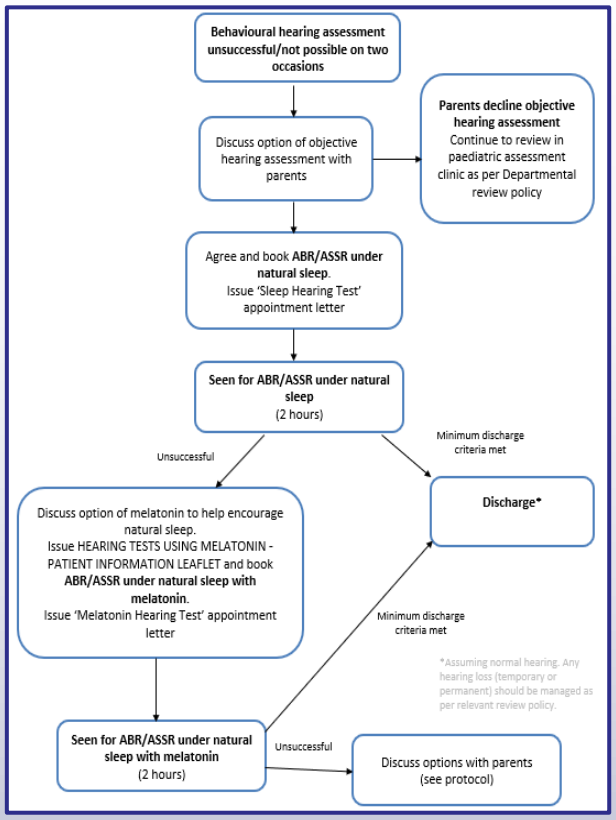
Melatonin-assisted Sleep Testing in Paediatric Audiology: Enhancing Diagnostic Success and Patient Experience

Jane Beavan, Vignapti Patel, Laura Pickering (Audiology, Countess of Chester Hospital)
✉ jane.beavan@nhs.net

NHS Countess of Chester Hospital NHS Foundation Trust

Background and Aim

Objective hearing assessment during natural sleep is an essential component of the paediatric audiology pathway when behavioural hearing tests are unsuccessful or unreliable. Achieving natural sleep for testing can be challenging in some children, potentially leading to delays in diagnosis and the need for assessment under sedation/general anaesthetic. Using melatonin can help a child to fall into a natural sleep. We aim to outline our current protocol for melatonin-assisted objective hearing testing and review outcomes from all melatonin sleep hearing assessments undertaken over the past two years.



Current Process for melatonin-assisted hearing testing

- Objective testing is offered where behavioural testing has been unsuccessful on two occasions.
- Objective testing under natural sleep is normally attempted in the first instance, though in some cases it may be agreed with parents to proceed straight to melatonin-assisted natural sleep.
- Melatonin prescription written by ENT and taken to hospital pharmacy in advance.
- Parents collect prescription on the day of the appointment and bring to Audiology.
- Each appointment is booked for 2 hours.
- Discharge criteria: minimum of 3 frequencies (inc 4kHz) at ≤20dBeHL on each ear, ckABR @65dBnHL performed in each ear first to exclude ANSD.

The following advice is provided to parents prior to the appointment to increase likelihood of natural sleep:

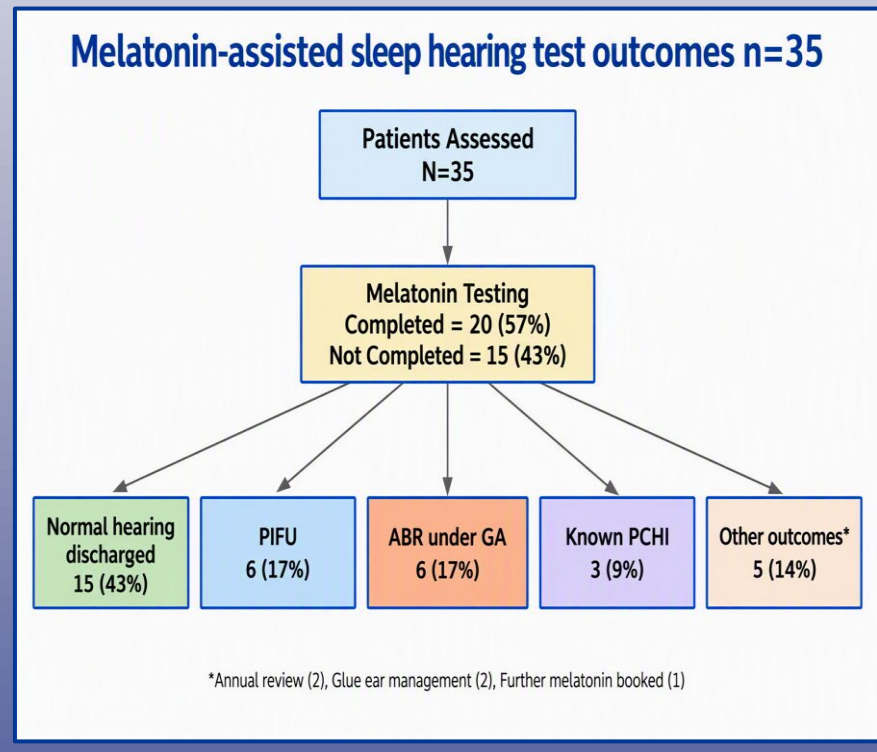
- We advise you to wake your child earlier than normal on the day of the test and to keep them very active.
- Bring your child to the appointment awake but very tired.
- Bring any items that your child associates with sleep, such as a drink, blanket, dummy, or teddy.
- It can be useful to bring your own pushchair, to provide a familiar place to sleep.

Methods

- We reviewed all patients seen for melatonin-assisted sleep hearing tests between 1st August 2024 and 31st July 2026.
- All ASSR assessments were completed using the Interacoustics Eclipse® 90Hz ASSR protocol with inserts/ headphones.
- Where BC was indicated, ABR testing was used.

Results

- **35 patients** were seen for a melatonin-assisted sleep hearing test - **25** of these patients had an unsuccessful sleep hearing test attempted prior to this
- **20/35 patients** did fall asleep with melatonin (57%)
- **15/35 patients were discharged** with normal hearing (43%)
- Parents of **6 patients** who could not be tested opted for no further testing and were discharged to a PIFU pathway
- **Age range** successfully tested 2 years to 8 years, mean age **3.8 years**



Conclusions

- Melatonin-assisted objective hearing testing is a valuable and family-centred option within paediatric audiology services.
- It can improve access to reliable hearing assessment, reduce reliance on testing under general anaesthetic, and support more efficient patient pathways.
- The outcomes presented highlight its effectiveness as an alternative assessment approach for selected children for whom natural sleep is more challenging to achieve.

References:

1. *British Society of Audiology Practice Guidance Auditory Steady State Response (ASSR) Testing Date: April 2022*
2. *British Academy of Audiology and British Society of Audiology Joint Document Paediatric Audiology Minimum Discharge Criteria (Aged 6 Months +) August 2024*