Brighton and Sussex University Hospitals NHS Trust

Newborn Hearing Screening Programme

NHSP Protocol: NS001

Date agreed: December 2019

Guideline Reviewer:	Dr. Rob Low
Version:	2
Approval Committee:	NHSP Services Safety and Quality Committee
Date agreed:	December 2019
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Cross reference:	MP069 Care of the Newborn immediately after birth

Contents

Key Principles:

- A protocol is a set of measurable, objective standards to determine a course of action. Professional judgement may be used in the application of a protocol.

Scope:

- This protocol applies to all babies born within BSUH maternity departments or home deliveries supported by BSUH. It includes babies born to parents living outside BSUH but who delivered whilst in an area supported by BSUH.
- These standards cover the screening journey up to and including the point of referral to audiology and entry into Audiological assessment.
- BSUH is responsible for obtaining informed consent from babies' parent(s) to permit inclusion of the baby within the NHSP screen.

1 Pathways

One of two protocols is delivered to every baby, subject to parental consent for inclusion

- Babies spending more than 48 hours on SCBU or NICU
- All other babies

- BSUH is financially responsible under national Maternity Pathway Payment rules for all babies born to residents of Brighton and Hove and surrounding areas delivered at Brighton & Sussex University Hospitals but can claim back from host residencies for any babies born in BSUH hospitals from out of area.
  NHSP has responsibility for implementing this policy. The service specification (No. 20) for the NHS providers is available as part of the public health functions exercised by NHS England https://www.england.nhs.uk/wp-content/uploads/2017/04/Gateway-ref-07841-180913-Service-specification-No.-20-NHS-Newborn-Hearing-Screening.pdf

- The effectiveness of the Newborn Hearing screen is assessed at a national level https://www.gov.uk/government/publications/newborn-hearing-screening-programme-quality-standards/newborn-hearing-screening-programme-standards-2018-to-2019 on the basis of two measured thresholds, approved by the UK NSC Data Analysts Quality Assurance (DAQA) group , these are

- The **acceptable** threshold is the lowest level of performance which programmes are expected to attain to ensure patient safety and programme effectiveness. All programmes are expected to exceed the acceptable threshold and to agree service improvement plans that develop performance towards an achievable level. Programmes not meeting the acceptable threshold are expected to implement recovery plans to ensure rapid and sustained improvement.

• The **achievable** threshold represents the level at which the programme is likely to be running optimally; screening programmes should aspire towards attaining and maintaining performance at this level.

2 Exclusions

Two types of standards are not included here:

2.1 Structural standards:
These describe the structure of the programme and must be fully met. Examples of structural standards are “provision of information to all participants” and “Providers will ensure that there are adequate numbers of appropriately trained

staff in place to deliver the screening programme in line with best practice guidelines and NHSP national policy." Structural standards are included in screening service specifications and monitored through commissioning and other quality assurance routes. The service specifications should be reviewed by providers and commissioners to ensure structural standards are met by all screening programmes.

2.2 Outcome standards:
Outcomes of the screening pathway are influenced by screening as well as factors beyond the screening programme. The NHSP national programme collects data and reports on outcomes including the number of cases of Permanent Childhood Hearing Impairment (PCHI) and the age at confirmation. Audiology services should record on the national software solution for newborn hearing screening the audiology follow-up data on babies that refer from the screen as well as any children with later identified PCHI.

Responsibilities

Midwives

- To provide antenatal information to all parent(s) regarding the NHSP process.

Newborn Hearing Screeners

- To access, read, understand and follow this guidance

Management Team

- To ensure the protocol is reviewed as required in line with Trust and national recommendations
- To ensure the protocol is accessible to all relevant staff
- To ensure the protocol is aligned with the national guidance on the delivery of Newborn Hearing Screening.
- To ensure the protocol and procedures are compliant with Caldicott guidance and information sharing governance

3 Newborn Hearing Screening Programme

3.1 The aim of the Newborn Hearing Screening Programme (NHSP) is to identify all newborn babies who have a moderate, severe or profound degree of Permanent Childhood Hearing Impairment.

3.2 The NHSP is delivered to all newborn babies by dedicated Newborn Hearing Screeners, provided that the babies' parent(s) have given verbal consent for inclusion in the Programme.

