

Principles of external ABR peer review

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Date: 11/07/14

Background

The Newborn Hearing Screening Programme (NHSP) in England has long recommended a system of peer review of ABR testing¹ as a means of reducing the risk of incorrect assessment following newborn hearing screening. In this context peer review is the process by which a clinician with clinical skills in ABR reviews the traces and outcomes of an ABR assessment. Incorrect assessments have been identified by the NHSP Quality Assurance Programme resulting in the suspension of services, large look-back exercises and recall of patients whose assessments have been unsafe². The Newborn Hearing Screening Programme in Wales (NBHSW) has a long established system of systematic external review for all screen referrals³. The Newborn Hearing Screening Programme Centre (England) was instrumental in piloting a systematic review process in two regions in England. This pilot demonstrated an improvement in performance of ABR assessments in both areas and was received favourably by participating clinicians⁴. In the East of England, external funding was provided to develop a bespoke software application (System for Online Newborn ABR Review-SONAR) and embed the process of systematic external peer review in clinical practices⁵. Currently review groups exist in many parts of England but often operate on an informal rather than a systematic basis. In response to requests from the paediatric audiology community in 2013, members of the NHSP Clinical Advisory Group produced the following information about the principles of external peer review.

Aims of peer review

1. To ensure the accuracy of ABR measurements undertaken on babies referred from the newborn hearing screening programmes specifically to ensure:
 - Safe discharge for babies with satisfactory hearing
 - Comprehensive, reliable and accurate assessment of babies with hearing impairment upon which further management can be safely based
2. To develop and improve the quality of paediatric ABR assessment and interpretation of ABR results nationally
3. To facilitate the exchange of knowledge and best practice and encourage productive networking in order to foster developments in quality.
4. To provide feedback to shape the development of improved guidelines and protocols eg where ambiguities are identified in the interpretation of guidance.

Scope of peer review

Peer review should include the following:-

- Technical performance and interpretation of tests
- Test strategy e.g. stimulus level step size, use of bone conduction, masking when appropriate, use of cochlear microphonic test
- Case management

Key Principles

This document is concerned with key principles of an external ABR peer review system. This assumes that within any provider department that carries out ABR there are good documented clinical governance arrangements including training and supervision of staff that carry out this work, internal peer review, sufficient cases per clinician to ensure maintenance of skills and competency and arrangements to seek external advice when required.

External peer review should be organised between a collaborative group of provider departments willing to peer review each other's work. The number of departments involved in each collaboration should be such that there are sufficient testers that are capable and willing to be trained as reviewers but not so many that the organisation of the review process becomes unwieldy.

Key principles of a review system are discussed below:-

1. Systematic selection of cases for review

The preferred option is for all ABR measurements on newborns to be submitted for peer review. If this is not possible due to time constraints the selection of a subset of cases for peer review must be based on explicit criteria to eliminate selection bias on the part of the tester. If it is necessary to review only a subset of all cases, they should be selected for review in a systematic way and the following order until a sufficient number of cases is attained:

- All bilateral referrals regardless of ABR outcome
- Unilateral referrals that are not discharged after the first ABR
- Other unilateral referrals

Numbers of cases will vary depending on the refer rate of the screening programmes involved (community based programmes tend to have lower refer rates than hospital based programmes), the size of the audiology department/ population served, diagnostic process (some departments use TEOAEs as an initial diagnostic test for well babies thus reducing the number of ABRs) Where the review process does not include all cases, selection should ensure that a minimum number of cases for each individual tester is included in the review process.

2. Reviewer selection

Reviewer selection criteria must be explicit. All experienced and practising testers are candidates to become reviewers. Selection criteria must be agreed by the group. As a minimum any reviewer should be a registered professional who participates in CPD related to electrophysiological assessment. There needs to be a sufficient number of reviewers to ensure cover for sickness and annual leave but not so many that reviewers do not review a sufficient number of cases to maintain competence and experience. A suggested number of cases reviewed by each reviewer are 2 per month.

3. Reviewer training

Reviewers must be trained and assessed to assure that all reach an acceptable standard of competence in the reviewing process. This may be achieved by a programme of training and a demonstration of competence in the review of discharge and non-discharge cases. A useful

criterion is the ability to correctly review and identify all salient issues in five discharge and five non-discharge cases where the cases have been selected to include challenging issues including masking and cochlear microphonic testing. This process of reviewer accreditation is best devolved to an external expert outside the review group as suggested below.

4. Reviewer moderation

Reviewer performance must be moderated at 2-3 year intervals by an independent expert. This enables assurance of reviewers' on-going performance. Reviewers who do not meet or maintain a high standard of reviewing will need to be retrained or discontinued.

