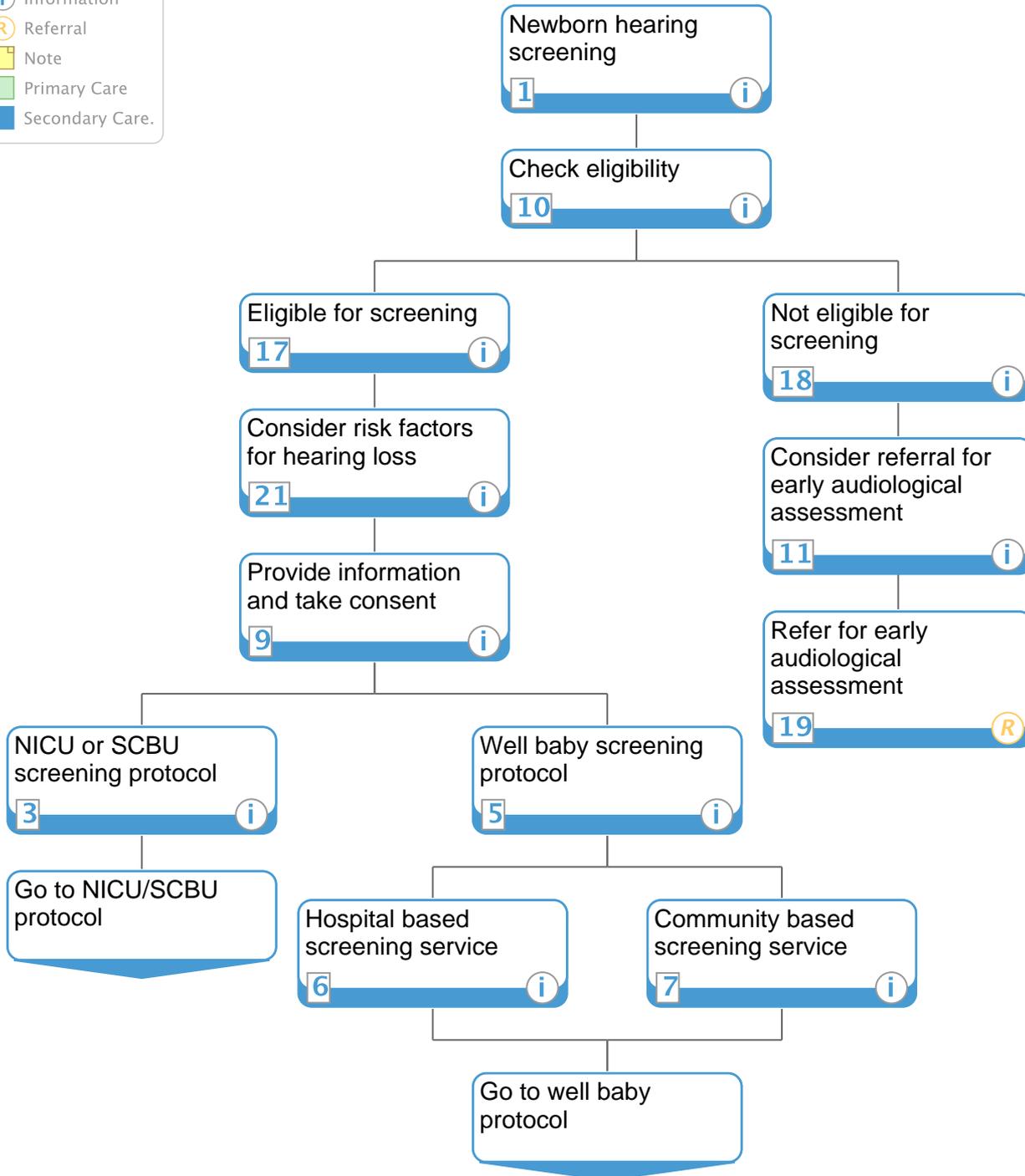


i Information
R Referral
 Note
 Primary Care
 Secondary Care.