3.3 The Newborn Hearing Screening Programme was introduced in the UK in 2008.

3.4 The key details of Newborn Hearing Screening Programme are

- Each baby born within BSUH maternity units should be offered a 1st screen using Otoacoustic Emissions (OAE1) prior to discharge from maternity unless transferring to SCBU or NICU.
- If consent is declined then the parents receive a letter offering the screen any time up to 3 months of age should they change their mind. In addition the Hearing sounds checklists are given to the parents and they are encouraged to speak to their GP or HV if they develop any concerns.
- For those undergoing the screen the flow diagram summarises the remaining key details.
- Timing of first screen on maternity unit on day 3 or just prior to discharge, whichever occurs first.
- For births at home, the OAE1 is offered if baby attends the hospital or clinic for the Newborn and Infant Physical Examination (NIPE) clinic within 72 hours of birth. If NIPE is completed at home or if screening is not completed at the NIPE clinic then we would invite into clinic day 7-10 taking into account parental preference.
- For babies spending ≥ 48 hours within the SCBU or NICU then a combination of both OAE1 and Automated ABR (AABR) is delivered as a combination screen.
- This combination screen is timed to take place within 24 hours of discharge. This time is chosen to ensure that all treatment which might have ototoxic effect has been completed prior to screen.
- For babies who have just received an OAE1 screen on the maternity unit and a 'No Clear Response' is recorded for either ear, a second OAE screen is offered at outpatient clinic at approximately day 7-10. Out of area babies are transferred to responsible sites for follow-up. Occasionally OAE2 is performed on the ward at parents' request – allowing a minimum of 5 hours between AOAE1 and OAE 2.
- If the outcome for OAE2 is 'No Clear Response' for either ear then a third screen-Automated Auditory Brainstem Response (AABR)- is usually offered immediately following the OAE 2 or is provided no later than 28 days following expected date of delivery.

- Should the outcome of the AABR screen be 'No Clear Response' for either ear, or the OAE screen for babies on SCBU or NICU for > 48 hours, then a referral is made to the tertiary Audiology department at RSCH for diagnostic Audiology, FAO of Jennifer Lawrence (email audiology.bsuh@nhs.net).
- All screening outcomes are recorded in the Personal Child Health Record (PCHR) book using the dedicated NHSP carbonated slip and a copy for hospital records.

3.5 The entire screening process must complete within 4 weeks (or from expected date of delivery for NICU babies) unless there exist exceptional circumstances which can be reported, assuming parental consent.

3.6 At each stage of screening, the summary outcome must be contemporaneously recorded on the central database:- SMART for Hearing (https://nww.smsnhsp.nhs.uk/eSP/Index.aspx). Any changes in demography should be updated at this point also.

3.7 Babies screened by BSUH, but resident outside the BSUH area require an audit trail of transfer back to their host screening programme and their eSP (Smart for Hearing) record exported to that site.

3.8 On completion of the screen all parents are directed to the Hearing/Sound checklist in the Child Health Record Book. For all babies referred on for diagnostic audiology all parents are provided with a 'Your baby's visit to the Audiology Clinic' leaflet and the 'Brighton ABR letter', and also be provided with the audiology contact number 0300 3038360 Option 1.

4 Referral Criteria

4.1 Babies excluded from screen - Refer for ABR

4.1.1 Confirmed congenital cytomegalovirus (cCMV)
4.1.2 Microtia / external ear canal atresia
4.1.3 Neonatal bacterial meningitis or meningococcal septicaemia
4.1.4 Programmable ventriculo-peritoneal (PVP) shunt in place

4.2 The following must be adhered to for all referrals

4.3 Babies included in the screen

4.3.1 Referrals must be made electronically on the agreed referral form (Appendix A) within 72 hours to the RSCH Audiology Dept.
4.3.2 Referrals must be complete or they will be returned by the service provider

4.3.3 Only one referral can be sent in an email
4.3.4 The initials for the baby and DOB must be in the email Subject box
4.3.5 Record on the database that receipt of referral has been acknowledged

4.4 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**f** (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.
Responsibility for making the referral and communication with family - Paediatrician
Responsibility for making appointment – Audiology

5 Key Performance indicators

Key Performance Indicators (KPIs) are a subset of standards that are collated and usually reported quarterly (unless numbers are small, in which case aggregate data is reported annually) compared to annual reporting for standards. There are 2-3 KPIs per screening programme. The KPIs focus on areas of particular concern. Once a KPI consistently reaches the achievable level, the KPI will revert to being a standard and allow entry of another KPI to focus on additional areas of concern or a change to the threshold of the existing standard to promote continuous improvement. Standards 1 and 5 are the current NHSP KPIs https://www.gov.uk/government/publications/nhs-population-screening-reporting-data-definitions

5.1 Performance thresholds

Standard 1	**Coverage**	Acceptable: ≥ 98.0% Achievable: ≥ 99.5%
Standard 2	**Test Performance OAE1**	Acceptable: ≤ 27.0% Achievable: ≤ 22.0%
Standard 3	**Referral rate to diagnostic Audiology**	Acceptable: ≤ 3% Achievable: ≤ 2.0%
Standard 4	**Time from screening to diagnostic Audiology offer**	Acceptable: ≥ 97% Achievable: ≥ 99%
Standard 5	**Time from screening to diagnostic Audiology attendance**	Acceptable: ≥ 90 % Achievable: ≥ 95 %

5.2 Reporting

Standards will be reported annually unless they are also a key performance indicator in which case they are usually reported on quarterly and annual figures are aggregated. Performance reports are produced by NHSP using information from the national information solution. National reports are produced between two and three months after fiscal year (April-March) end with a submission deadline of 30 June.