5. Evaluation of outcomes

The group should produce an annual report that includes an assessment of the activity and outcomes and includes the following:-

- Departments and testers involved and their engagement
- Number of cases submitted and reviewed –by department and tester
- Improvement indicators by department and tester
- Number of cases with satisfactory reviews-by department and tester
- Number of recalls
- Outcome of reviewer moderation exercise
- Timeliness of the review process
- User evaluation

An example is available at

<http://www.wales.nhs.uk/sitesplus/documents/980/Report%20on%20Peer%20Reviewer%20Audit%202012-13.pdf>

6. Time scale for the review process.

A quick turnaround for reviews is needed, particularly if the aim of the review is to inform the on-going test strategy for individual cases. An acceptable standard is for 95% of reviews to be carried out within seven days of the test.

Process issues

There are a number of process issues that need to be considered and agreed by the collaborating groups. These are discussed briefly below.

1. The group will need one member to act as a coordinator to oversee activity and take responsibility for an annual report available for all stakeholders in the process. The time involved is not trivial. This role can be rotated.

2. The group will need access to an external expert for reviewer moderation, arbitration and advice in difficult or borderline decisions.
3. Results from each test session should be reviewed ideally within 7 days and no more than 14 days of the test, rather than at the conclusion of all tests. This allows the reviewer's comments to inform test strategy of subsequent sessions for a given baby. In multi-session tests on a baby the tester should send the results of all sessions to the same reviewer to ensure continuity of advice.
4. There should be an agreed process to resolve disagreement between tester and reviewer. This should involve the local coordinator who may involve the external expert if required.
5. It is preferable, but not essential, that the tester ID is anonymised during the review. The advantage of such anonymisation is that the reviewer does not feel inhibited particularly if the tester is more senior or is regarded locally as an "ABR expert". The disadvantages are (i) in a paper based system this adds enormously to the complexity of the administration as all reviews have to be submitted via a third party to maintain the anonymisation and (ii) it does not facilitate constructive discussion and feedback between reviewer and tester. Online systems that can initially present the results with the tester ID anonymised and then reveal it after the review is completed offer the best option.
6. Reviewer rotation can be complex but is necessary to maintain the independence and robustness of the procedure. Most groups opt to pair a tester or test centre with a reviewer for a period of time (say 3-6 months) and then rotate.
7. There needs to be sufficient reviewers to cover sickness and annual leave.
8. Regular (typically 6 monthly) meetings of all included groups are helpful in building trust, sharing expertise, refining the process, maintaining ownership and generally maintaining enthusiasm and commitment to the process. In some groups this collaboration has led to an extension into other areas of paediatric audiology e.g. hearing aid fitting, behavioural assessment. Such meetings are not designed to review cases, except as examples which might lead to a change in procedure for the group
9. Clinical accountability needs to be clarified. It is generally accepted that advice and guidance is provided in good faith but that clinical accountability rests with the clinician and organisation managing the patient.
10. Parents of babies who are having an ABR should be informed that the department is part of a review process. This is not generally a problem and parents usually find this reassuring.
11. Service commissioners should note that peer review scheme complying with the provisions of this document should feature in any commissioned service. Departments may need to flag the peer review system up with service commissioners as an area of good practice and one which ultimately should be written into service specifications as a requirement.
12. Information governance re exchange of patient information

The elements of the peer review process, covering these points (above) should be set out in a peer review process document that is subject to regular review by participants. An example is available at:

<http://www.wales.nhs.uk/sitesplus/documents/980/Peer%20Review%20Summary%20Document.pdf>

Reference documents and tools

A standard ABR review form (excel spread sheet) devised by the NHSP Programme Centre is available at <http://hearing.screening.nhs.uk/audiology>

^aThis model is generally favoured by clinicians. An alternative model is that all test sessions for a given baby are reviewed on completion of testing. This reduces the scope for the peer review to inform the clinician's management of the individual case.

An example of a standard generic peer review process based on the South London model is available at <http://hearing.screening.nhs.uk/audiology>

Reviewer accreditation is available from ERA Training & Consultancy Ltd

(www.abrpeerreview.co.uk). Similar services may in future be developed by other providers.

References

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3. Ensuring quality of audiological assessments. Dodd M et al. Newborn Hearing Screening Conference, Como, Italy 2008.
4. Sutton G, Wood S. Improving the quality of Newborn ABRs: Report on NHSP ABR quality improvement pilots in East of England & Greater Manchester 2009-11. Newborn Hearing Screening Programme Centre (England) September 2011. <http://hearing.screening.nhs.uk/audiology>
5. Fitzgerald J. Neonatal ABR peer review: a regional approach. ENT and Audiology News 22 no 4 96-100. October 2013.