal ❖ Polyps/ bony growths or masses ❖ Tympanic Membrane Retraction ➢ Concerns regarding formation of retraction pocket ➢ Retracted Pars Flaccida ➢ Evidence of atelectasis ❖ Other otoscopic findings where there are clinical concerns regarding the health of the Tympanic Membrane
Deterioration in hearing levels as defined by BAAP Guidelines for aetiological investigation into progressive permanent childhood hearing impairment (2018) using either AC or BC thresholds (with the exception of cases of ANSD or temporary middle ear dysfunction, unless in presence of other red flag criteria)	• A decrease in hearing level of ≥20dB in the 3 frequencies pure-tone average of 0.5,1, and 2kHz • A decrease of hearing level ≥10dB at two or more adjacent frequencies between 0.5 – 4kHz • A decrease in ≥15dB at one octave frequency between 0.5 and 4kHz • A decrease of at least ≥15dB in either the pure-tone average (0.5,1,2 and 4kHz) or the high frequency pure-tone average (of 4,6 and 8kHz), with a minimum audiometric follow-up of 3 months

5.7 Management of Bacterial Meningitis/Sepsis

All children identified with Bacterial Meningitis/Sepsis should be referred for Audiological Assessment. Assessment should be conducted within 4 weeks of fitness to assess and depending upon age at referral testing may be with ABR or behavioural test methods.

- Children who have had suspected or diagnosed bacterial meningitis need urgent age-appropriate hearing assessment to include individual ear testing.
- Hearing assessment should be completed within 4 weeks of being fit for testing.
- If there is moderate to profound (≥40 dB at 2 frequencies) hearing impairment an urgent referral to Cochlear Implant programme should be made.
- If mild SNHL (≥ 25dB but less than 40dB at any frequency) is detected the test should be repeated in 2 weeks and an urgent referral made to Paediatricians/ENT for CT scan to check for ossification.

- If bone conduction thresholds have worsened indicating deterioration in sensorineural component of hearing loss, or there is evidence of ossification an urgent referral for cochlear implant assessment should be made. If a mild hearing loss has not deteriorated after 2 weeks and there is no evidence of ossification review the child every 3 months for the first year, every 6 months until 3 years post diagnosis, then yearly.
- If hearing is normal on first post diagnosis assessment in both the low and high frequencies, it is highly unlikely to change after the first 48 hours from contracting bacterial meningitis. Individual ear assessment must be completed either with headphones, inserts or OAE. If normal at this time child can be discharged.
- Deterioration is classed >10dB at 2 frequencies or >20dB at 1 frequency for BC thresholds.

5.8 Ongoing Monitoring of children with specific conditions who are at risk of hearing impairment.

Condition	Review pattern when hearing is within normal limits
Congenital CMV	Children with cCMV should have hearing tests regularly- •3-6 months in the first year •6-9 months until the age of 3 •Annually until at least 6 years of age If, at any time a sensory neural hearing loss is found, referral to Paediatrics should be made and if appropriate hearing aids to be offered. For children who do not derive benefit from conventional hearing aids due to the severity of the hearing loss a referral to a Cochlear Implant Centre should be considered.
Osteogenesis Imperfecta	Test at diagnosis if hearing is satisfactory review at age of 3, with routine audiological assessment every 3 years. In cases where borderline hearing is discovered, routine reviews should be performed annually. Transition to Adult service at 18 years old
Ushers Syndrome (diagnosed or queried)	Annual review throughout childhood Transition to Adult service at 18 years old
Congenital Rubella Infection	Annual review throughout childhood Discharge at 18 years old
Congenital Toxoplasmosis	Annual review until age 5 years Discharge at 5 years old
Down's Syndrome	• Infants with Downs Syndrome should have an initial behavioural hearing assessment at 8-9 months old • If there is no functional hearing impairment: o a repeat assessment should be completed at 12 months and 18 months old o If there is still no evidence of MEE or hearing loss at 18 months old a yearly, follow up should be carried out. o If the child has evidence of MEE but no hearing loss a 6 monthly review should be carried out until the MEE resolves and 12 monthly reviews can be reinstated • If a hearing loss is detected due to MEE, the family should be given strategies to minimize impact of hearing loss and a 3-month review should be carried out.