6 Targeted Follow up

These following conditions in children trigger an automatic requirement to conduct a targeted follow up (behavioural testing around 8 months), or sooner if local protocol in place

6.1 Syndromes associated with Hearing loss (including Down's)
6.2 Cranio-facial abnormalities including cleft palate
6.3 Confirmed congenital infection (toxoplasmosis, rubella or CMV)
6.4 SCBU/NICU over 48hr with no clear response OAE both ears but clear response on AABR

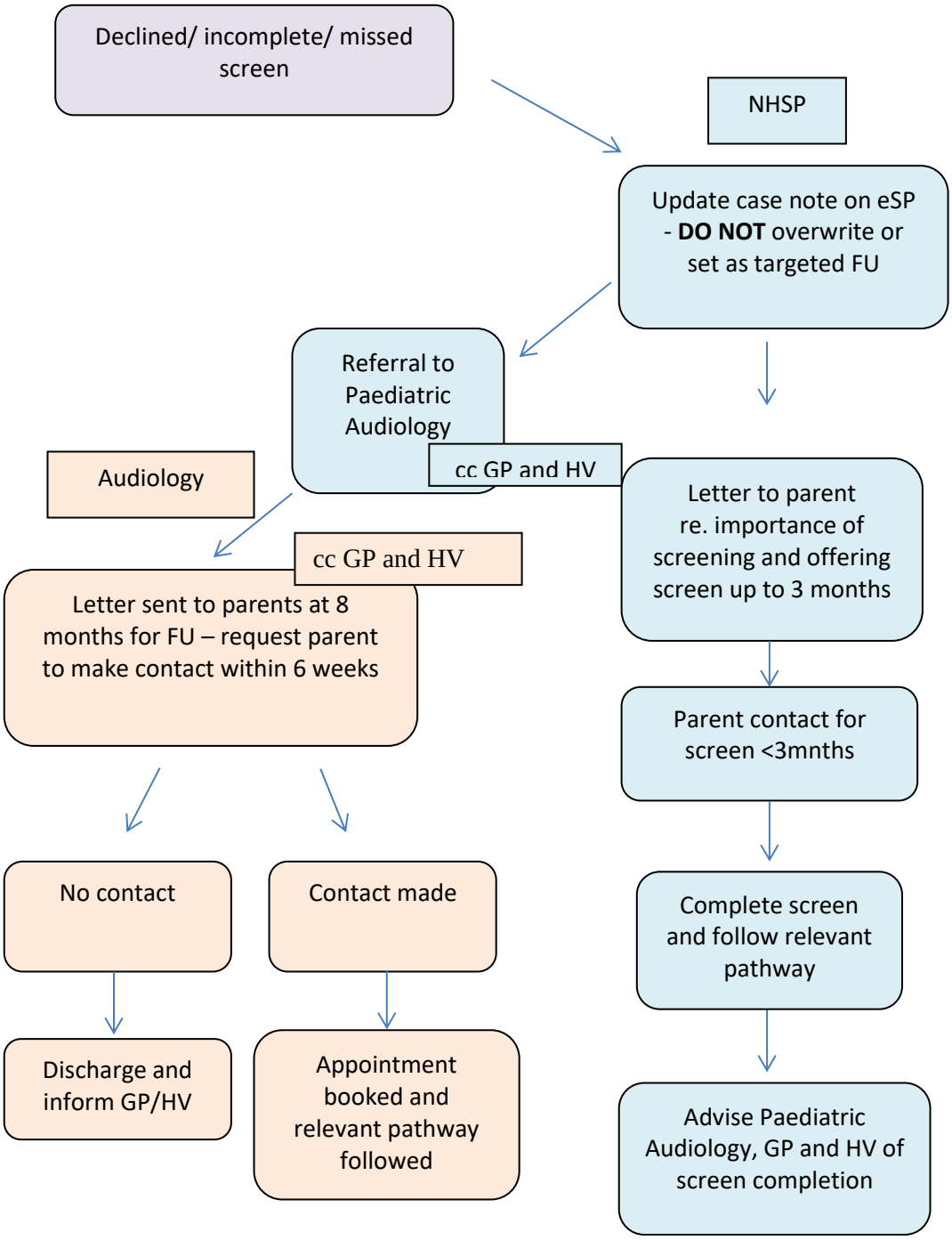
Note that although family history (of permanent SNHL from childhood in parents/siblings) has been removed as a risk factor requiring routine targeted follow up, any parent who still expresses concern about hearing, despite the screen, should always be directly referred to Audiology.

Responsible for identifying child– Screening team
Responsible for arranging appointment– Audiology.

7 Failsafe Procedures

NHSP Local Co-ordinator runs a monthly failsafe search on eSP (Smart for Hearing) and liaises with Community Child Health Information Service to identify babies under 1 year old who are born in/moved in/transferred in/moved out of the Brighton Hove and Mid-Sussex area who require screening, have outstanding follow-up appointments or PCHI and follows up as required.

Process for babies at behavioural testing age without full screen results



Brighton & Sussex University Hospitals

Newborn Hearing Screening – Well Baby Pathway – Babies born at BSUH hospitals