

## REASON WHY?

The current process for MRI scans in children aged 6 months to 4 years is to offer sedation or general anaesthesia for those that may have difficulty staying still during the procedure. There are a number of scans that fail and require repeating resulting in a waste of resources, time, and a duplication of work.



To reduce the percentage of failed scans by 10% by January 2026.

## PLAN

The team reviewed the current process and alternative processes in other areas. A suggestion was made to trial the use of melatonin.

Melatonin is sometimes used in children as an alternative to sedation or general anaesthesia for MRI scans, particularly for younger children who may have difficulty staying still during the procedure. It's a natural hormone that can help regulate sleep cycles and may encourage a child to sleep, making it easier to complete the scan. While it's not a sedative, it can help children relax and fall asleep, potentially improving scan quality and reducing the need for more invasive methods.

The plan was to trial melatonin.

## DO

Melatonin was trialed as a way to induce deep sleep to allow for paediatric patients to stay still while being scanned in MRI. This works best in an evening slot when children are sleep deprived during the day and likely to stay asleep. This is an alternative to sedation which is currently used and requires a bed, paediatric monitoring and recovery time with a 30% failure rate. Long wait time for sedated MRI slots >6 months currently.

Four patients were trialed using melatonin.

## STUDY

Three of the 4 patients were scanned successfully (25% failure rate- an improvement of 5%) using this innovation with diagnostic quality images without artefact. Reports issued within 24 hours.

What went well:

- Identified a possible solution to an ongoing problem on the Trust risk register
- Use of an established procedure already in use of paediatric EEG
- Worked collaboratively with paediatrics governance and play team
- Identified patients on the wait list who would be suitable (non complex clinical indication, less likely to require contrast, children likely to fall asleep with a bedtime routine) - this helped with a short notice cancellation so the slot could be easily filled.
- Patients attended CAU initially and were given melatonin and then brought around to MRI with a paediatric health assistant/play therapist.
- Patients had bedtime routine in MRI waiting area with lights switched off. This reduced movement of the patient once asleep to the scanner.
- Patients were able to go home immediately after the scan without need of a CAU bed.
- Explanation of procedure to parents resulted in less anxiety.

What didn't go so well/ key learning points: MRI machines are noisy! The one unsuccessful patient was a light sleeper and may not have been optimal. Noise cancelling MR compatible earphones in paediatric sizes have been ordered (awaiting finance clearance). Training of paediatric clinicians/ booking office staff to ensure the right patients are selected for the scan.

• Unfortunately having a single on site MR scanner at PRH, we don't have the luxury of allowing the child to fall asleep on the scanner bed as is done in other centres. Trained scheduling these cases as the last case of the day so the waiting room is empty to allow for a dark quiet space. Switching off the motion control lights during the bedtime routine - challenge to find the switches!

## ACT

Melatonin trial to be ADOPTED.

Working with radiology senior management to build in evening melatonin slots each week to reduce waiting list. Sedated slots can be then used for more complex cases.