	Information on Down Syndrome and Hearing Loss from the NDCS should be given. ○ If at 3-month review there is still a hearing loss detected, active intervention should begin. In younger children hearing aids should be considered in the first instance and a referral to ENT (Ear Nose and Throat) should be made. ○ If hearing loss has improved child can go back onto watchful wait as of section 2 of policy. • If a sensorineural hearing loss is detected, repeat audiometry should take place within 2 weeks to confirm hearing loss. Hearing aids should be fitted and a referral to Community Paediatrician for the Aetiology clinic should be made. Consideration of the type of Aid to be fitted should include air conduction, bone conduction and soft band bone anchored aids as any conductive loss is much more likely to be of a longstanding nature in this group. At 18 years old transition to Adult service
Noonan Syndrome	Annual review throughout childhood At 18 years old transition to Adult service
Cleft Palate	18 months, 2 years, 2.5 years, 3 years, 3.5 years, 4 years, 4.5 years, 5 years, 6 years, 8 years, 10 years Discharge at 10 years unless there are hearing concerns
Submucous Cleft Palate	18 months, 2 years, 2.5 years, 3 years, 3.5 years, 4 years, 4.5 years, 5 years (initial test depends on age of diagnosis) Discharge at 5 years unless there are hearing concerns
Neurofibromatosis type 1 and 2	After diagnosis, annual review throughout childhood Transition to Adult service at 18 years old
Fragile X/ Martin–Bell Syndrome	Annual Review Transition to Adult service at 18 years old
Turners Syndrome	Annual Review throughout childhood Transition to Adult service at 18 years old
Alport Syndrome	Annual review throughout childhood Transition to Adult service at 18 years old
Achondroplasia	Annual Review Transition to Adult service at 18 years old
Microtia/Atresia	Normal hearing in unaffected ear: 8 months: every 3 months after until 2 years old. Every 6 months from 2 years to 5 years old Annual Review after 5 years old Transition to Adult service at 18 years
Exposure to Ototoxic Medication	As directed by the Oncologist/Paediatrician in the referral letter. Routinely pre and post treatment for oncology patients. Then annual review especially children who have received cisplatin. https://www.cambridge.org/core/journals/journal-of-laryngology-and-otology/article/an-audit-of-uk-audiological-practice-in-specialist-paediatric-oncology-centres-regarding-

	hearing-assessment-of-children-at-risk-of-ototoxicity-due-to-chemotherapy/62AD514CAE3AAD73786A29DF97F0CCFD
Family history of progressive sensorineural hearing loss in childhood	Annual review Transition to Adult service at 18 years old
Other Craniofacial Abnormalities	Consider annual review Consider transition to Adult service at 18 years old
Other Syndromes, genetic abnormalities, immune or metabolic disorders where ongoing review is requested	Consider annual review Consider transition to Adult service at 18 years old

5.9 Management of Children where conclusive behavioural assessment is not achievable

Typically, two unsuccessful attempts at behavioural testing should be made before referral for an electrophysiological assessment, the second assessment being carried out by experienced senior paediatric testers. Examples include where a patient is not developmentally ready for behavioural assessment due to age, developmental delay, emerging social and communicational disorders or evidence of a functional hearing impairment.

