NEWBORN HEARING SCREENING

UPDATED GUIDELINES FOR SURVEILLANCE AND AUDIOLOGY REFERRAL OF INFANTS AND CHILDREN FOLLOWING NEWBORN HEARING SCREENING

(JULY 2012)
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**Acknowledgements:**

This document is based on the NHSP Guidance for surveillance and audiology referral of infants & children following the newborn hearing screen. Version 5.1, June 2012
1. **Introduction**

Since April 2005 Universal Newborn Hearing Screening (UNHS) has been implemented in all NHS Boards in Scotland. The aim of UNHS is the early identification of all children who have a significant permanent hearing loss in the neonatal period. However even with a sensitive screen and an efficiently organised programme some children with a hearing loss will miss the screen or follow up and some children will develop a hearing loss after obtaining satisfactory results on hearing screening. Furthermore UNHS will not identify the large number of children who go on to develop conductive hearing loss due to middle ear disease. Additionally there will be some children with a variety of conditions and developmental delay in whom hearing loss has to be excluded despite a previously satisfactory response on screening. It is therefore essential that all Health Boards ensure that systems are in place to identify and effectively manage these children.

This document highlights the need for ongoing hearing surveillance throughout childhood, outlines which children require more detailed follow up, how this should be done and by whom. It is based on the guidance developed by the Newborn Hearing Screening Programme in England: “Guidelines for surveillance and audiological referral of infants & children following the newborn hearing screen” (available on [http://hearing.screening.nhs.uk/](http://hearing.screening.nhs.uk/))

2. **On-going Surveillance for Hearing Loss**

It is essential that all professionals involved in the care of young children e.g. General Practitioners, Health Visitors, Public Health Practitioners speech and language therapists, community paediatricians, ENT surgeons, nursery and school staff etc, are aware of the possibility of hearing loss in children of any age despite a history of a satisfactory result on newborn hearing screening.

Parents must have access to and be reminded to use hearing checklists/questionnaires. Parents must also be informed about how to seek further help should they have concerns about their child’s hearing.

Late onset hearing losses may be progressive or acquired permanent losses, or more commonly intermittent conductive losses due to middle ear problems. Any suspicion of persisting hearing loss of any degree requires prompt referral for hearing assessment.

**Children whose newborn hearing screen indicates that there are clear responses to sound in both ears should not be subject to repeated screens, tests or follow up unless they meet one or more of the criteria specified in this document.** Professionals must however be aware of the need for ongoing surveillance and parents must be given appropriate checklists / questionnaires to refer to if they have any concerns.
3. **Categories of Babies and Recommended Follow Up**

**A. RELATED TO THE SCREEN**

3.1 **BABIES EXCLUDED FROM THE SCREEN – REFER TO AUDIOLOGY FOR ABR**

- **Microtia / External ear canal atresia** – where there is no patent ear canal in one or both ears. (These babies will always have a degree of hearing loss.)
- **Neonatal bacterial meningitis or meningococcal septicaemia** - Confirmed or strongly suspected bacterial meningitis (any organism), or meningococcal septicaemia. (The risk of sensorineural hearing loss in these babies is high.)

*Responsible for identifying child and referral to Audiology - Paediatrician*

*Responsible for arranging appointment and follow-up - Audiology (copy to newborn hearing screening manager)*

3.2 **BABIES MOVED INTO HEALTH BOARD AREA BEFORE 3 MONTHS OF AGE AND SCREENING NOT STARTED OR INCOMPLETE – SCREEN**

Programmes must have mechanisms in place to identify these babies and offer the screen. Child health and Health Visitors are the best source of information.

*Responsible for identifying child and alerting the Newborn hearing screening team – HV / Child Health Department / other local arrangement*

*Responsible for arranging newborn hearing screen appointment – Newborn Hearing Screening Manager*

3.3 **BABIES MOVED INTO HEALTH BOARD AREA AFTER 3 MONTHS OF AGE AND SCREENING NOT STARTED OR INCOMPLETE – REFER TO AUDIOLOGY**

These babies are not eligible for screening. The Health visitor should discuss the importance of good hearing for a child’s normal development and offer a referral to audiology for an age appropriate audiology assessment.

*Responsible for identifying child and alerting the Newborn hearing screening team – HV / Child Health Department / other local arrangement*

*Responsible for referral to Audiology – Health Visitor*

3.4 **REFERRED ON SCREEN BUT MISSED AUDIOLOGY FOLLOW UP – FOLLOW UP**

Audiology must make strenuous efforts to secure attendance of these babies for ABR or (if necessary) behavioural follow up including discussion with parents and liaison with the family health visitor and GP to facilitate attendance.
Audiology and screening teams should liaise closely about these children to ensure that audiology staff are aware of the likelihood of PCHI in this group. In the event of inability to secure attendance the HV and GP should be notified and advised about how to make a referral should the family indicate a willingness to attend in future. Completion of follow up for these children should be locally audited with responsibility for audit devolved to a named individual within screening or audiology.

