

PLAYFUL MRI SIMULATOR REDUCES THE RATE OF GENERAL ANAESTHETIC IN CHILDREN UNDERGOING AN MRI: THE FIRST UK EXPERIENCE

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Objective: To decrease the rate of GA in MRI, for children aged 4-10 years old or older children with mild developmental delay.

Participants

Inclusion criteria

- 4-10yr olds with normal development
- Older children with mild developmental delay

Exclusion criteria

- Severe developmental delay
- Involuntary movement
- Scan involving invasive procedure. i.e. cardiac catheter procedure

Method:

- Patient spends 30 minutes with the play specialist, during a simulated MRI experience, prior to the real diagnostic MRI scan.
- The simulation experience was considered successful if the child was able to tolerate the MRI simulator for five continuous minutes.
- Based on the above the play specialist would assess whether the child could undergo the MRI scan without a general anaesthetic
- Image quality of the diagnostic scan was then assessed, by a radiographer and the radiologists report.

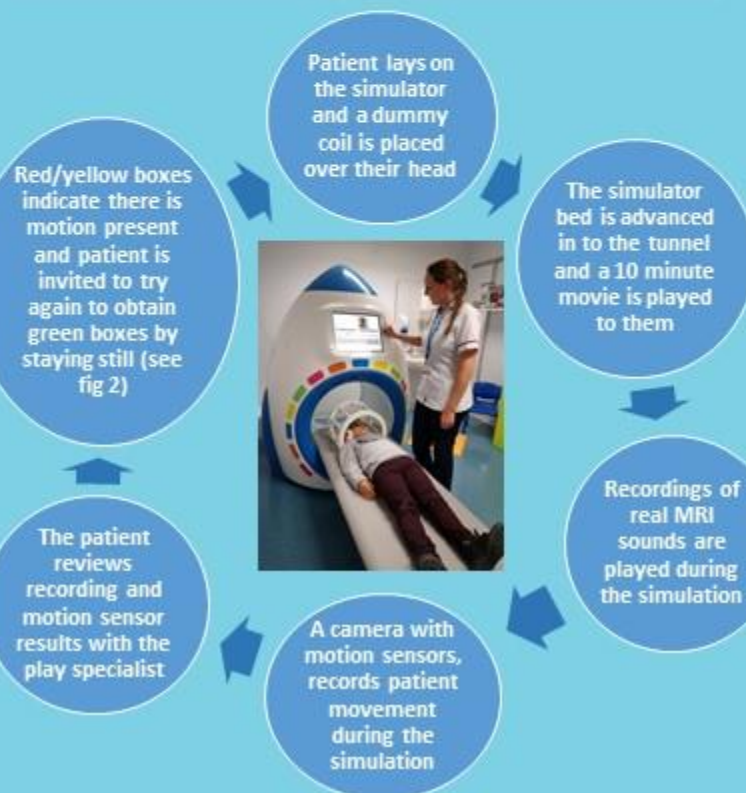


Figure 2-Motion sensor recordings

Results:

28 patients were prepared on the MRI simulator and scanned throughout January and February 2018. Of these 28 patients, 17 were being considered for an MRI scan under general anaesthetic.

	None to slight motion artefact on scans	Moderate motion artefact. Scans diagnostic	Severe motion artefact on scans
Number of patients	20	4	4
Recalled for repeat imaging under GA?	No	No	No

71.5% of patient who were prepared on the simulator had a successful scan with either minimal or no motion artefact on their images. 14% of patients had moderate movement on their scans and 14% of patients had severe motion artefact on their scans. None of the patients were re-called for further imaging and 17 general anaesthetics were avoided.

Conclusion:

The playful MRI simulator is the first of its kind in the UK and in just 2 months the results have proven very beneficial to both patients and general anaesthetic waiting list times. With the help of the play specialist preparing children beforehand, there has been a notable reduction in the amount of patients requiring a general anaesthetic. The simulator enables children to experience an MRI environment in a playful setting to prepare them for the diagnostic MRI scan. Results demonstrate the importance of the MRI simulator as 71.5% of patients had successful diagnostic MRI scans. Most importantly the patient experience is greatly improved, the simulator ensures patients can go home straight away and avoid the small risks associated with a general anaesthetic.