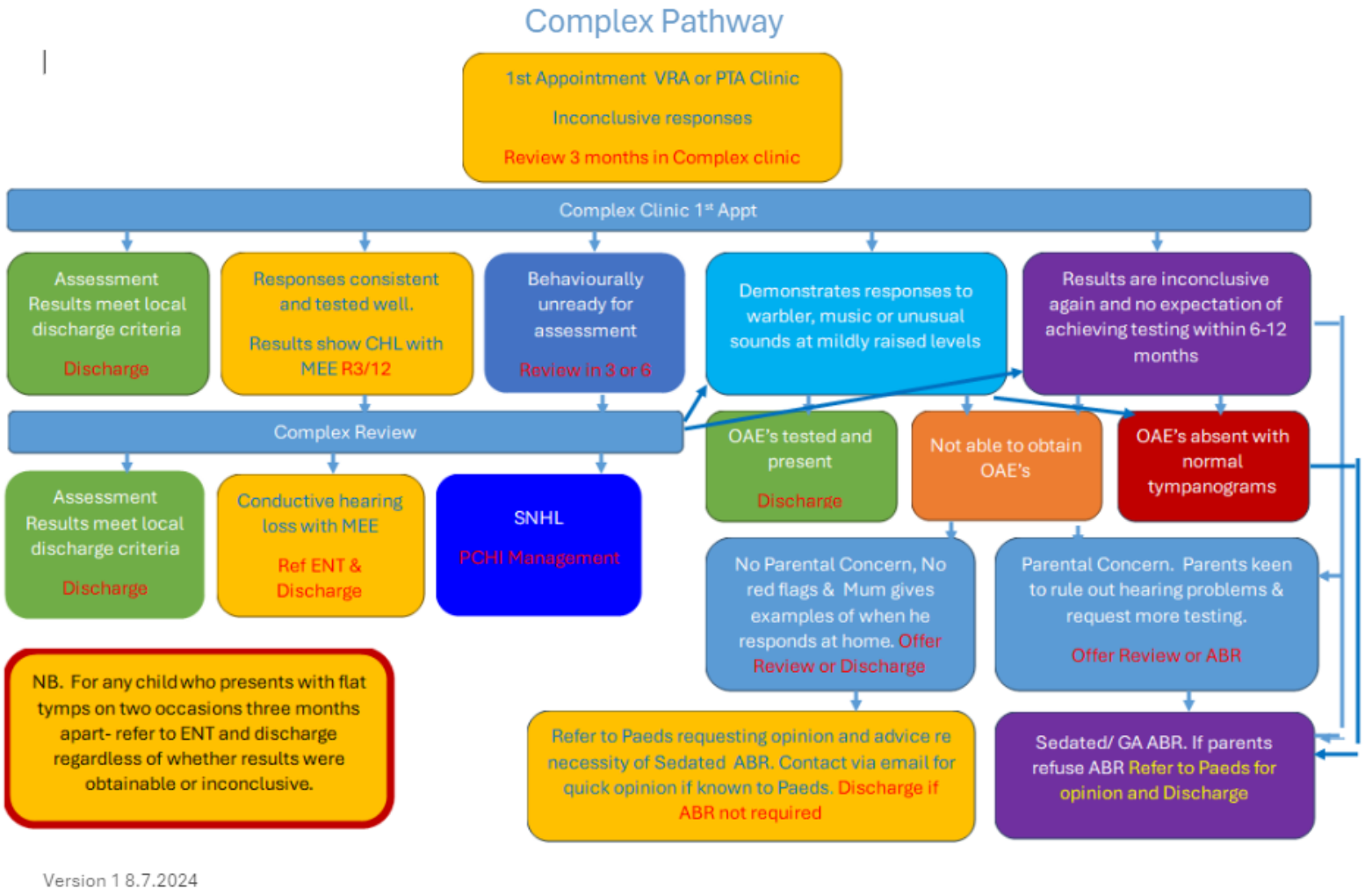
See Complex Pathway below.

In cases where behavioural assessment is not achievable, referral for sedated or GA ABR should be considered.

Sedated ABRs can be undertaken on the paediatric ward, however melatonin sedation is used and may not adequately sedate children.

Referrals can be made to Birmingham Children's Hospital for super sedation or GA ABRs where the success rate is likely to be higher.

In cases where there are significant professional concerns from the audiologist and conclusive behavioural assessment is not possible, an electrophysiological assessment may be considered at the time of the 1st assessment. These cases may include children who appear to have a significant hearing loss (post bacterial meningitis/sepsis) but are not behaviourally testable or if the child is suspected of having undiagnosed auditory neuropathy spectrum disorder.


Complex Pathway
1st Appointment VRA or PTA Clinic
Inconclusive responses
Review 3 months in Complex clinic
Complex Clinic 1st Appt
Assessment Results meet local discharge criteria
Discharge
Responses consistent and tested well.
Results show CHL with MEE R3/12
Behaviourally unready for assessment
Review in 3 or 6
Demonstrates responses to warbler, music or unusual sounds at mildly raised levels
Results are inconclusive again and no expectation of achieving testing within 6-12 months
Complex Review
Assessment Results meet local discharge criteria
Discharge
Conductive hearing loss with MEE
Ref ENT & Discharge
SNHL
PCHI Management
OAE's tested and present
Discharge
Not able to obtain OAE's
OAE's absent with normal tympanograms
No Parental Concern, No red flags & Mum gives examples of when he responds at home. Offer Review or Discharge
Parental Concern. Parents keen to rule out hearing problems & request more testing.
Offer Review or ABR
NB. For any child who presents with flat tymps on two occasions three months apart- refer to ENT and discharge regardless of whether results were obtainable or inconclusive.
Refer to Paeds requesting opinion and advice re necessity of Sedated ABR. Contact via email for quick opinion if known to Paeds. Discharge if ABR not required
Sedated/ GA ABR. If parents refuse ABR Refer to Paeds for opinion and Discharge
Version 1 8.7.2024

6. Training and Implementation

No new training is required to adhere to this document outside the scope of typical training requirements provided to ensure clinical competency for clinical staff assessing paediatric patients.