**Responsible for identifying child (as not having attended) – Audiology**

**Responsible for arranging further appointment – Audiology.**

### 3.5 PASSED SCREEN OR AUDIOLOGY FOLLOW UP, BUT WITH SPECIFIC NEONATAL RISK FACTORS – TARGETED FOLLOW UP

These children to continue to be referred for targeted follow up for behavioural testing around 8 months.

- Syndromes associated with Hearing loss (including Down’s)
- Cranio-facial abnormalities including cleft palate (and excluding minor ear pits and tags)
- Confirmed congenital infection (toxoplasmosis, rubella or CMV)
- SCBU/NICU over 48hr with no clear response OAE both ears but clear responses on AABR (in Health Boards where OAEs are performed as part of the protocol in SCBU/NICU babies)

**Responsible for identifying child and notifying Newborn Hearing Screening Manager – Paediatric Services (with the exception of OAE Refer / AABR Pass who will be identified by the screening team)**

**Responsible for referring to Audiology – Newborn Hearing Screening Manager**

**Responsible for arranging appointment – Audiology.**

### B. REFERRAL ARRANGED LATER (NOT RELATED TO THE SCREEN)

#### 3.6 SPECIFIC RISK FACTOR OR CONCERN OCCURRING LATER (IRRESPECTIVE OF NEWBORN SCREEN RESULT) – REFER

Immediate referral should be made to Audiology for age appropriate assessment if there is

- parental or professional concern about a child’s hearing - Parental concern about an infant’s hearing, or development of auditory or vocal behaviour should always be taken seriously. All professionals who may be in contact with a child should always feel
able to refer to Audiology if there is parental concern, or if they themselves are concerned.

*Responsible for identifying/referral to Audiology - whichever professional discovers or becomes aware of concern (may be HV / GP / Paediatrician / Speech-Language Therapist)*

*Responsible for arranging appointment – Audiology*

- confirmed or strongly suspected bacterial meningitis or meningococcal septicaemia
- temporal bone fracture
- severe unconjugated hyperbilirubinaemia
  These conditions can cause hearing loss in a significant proportion of affected children.\(^{1}\)
  If they occur at any point in infancy or childhood after the screen, then immediate referral should be made to Audiology for an age-appropriate audiological assessment on recovery and within 4 weeks of discharge from hospital.

*Responsible for identifying child and referral to Audiology - Paediatrician*

*Responsible for arranging appointment and follow-up – Audiology*

### 3.7 OTOTOXIC DRUGS – REFER ONLY AT THE DISCRETION OF THE PAEDIATRICIAN

Various drugs are potentially ototoxic. The main group is aminoglycosides and these are very commonly used prophylactically in babies. Unless a baby is suspected or known to have the A1555G mitochondrial mutation (see below), the baby should be screened in the normal way and followed up if required as per standard screening protocol.

The responsibility for monitoring of children receiving ototoxic drugs and appropriate referral for audiological assessment lies with the Paediatrician and medical team. In deciding whether to make a referral for follow up beyond the screen one factor will be whether the monitored aminoglycoside levels have exceeded the therapeutic range: see also national guidance on use of gentamicin for neonates (NPSA 2010).

However, any baby that is suspected or known to have the A1555G mitochondrial mutation and has received aminoglycosides (irrespective of whether blood levels are within the therapeutic range) should be referred for immediate follow-up and audiological monitoring irrespective of screen outcome.

*Responsible for making the referral and communication with family - Paediatrician*

*Responsible for making appointment – Audiology*
4. **Main changes to previous practice**

4.1 Incomplete screens (missed appointments, declines) – routine referral for targeted follow up to cease for this group. Screening teams must make vigorous efforts to maximise newborn screen coverage by 3 months of age (rather than relying on targeted follow up). Programmes should consider the following mechanisms to maximise coverage: consideration of telephone/text/email reminders, outreach clinics, home visits, liaison with trust antenatal and newborn screening coordinators, midwifery and health visiting teams, contact with paediatric wards and intensive care units to identify readmitted unscreened babies. HVs and GPs must be informed of babies that have not completed screening. Screening teams will need to ensure that parents are provided with information about how to seek assessment in the event of future concern.

4.2 Cease routine referral for targeted follow up for babies that have a clear response on the screen with risk factors:

- family history of hearing loss,
- IPPV>5 days/ECMO,
- neuro-degenerative or neuro-developmental disorder,
- jaundice at or above exchange transfusion level.

(Note that targeted follow up for babies whose only risk factor is a stay of >48 hrs in NICU has never been recommended).