

## iCAHE JC Critical Appraisal Summary

### Journal Club Details

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|----------------------------------|-----------------------------------|
| <b>Journal club location:</b>    | Women & Children's Health Network |
| <b>Journal club Facilitator:</b> | Lisa C                            |
| <b>Journal club Discipline:</b>  | Audiology                         |

### Clinical Scenario

Article provided by journal club.

### Article/Paper

Akinpelu O, Peleva E, Funnell R, and Daniel S (2014) Otoacoustic emissions in newborn hearing screening: A systematic review of the effects of different protocols on test outcomes, *International Journal of Pediatric Otorhinolaryngology*, 78; 711-717.

*Please note: due to copyright regulations CAHE is unable to supply a copy of the critically appraised paper/article. If you are an employee of the South Australian government you can obtain a copy of articles from the [DOHSA librarian](#).*

**Article Methodology:** Systematic Review

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| Ques No. | Yes | Can't Tell | No | Comments  |
|----------|-----|------------|----|---|
| 1        | ✓   |            |    | <p><b>Did the review address a clearly focused question?</b></p> <p>Yes – The review question addresses all components of PICO:</p> <p>The main objective of this review is to determine the effects of different screening protocols on the referral rates and positive predictive values (PPV) of the OAE newborn screening test.</p> <p>P – Newborns</p> <p>I – Screening Protocols</p> <p>C – Effects of screening protocols</p> <p>O – referral rates and positive predictive values</p>   |
| 2        | ✓   |            |    | <p><b>Did the authors look for the appropriate sort of papers?</b></p> <p><b>Is it worth continuing?</b></p> <p>Yes – a comprehensive search of 6 relevant databases (Medline, Medline In-Process, Embase, Pubmed (NCBI), ISI web of science, and Cochrane central register of clinical trials) was conducted. In the search were: medical subject headings, sub-headings and free-text words which encompassed words associated with newborns, hearing screening, otoacoustic emissions and auditory brainstem response.</p>   |
| 3        | ✓   |            |    | <p><b>Do you think the important, relevant studies were included?</b></p> <p>Yes – Inclusion criteria was strict and had to include healthy newborns who underwent hearing screening with OAEs, either transient evoked (TEOAEs) or distortion product (DPOAEs).</p> <p>Studies for inclusion also required the number of newborns screened, the age at which they were screened, the number that passed or failed the screen, and the number that were eventually diagnosed with PCHL. Also required were the pass criteria of the OAE instrument used for screening as well as the frequencies that were screened, and a description of the retest protocol if there was one.</p> <p>Relevant articles were independently screened by abstract by the first two authors of the paper.</p> |

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|   |   |   |   |
|---|---|---|---|
| 4 | ✓ |   | <p><b>Did the review's authors do enough to assess the quality of the included studies?</b></p> <p>Yes – The authors assessed the methodological quality and potential bias of included studies with a modified QUADAS (Quality Assessment of Diagnostic Accuracy Studies) tool. From this, the risk of bias was determined to be low if the objectives of the studies were clearly stated, the main outcomes described and the spectrum of participants were representative of term newborns with low risk for hearing loss. The risk of bias was determined as low if diagnostic ABR was the reference standard For the bias risk to be low, all newborns population or a random selection of newborns should have received the OAE test.</p> <p>QUADAS measures:<br/>         Population tested representative of general population<br/>         Acceptable standardized tool<br/>         Clearly described characteristics of the patients<br/>         Provision of estimates of random variability in the presented data<br/>         Descriptions of characteristics of patients lost to follow-up<br/>         Reference standard results blinded<br/>         Representative staff, places, and facilities<br/>         Representative test environment<br/>         Were un-interpretable results reported<br/>         Time between index test and reference standard<br/>         Clear definition of what was considered positive<br/>         Withdrawals<br/>         Partial verification avoided</p> |
| 5 |   | ✓ | <p><b>If the results of the review have been combined, was it reasonable to do so?</b></p>  |
| 6 |   |   | <p><b>What are the overall results of the reviews?</b></p> <p>Ten articles met the inclusion criteria, with a total of 119,714 newborn participants. The pooled referral rate was 5.5%. Individual referral rates ranged from 1.3% to 39%; the PPV from 2 to 40%. Increasing the age at initial screening and performing retests reduced the referral rate. Likewise, screenings involving higher frequencies had lower referral rates.</p>   |
| 7 | ✓ |   | <p><b>How precise are the results?</b></p> <p>No Standard Deviation or Confidence Intervals were reported.</p>  |

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|----|-------------------------|--|
| 8  | Journal Club to discuss | <p><b>Can the results be applied to the local population?</b></p> <p><i>Consider whether</i></p> <ul style="list-style-type: none"> <li>- the patients covered by the review could be sufficiently different to your population to cause concern</li> <li>- your local setting is likely to differ much from that of the review</li> </ul> |
| 9  |                         | <p><b>Were all important outcomes considered?</b></p>  |
| 10 |                         | <p><b>Are the benefits worth the harms and costs?</b></p>  |
| 10 |                         | <p><b>What do the study findings mean to practice (i.e. clinical practice, systems or processes)?</b></p>  |
| 11 |                         | <p><b>What are your next steps? (e.g. evaluate clinical practice against evidence-based recommendations; organise the next four journal club meetings around this topic to build the evidence base; organize training for staff, etc.)</b></p>   |
| 12 |                         | <p><b>What is required to implement these next steps?</b></p>  |

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