Implementation will follow ratification of the document and the document will be shared with all members of the paediatric audiology team who will be expected to read and follow the guidelines within their own scope of practice.

7. Monitoring Actions

Based on DMO1 and RTT wait times electronic reporting.

Routine Audits of the application of this guideline will be undertaken.

Peer review will be undertaken in line with departmental Peer Review Guidelines.

8. Emergency Procedures

If the patient reports a sudden loss in hearing the Audiologist will advise the patient to attend the emergency department at Worcester Royal Hospital and will give a letter to the patient to take with them to ED.

If Otoscopic examination reveals sinister pathology such as purulent discharge, send patient back to GP with a letter to take with them.

If there is a significant change to hearing levels, the audiologist will send a copy of the results obtained and a covering letter to the GP and ENT Consultant for their information within 7 calendar days.

If the patient is suddenly taken ill contact Departmental First Aider and phone 2222 in the event of an Emergency.

All patients must be asked if they have a PVP shunt or other active implantable device and this must be documented in the Hotkey Journal Entry. Standard precautions for testing these patients must be used as there is a risk that used of headphones/BC, ICube and hearing aids may cause the device to malfunction. If a patient with any of these devices is tested with inappropriate transducers, they should be advised to contact their consultant as soon as possible to have the output checked. This event must be Datixed.

9. Appendices

Appendix 1 Policy for Review of Children with Bacterial Meningitis

Introduction

Meningitis is an infection of the protective membranes that surround the brain and spinal cord (meninges). It can affect anyone, but is most common in babies, young children, teenagers, and young adults. Meningitis can be profoundly serious if not treated quickly. It can cause life-threatening blood poisoning (septicaemia) and result in permanent damage to the brain or nerves.

Viral meningitis is more common than bacterial meningitis, especially since the advent of the vaccination programme. The incidence of hearing loss associated with viral meningitis is estimated at just 4.7 per 100,000 cases.

Bacterial meningitis is more serious than viral meningitis and is more likely to cause long term complications, including hearing loss.

Bacterial meningitis can lead to sensory neural hearing loss due to ossification of the cochlea. The incidence is estimated at 10% with ~5% developing severe/profound hearing loss. The onset of hearing loss generally occurs within 48 hours of the onset of symptoms. Most of these hearing losses will be stable although some may fluctuate, improve, or deteriorate. If fluctuating, they may take up to 12 months to stabilise.

If hearing is normal within the first few days, it is highly unlikely to change.

Any moderate to profound hearing loss should have an urgent Cochlear Implant assessment as continuing ossification can affect implantation later.

References

NICE Guidelines GG102 June 2010 (Last Updated Feb 2015)
https://www.nice.org.uk/guidance/CG10

BC Children's Hospital (2013) Audiology Practice Guidelines- Meningitis
NHS [online] Meningitis Overview (Last updated March 2019)
https://www.nhs.uk/conditions/Meningitis

Appendix 2 Policy for Review of Children with Cleft Lip/Palate

Introduction

A cleft is a hole or gap affecting the tissues in the palate (roof of the mouth). The size of the cleft palate varies from child to child – some children may only have a tiny notch whereas in others, the cleft may stretch from the front of the mouth to the back. Cleft palate is a relatively common condition, affecting around one in 700 babies. There are approximately 1200 babies born with cleft palate or lip in the UK every year. Of these 45% will be palate only, 24% will be lip only and 31% will be cleft lip and palate.

What causes a cleft palate?

Clefts occur early in pregnancy when the head and neck and forming. For reasons we do not yet know, the two halves do not join as they should. This leaves a gap in the palate. Doctors think that a combination of genetic and environmental factors may cause clefts, but more research is needed. Most cases of cleft palate occur sporadically (out of the blue) although some children have parents or other relatives who have also had a cleft palate.

Cleft palate can also develop as part of a syndrome – a collection of symptoms often seen together. There are around 100 syndromes that feature cleft palate. 30% of children with clefts will have a syndrome.