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Newborn hearing screening

Paediatrics > Screening > Newborn hearing screening

1 Newborn hearing screening

Quick info:

Scope:

- this pathway covers screening for hearing impairment in newborn babies
- the target condition for the screen is bilateral, permanent hearing impairment (sensorineural or permanent conductive) averaging more than 40dB in the better ear
- this pathway summarises guidelines developed by the NHS Newborn Hearing Screening Programme (NHSP) in England; more information about NHSP and supporting materials for these pathways can be found on the NHSP website (www.nhsp.info)
- screening may be attempted up to 3 months corrected age (corrected age is the age a premature baby would be if born on their due date)
- those older than age 3 months (corrected age) should be considered for referral to audiology at an appropriate age

Protocol:

- a multistage screening protocol is used, with two types of test:
 - automated oto-acoustic emission (AOAE)
 - automated auditory brainstem response (AABR)
- there are two versions of the protocol:
 - one for well babies and the other for babies who have been in a neonatal intensive care unit (NICU) or special care baby unit (SCBU)
 - the protocols are different due to NICU or SCBU babies having a higher risk of auditory neuropathy or auditory dysynchrony or other neurological problems that are more likely to be picked up by AABR rather than AOAE testing
- NHSP uses the terms 'clear response' and 'no clear response' rather than 'pass' and 'fail' as these are more family friendly

Prevalence:

- the estimated prevalence of moderate, severe or profound bilateral permanent hearing loss is:
 - 1-2 per 1000 (babies in a well baby nursery)
 - increased in those with risk factors for hearing loss
 - 10-20 times higher in the NICU or SCBU population (1-2 per 100 newborns in NICU or SCBU)

Prognosis:

- universal newborn hearing screening results in earlier diagnosis and treatment of hearing loss; this leads to better outcomes for children and their families in terms of speech, language and social development

References:

Davis A, Bamford J, Wilson I. A critical review of the role of neonatal hearing screening in the detection of congenital hearing impairment. *Health Technology Assessment Review* 1997; 1 (10).

Kennedy CR. Language Ability after Early Detection of Permanent Childhood Hearing Impairment. *The New England journal of medicine* 2006; 354(20): 2131.

3 NICU or SCBU screening protocol

Quick info:

Criteria:

- all babies resident in the NICU or SCBU for more than 48 hours continuously should be screened using the NICU/SCBU protocol
- those in 'transitional care' admitted to the NICU for less than 48 hours should follow the well baby protocol

Timing:

- ideally complete screening as close to discharge as possible while the baby is in hospital
- wherever possible, the baby should be well and any major medical or drug treatment completed
- if the process is not completed in hospital, an outpatient appointment or home visit is required to complete the process, usually within one visit
- aim to complete screening by gestational age 44 weeks
- screening should not be performed on babies at less than gestational age 34 weeks

5 Well baby screening protocol

Quick info:

Well baby screening protocol:

- all babies who do not fall into the NICU or SCBU screening protocol criteria should be screened using the well baby protocol, ie. all babies not resident in the NICU or SCBU for more than 48 hours continuously

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Newborn hearing screening

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- there are two models of the screening protocol:
 - hospital based services
 - community based services

6 Hospital based screening service

Quick info:

Timing of hospital based screening:

- ideally complete screening prior to discharge from hospital
- if the process is not completed in hospital, an outpatient appointment or home visit is required to complete the process, usually within one visit
- aim to complete screening by age 4 weeks
- screening should not be performed on babies at less than gestational age 34 weeks

7 Community based screening service

Quick info:

Timing of community based screening:

- the first screening test usually takes place at the primary health visitor birth visit at approximately age 10 days
- any subsequent testing required should be completed by age 5 weeks

9 Provide information and take consent

Quick info:

Provide information:

- parent(s) or guardians should be given the explanatory well baby screen or NICU or SCBU screen leaflet and verbal information about the screen
- parents should already have been given a leaflet antenatally

Take consent:

- obtain informed written consent (or decline) and file this in the baby's notes
- this should be performed by the screener or trained individual
- arrange a suitable time for screening – best practice is for parents to be present while screening takes place
- guidance on the consent process can be found on the NHSP website

10 Check eligibility

Quick info:

Babies with the following adverse conditions are at very high risk of hearing impairment:

- atresia or microtia (grossly abnormal or absent pinna) – these provide unequivocal evidence of hearing loss of some degree
- meningitis (confirmed or suspected) – 1 in 10 patients develop sensorineural hearing loss (SNHL) as a sequela

Babies with these conditions are ineligible for screening and should be referred directly for early audiological assessment by the treating paediatrician.

11 Consider referral for early audiological assessment

Quick info:

- referral should be made immediately
- aim to start the assessment process within 4 weeks of screen completion
- the assessment care pathway is detailed in the MRC Hearing and Communication Group website
- the assessment will generally include auditory brainstem response (ABR) and should be at the specialist centre where there are

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Newborn hearing screening

Paediatrics > Screening > Newborn hearing screening

full audiology facilities, not at 'tier 2' or intermediate or community audiology clinics

21 Consider risk factors for hearing loss

Quick info:

- some risk factors are high risk for hearing loss but not so high as to affect performance of the screen – for these the screen should be carried out as normal
- some factors appear to be risks for late onset or progressive deafness – for these the surveillance guidelines recommend follow-up in audiology at age 7-12 months even if the screen is clear
- in some cases the paediatrician may decide to refer for earlier assessment
- information on risk factors can be found on the NHSP website at hearing.screening.nhs.uk/surveillance

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Newborn hearing screening

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Key Dates

Due for review: 31-Aug-2008

Locally reviewed: 28-Feb-2007, by preview

Updated: 28-Feb-2007

Accreditations

This page is accredited by:



NHS National Library for Health:

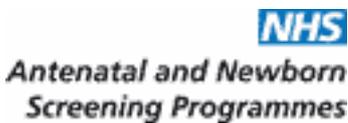
Accreditation attained: 28-Feb-2007

Due for review: 31-Aug-2008

[Disclaimer](#)

Certifications

The evidence for this pathway is certified by:



NHS Antenatal and Newborn Screening Programmes:

Certification attained: 28-Feb-2007

Due for review: 31-Aug-2008

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Evidence summary for Newborn hearing screening

The Do Once and Share Project (part of the National Programme for IT for the NHS) commissioned the MRC Hearing and Communication Group of the University of Manchester to develop care pathways based on the Newborn Hearing screening programme (NHSP) protocols in England. These protocols were implemented across the whole of England between 2000 and 2005 and were based on the recommendations of the Health Technology Assessment Critical Review (1997). Further pathways for early audiological assessment following screening and for ongoing care and habilitation of the child identified as having permanent hearing impairment were also developed under the Do Once and Share project, but have not yet been translated into the Map of Medicine format. Where available, links have been provided to information resources developed by the NHSP.

Search date: Feb-2007

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Ungraded, non-intervention node

Evidence grading:

Graded node titles that appear on this page

Newborn hearing screening

Evidence grade



Reference IDs

1, 2

References

This is a list of all the references that have passed critical appraisal for use in the pathway Newborn hearing screening

ID Reference

- 1 Davis A, Bamford J, Wilson I et al. A critical review of the role of neonatal hearing screening in the detection of congenital hearing impairment. *Health Technol Assess* 1997; 1: i-176. [PM:9483157](#)
- 2 Kennedy CR, McCann DC, Campbell MJ et al. Language ability after early detection of permanent childhood hearing impairment. *N Engl J Med* 2006; 354: 2131-2141. [PM:16707750](#)

Disclaimers

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NHS Antenatal and Newborn Screening Programmes

This Evidence Summary was prepared by systematically reviewing published research and guidelines relevant to the topics covered. The University of Manchester does not independently verify the accuracy of the published research or guidelines and accepts no liability for loss or damage arising from errors or omissions in this Evidence Summary, the Pathways covered by it or the research referred to in it.

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