What are the symptoms of a cleft palate?

The cleft in the palate means that the baby will find it difficult to form a seal around the breast or bottle so will find sucking hard – this can have an immediate effect after birth on feeding. There are specific soft bottles available to assist with this problem – mothers can express their breast milk to give using this bottle.

In childhood, children with cleft palate seem to be at an increased risk of glue ear due to additional structural abnormalities of the eustachian tube and surrounding muscles. Almost all cleft palate babies will have glue ear before 1 year old. And they are more likely to have longstanding or repeated middle ear effusion and middle ear infections. SNHL is unusual and may indicate syndromic conditions. Regular hearing assessments will need to be carried out on all children with cleft lip and palate.

Children born in Worcestershire will be under the care of Birmingham Women's and Children's Hospital for treatment and monitoring of the cleft palate/lip and accompanying complications. However, some monitoring of their hearing will be done locally.

References

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Birmingham Women and Childrens Hospital NHS Foundation Trust [online] (2019) Cleft Lip and Palate Service
https://bwc.nhs.uk/cleft-lip-and-palate

NHS UK [online] (Aug 2019) Cleft lip and palate https://www.nhs.uk/conditions/cleft-lip-and-palate/

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Appendix 3 Policy for Review of Children with Congenital Cytomegalovirus and Deafness

Introduction

Congenital cytomegalovirus (cCMV) is one of the most common causes of permanent deafness in children after genetic (inherited) causes. cCMV can cause deafness in children who are otherwise well.

CMV belongs to the herpes virus family. It is very common, affecting people all over the world.

CMV is more common than many other conditions such as Down syndrome, Spina Bifida, Toxoplasmosis and Cystic Fibrosis. Many of us will have had CMV by the time we are 40 years old, sometimes CMV can cause cold or flu like symptoms but often is asymptomatic.

Once infected by CMV the virus usually stays in an inactive form in the body (often for life). If your immune system becomes weakened the virus can reactivate but does not cause as much harm as the primary infection.

The CMV infection can cause illness in anyone with a weak immune system such as an unborn baby. CMV in an unborn baby is called congenital CMV. Congenital CMV (cCMV) causes about 10-20% of permanent hearing loss in children in the UK and is the leading cause of non-hereditary deafness. There is currently no vaccine to prevent cCMV.

cCMV causes sensorineural deafness, which affects the cochlea. This type of deafness is permanent and can affect one or both ears. Half of the children whose deafness is caused by cCMV will have progressive or late onset deafness. It may also affect the balance organs in a child's inner ear, their hearing nerve, or more rarely their ability to interpret sounds (Auditory Processing Disorder-APD)

cCMV is the most common infection passed from a mother to an unborn baby. If a mother becomes infected with CMV for the first time when pregnant, the virus is passed to the unborn baby in about 33% of cases. cCMV affects about 1 baby in every 150 born, while most of these babies will not have any symptoms, around 1 in 1,000 will have permanent disability.

Some children with cCMV will have symptoms at birth (symptomatic cCMV). Sensorineural deafness is one of the long term neurological symptoms caused by cCMV. The deafness doesn't always become apparent until later on in early childhood. Children with symptomatic cCMV generally have greater health problems. About 30%of children with symptomatic cCMV will have a degree of hearing loss.

Half of all children with deafness caused by CMV have a degree of hearing loss at birth and this may be picked up following New-born Hearing Screening. The other half go on to develop deafness after birth and will have no problems identified on their new born hearing screen. Most deafness caused by cCMV develops during the first three years of life; that is why it is important that regular hearing tests are performed so changes in hearing are picked up early.

It is important that cCMV is diagnosed early because of the higher than usual risk of progressive deafness or of unilateral deafness progressing to deafness in both ears.

References

Dr Simon Walter-Congenital Cytomegalovirus: A treatable Cause of Hearing Loss
CMV action(2013)
CMV action(2015)
Dahle, AJ(2000) Longitudinal investigation of hearing disorders in Children with congenital cytomegalovirus. Jam Acad Audiol 11,283-290

Fowler,KB(199). Newborn hearing screening: will children with hearing loss due to congenital cytomegalovirus infection be missed J Paediatrics. 135(1),60-64
www.ndcs.org.uk

Appendix 4 Policy for Review of Children with Down Syndrome

Introduction

Down syndrome (DS or DNS), also known as trisomy 21, is a genetic disorder caused by the presence of all or part of a third copy of chromosome 21. It is usually associated with physical growth delays, mild to moderate intellectual disability, and characteristic facial features.

- Hearing loss is extremely common in Down syndrome. 50% of people with Downs Syndrome will have hearing loss
- Poor hearing can have a major impact on development of language, behaviour and social functioning
- It is essential that all people with Down syndrome have regular screening for hearing loss
- Conductive hearing loss, due to glue ear is most frequently encountered in children but may persist into adulthood. 60-70% of children will have Middle ear effusion.
- Age related hearing loss is more common in those with Down Syndrome, and occurs more frequently and at a much younger age than in the general population (from puberty)
- Grommets play a limited part in management of glue ear in Down Syndrome, but benefit may be short-lived as grommets may extrude quickly or may not be possible due to narrow EAM's.
- Hearing aids can be very effectively used by children and adults with Down syndrome

References

Down Syndrome Association 2015 https://www.downs-syndrome.org.uk/?s=hearing+loss

UK Down Syndrome Medical Interest Group 2007 https://www.dsmig.org.uk/information-resources/by-topic/hearing/guideline-hear-8/

NICE Guidelines https://pathways.nice.org.uk/search?q=down%20syndrome

Sheehan, P (2015) Management of Glue Ear in Children with Downs Syndrome

Monitoring

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	All children who attend for assessment.	Audit on adherence to the pathways in this document	Once a year	Paediatric Team	AudiologyService Manager/Governance Team	1 times a year following audit
	Referral Triage	Audit of referral triage – completion and accuracy.	Annually on a random 1 month sample of referrals.	Paed Service Lead	Audiology Governance Meeting	Annually
	DMO1 Waiting times compliance	Monthly DMO1 monitoring. Report of DMO1 wait times for all diagnostic patients seen within the previous month and all those awaiting appointments	At least 10 times per year	Admin Team Lead	Audiology Governance Meeting – with escalation to Head and Neck Governance and risk register as needed.	At least 10 times per year.
	Pathway & Guidelines Followed	Horizontal audit of sample of patient journeys from referral to appointment outcome including all elements of the pathway to ensure compliance. Audits may need sub audits of any particularly poorly performing service elements after mitigations.	Annually	Paed Service Lead	Audiology Governance Meeting	After each audit.
	Adverse Incident Surveillance	Datix incidents/ Non-conformance reporting	Monthly	Audiology Governance meeting	Audiology Governance Meeting	At least 10 times per year.

	Peer review	Peer review	At least once per year for each member of the paediatric team.	Paed Service Lead	Audiology Governance Meeting	At least 10 times per year.

References

British Society of Audiology (BSA), (February 2019), Practice Guidance: Behavioural Observation Audiometry CURRENTLY A SUSPENDED DOCUMENT- out for consultation [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2019/04/OD104-78BSA-Practice-Guidance-Behavioural-Observation-Audiometry-FINAL-Feb-2019.pdf

British Society of Audiology (BSA), (August 2018), Assessment Guidelines for the Distraction Test of Hearing [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2003/08/Practice-Guidance-Distraction-Test-for-Hearing-Final-copy-August-2018.pdf

British Society of Audiology (BSA), (January 2024), Recommended Procedure: Visual Reinforcement Audiometry for Infants [Accessed 27/02/2024] http://www.thebsa.org.uk/wp-content/uploads/2024/01/OD104-37-BSA-RP-Visual-Reinforcement-Audiometry-v2.pdf

British Society of Audiology (BSA), (September 2018), Pure-tone air-conduction and bone-conduction threshold audiometry with and without masking [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2018/11/Recommended-Procedure-Pure-Tone-Audiometry-August-2018-FINAL.pdf

British Society of Audiology (BSA), (Feb 2022), Ear examination [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2022/02/OD104-54-BSA-Recommended-Procedure-Ear-Examiniation-February-2022.pdf

British Society of Audiology (BSA), (February 2013), Recommended procedure for taking an aural impression [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2014/04/Impression-Taking-1.pdf

British Society of Audiology (BSA), (Dec 21) Recommended Procedure (Supplement) Taking an aural impression: children under 5 years of age [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2022/01/OD104-97-BSA-Recommended-Procedure-Aural-Impression-taking-children-under-5-years-Final.pdf

BRITISH SOCIETY OF AUDIOLOGY (2024), Recommended Procedure: Tympanometry and Acoustic Reflex Thresholds. [Online]. Available from: OD104-35-BSA-Recommended-Procedure-Tympanometry-and-ART.pdf (thebsa.org.uk) [Accessed 12/09/2024]

BRITISH ACADEMY OF AUDIOLOGY & BRITISH SOCIETY OF AUDIOLOGY (2024), Paediatric Audiology Minimum Discharge Criteria [Accessed 15/10/2024] Minimum-Discharge-Guidance-August-2024.pdf (baaudiology.org)

Worcestershire Acute Hospitals NHS Trust WAHT-CG-008 Patient Safety Incident Reporting Policy v10. Intranet The Source - Home (sharepoint.com) Policies and Guidelines

BRITISH SOCIETY OF AUDIOLOGY (2019), Position Statement and Practice Guidance Audiological Assessment and Hearing Aid Provision for patients with a programmable ventriculoperitoneal (PVP) shunt. [Online]. [Accessed 19/5/2022] https://www.thebsa.org.uk/wp-content/uploads/2021/04/OD104-94-BSA-Position-Statement-on-Programmable-VP-Shunts-12.03.2021.pdf

Contribution List

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation
Edward Southan - Principal Audiologist/ Interim County Manager
Kim Doughty - Principal Audiologist
Abigail Clevely - Principal Audiologist
Claire Carwardine - Principal Audiologist
Lesley Peplow

This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
Audiology Governance
ENT Governance

Supporting Document 1 - Equality Impact Assessment Tool

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP	✓	Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust		Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust	✓	Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	**Edward Southan**

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	Jessica Scully	Paediatric Manager	**jessicascully@nhs.net**
	Lesley Peplow	Audiology Service Improvement Lead	**Lesley.peplow@nhs.net**
Date assessment completed	**24.10.2024**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title:** Clinical Guidelines for Paediatric Diagnostic Assessments excluding Electrodiagnostic Assessments
What is the aim, purpose and/or intended outcomes of this Activity?	• To improve health outcomes for children with potential hearing issues. • To identify those children who have a Permanent Childhood Hearing Impairment (PCHI) that were not picked up through the New-born Hearing Screen Programme and provide the correct management plan to ensure a good outcome. • To ensure that children are seen within a maximum of 6 weeks from referral to diagnostic assessment. • To ensure that children who have chronic Glue Ear are reviewed in line with NICE guidance on watchful waits.

	• To refer patients to an Ear, Nose and Throat Consultant, where clinically indicated. • To provide a guideline to staff undertaking assessments to ensure consistency between testers and across sites.			
Who will be affected by the development & implementation of this activity?	✓ ✓ ✓ ✓	Service User Patient Carers Visitors	✓ ❑ ❑ ❑	Staff Communities Other _____
Is this:	✓ Review of an existing activity ❑ New activity ❑ Planning to withdraw or reduce a service, activity or presence?			
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	Following a significant clinical incident within paediatric audiology, major service improvements are underway. Documentation including Guidance follows best practice from several sources – British Society of Audiology Recommended Procedures, British Academy of Audiology Paediatric Quality Audit Tool have been reviewed along with other service guidelines, notably Wolverhampton and Nottingham as exemplars of good practice in UKAS IQIPS accredited sites.			
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Guidance follows best practice from several sources – British Society of Audiology Recommended Procedures, British Academy of Audiology Paediatric Quality Audit Tool.			
Summary of relevant findings	Improvements to documentation of procedural guidelines in a structured format are necessary.			

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		✓		Impacts only on the age group included within the document.
Disability		✓		No impact.
Gender Reassignment		✓		No impact.
Marriage & Civil Partnerships		✓		No impact.
Pregnancy & Maternity		✓		No impact.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Race including Traveling Communities		✓		No impact.
Religion & Belief		✓		No impact.
Sex		✓		No impact.
Sexual Orientation		✓		No impact.
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)		✓		No impact.
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		✓		No impact.

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	No Negative risks identified	.		
How will you monitor these actions?				
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	**In 3 years when document has major review.**			

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	Jessica Scully
Date signed	24.10.2024
Comments:	
Signature of person the Leader Person for this activity	Lesley Peplow
Date signed	24.10.2024
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments: Other comments: DMO1 target not currently being met and will remain an issue for the foreseeable future. Staff need to have competency assessments on a regular basis and a Peer review framework is being developed. This will impact capacity but will help to ensure patient safety.	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval.