



VIRTUAL REALITY IN HEALTHCARE

Jonathan Ashmore

Clinical Scientist

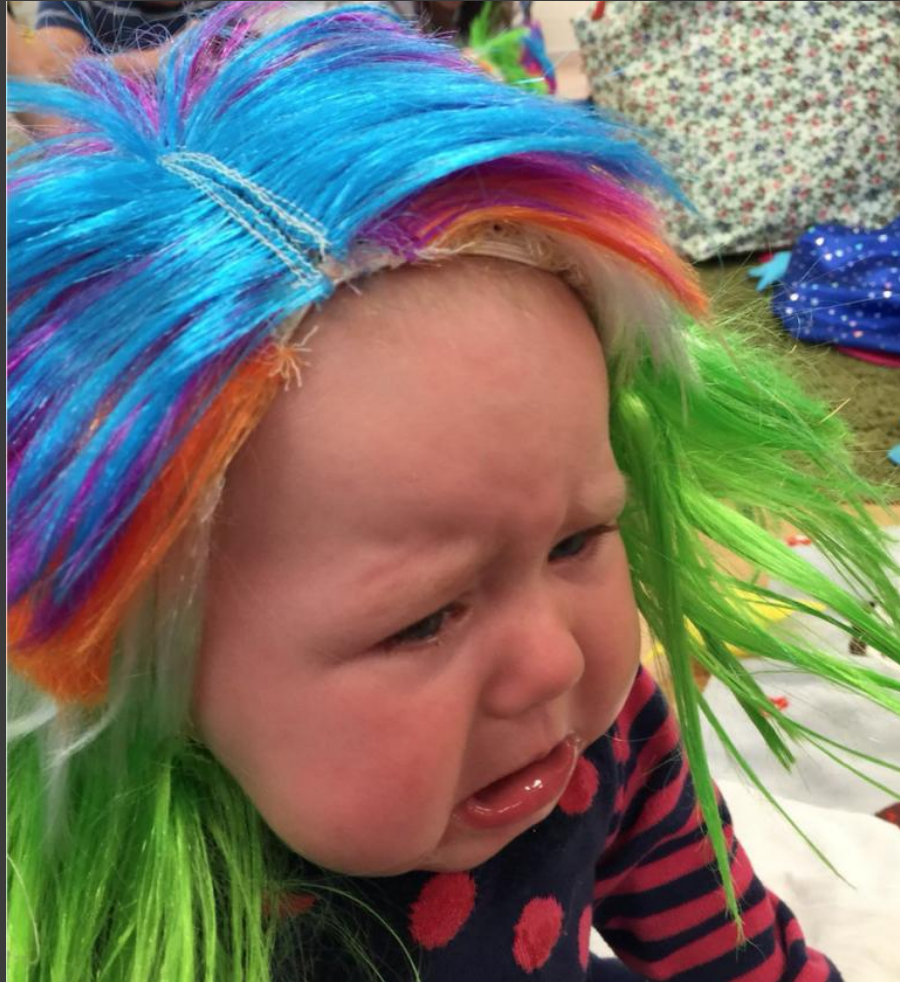
Department of Medical Physics and Bioengineering

NHS Highland

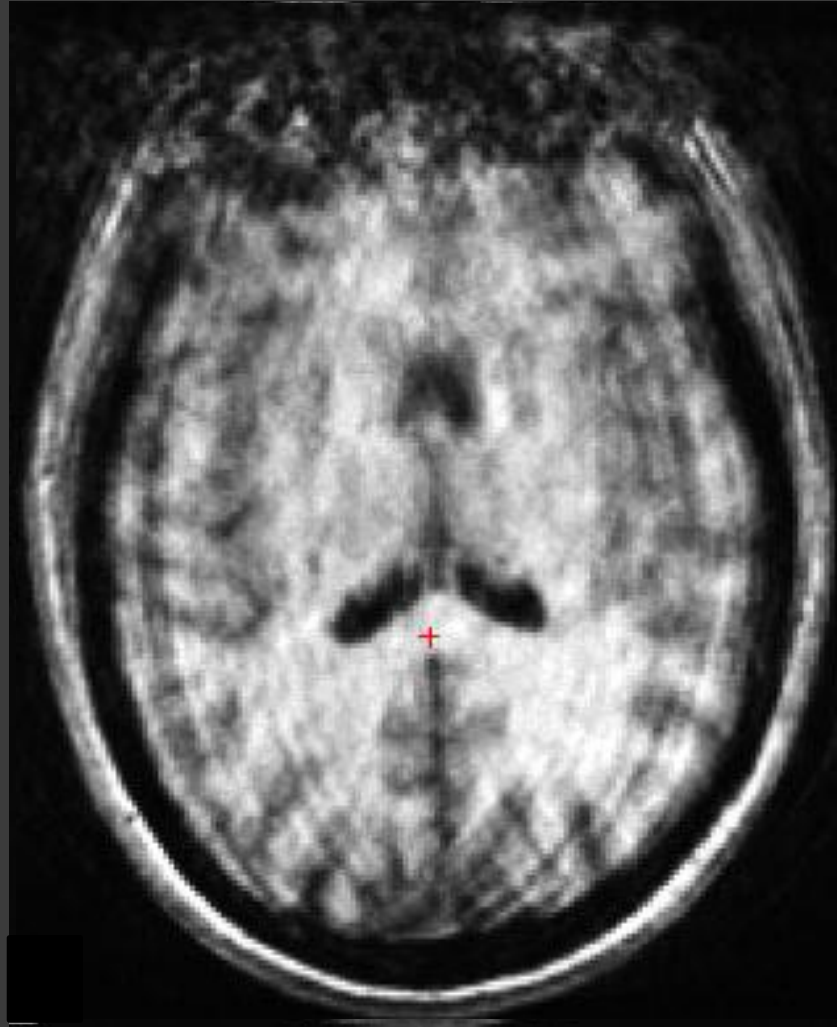
WHAT'S THIS?



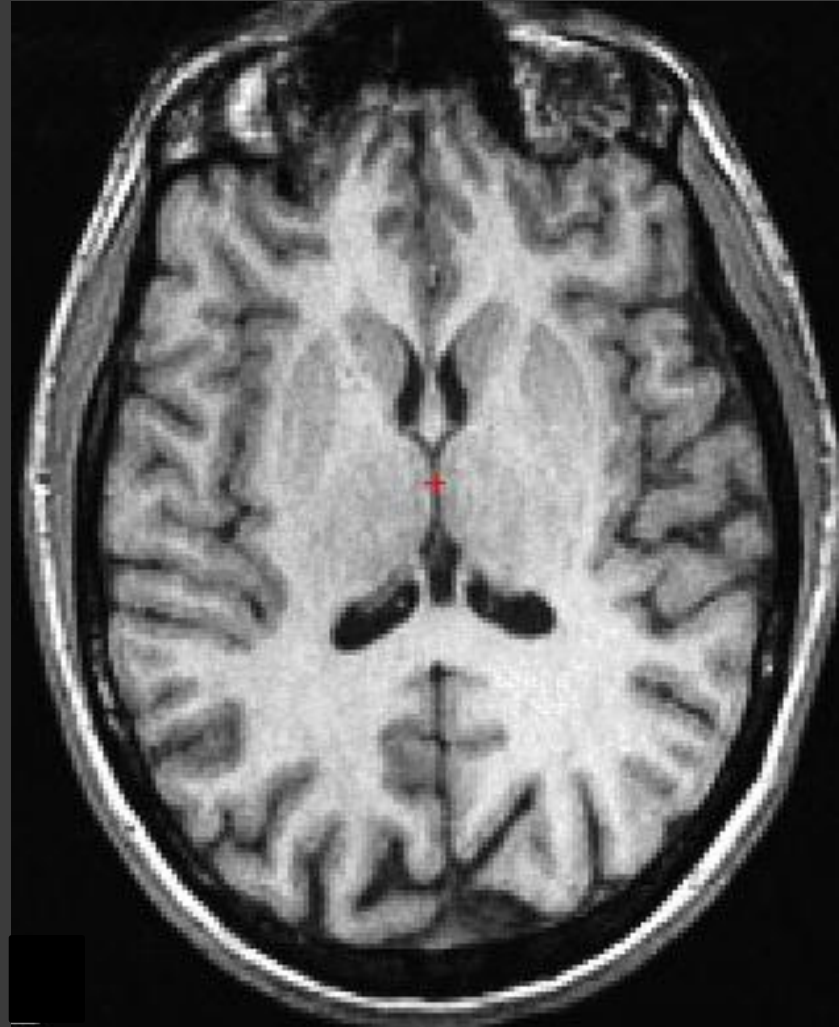
FEEL LIKE THIS?



PICTURES LOOK LIKE THIS!



WE WANT THIS!



WHY?

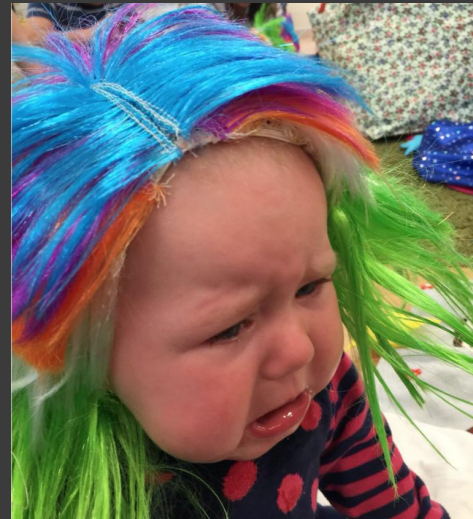


WHY?



Claustrophobic

WHY?



Claustrophobic

Noisy

WHY?



Claustrophobic

Noisy

Have to sit still

WHY?



Claustrophobic

Noisy

Have to sit still

Takes a long time

WHAT CAN WE DO?



THE PROBLEM



MRI MOCK SCANNERS



MRI MOCK SCANNERS



- Preparation can reduce GA rates by 50%
- In a single year at Raigmore potential to save > £30 000
- For a dedicated children's hospital > £220 000

VIRTUAL REALITY MRI

What's this got to do with an MRI physicist?

VIRTUAL REALITY MRI

All physicists are geeks!



THE SOLUTION



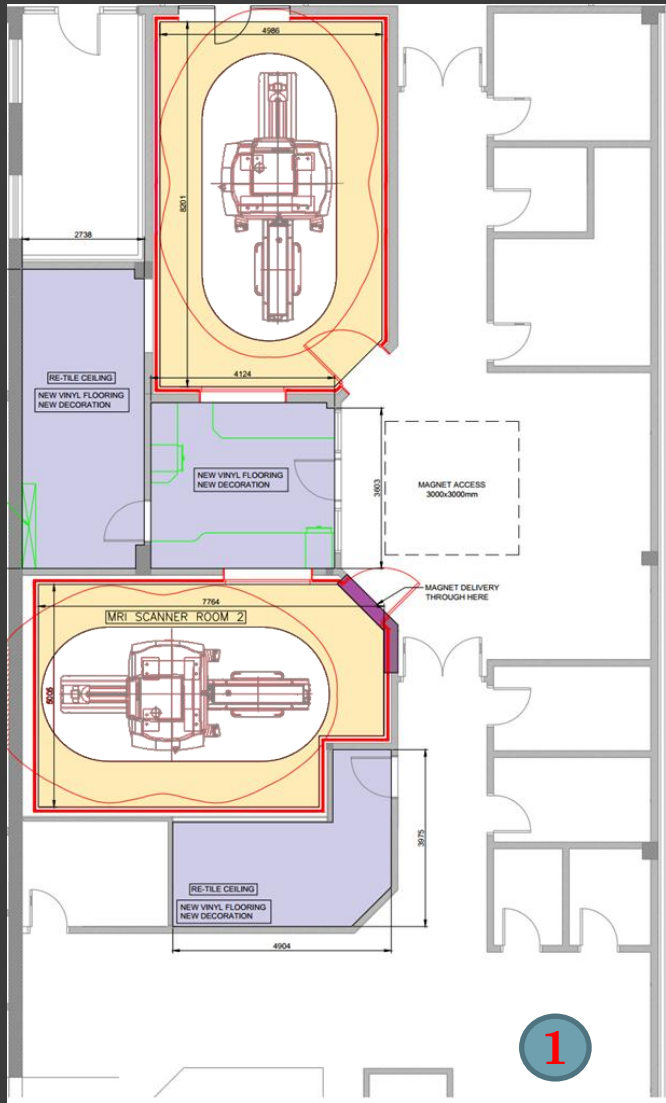
Virtual reality headset



360 camera



THE MRI DEPARTMENT

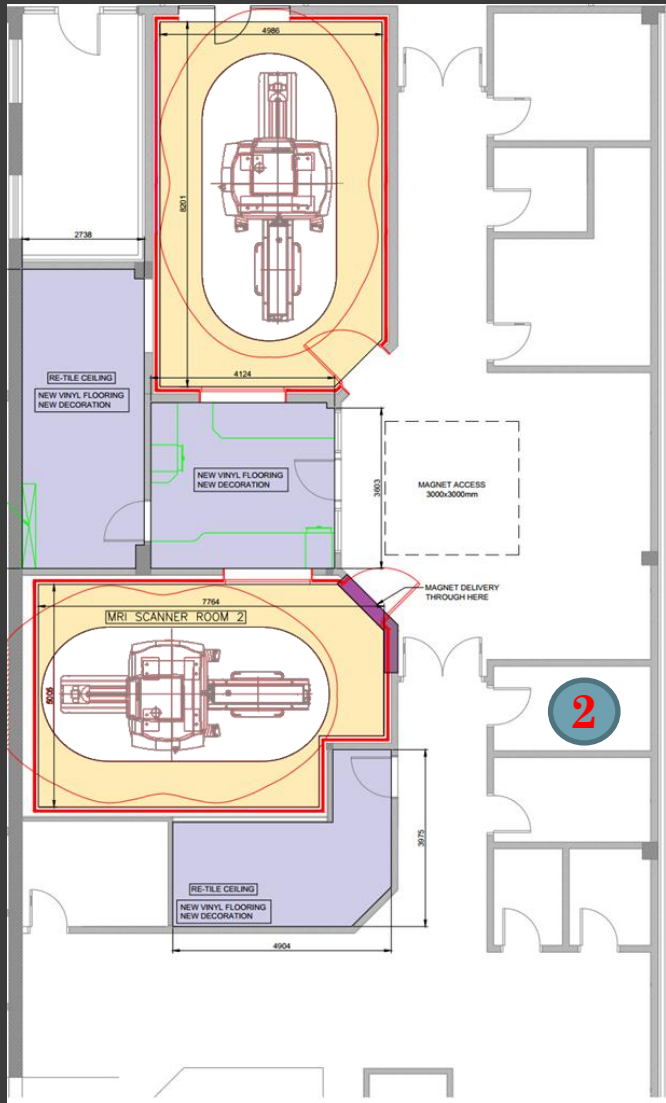


1

The Waiting Area



THE MRI DEPARTMENT

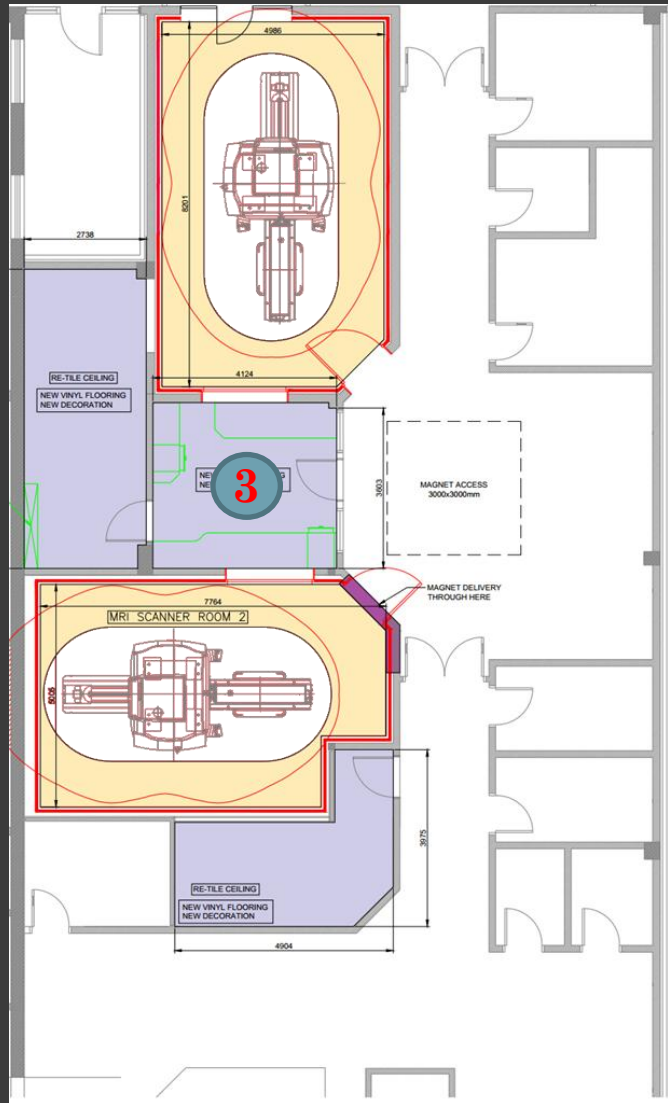


2

The Prep room



THE MRI DEPARTMENT

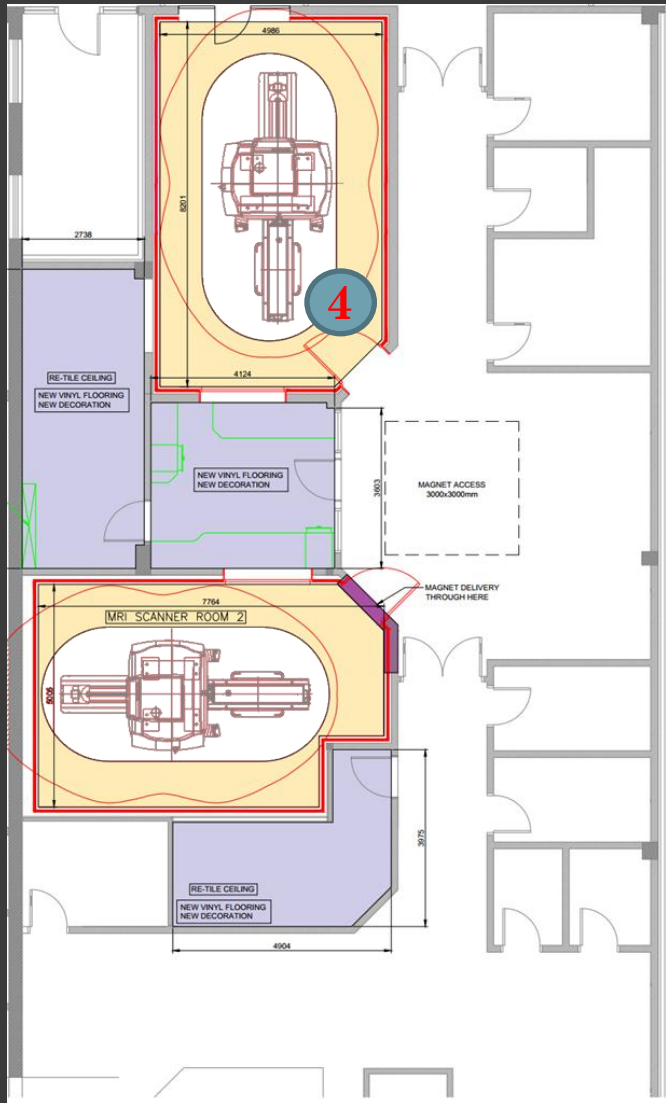


3

The Control Room



THE MRI DEPARTMENT

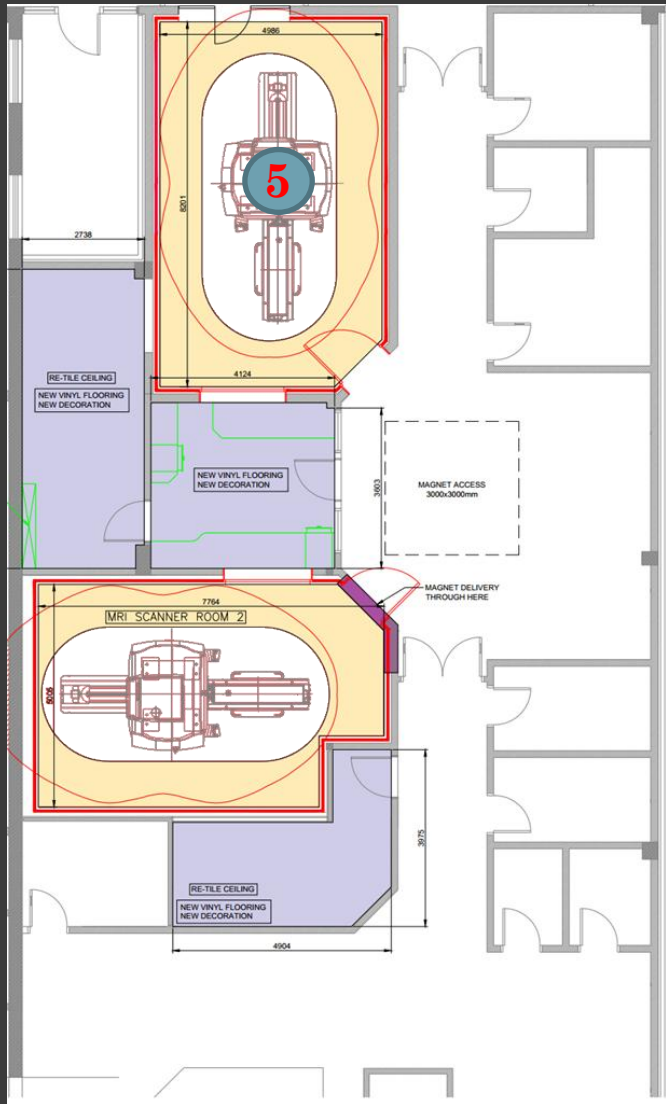


4

The Scan Room



THE MRI DEPARTMENT

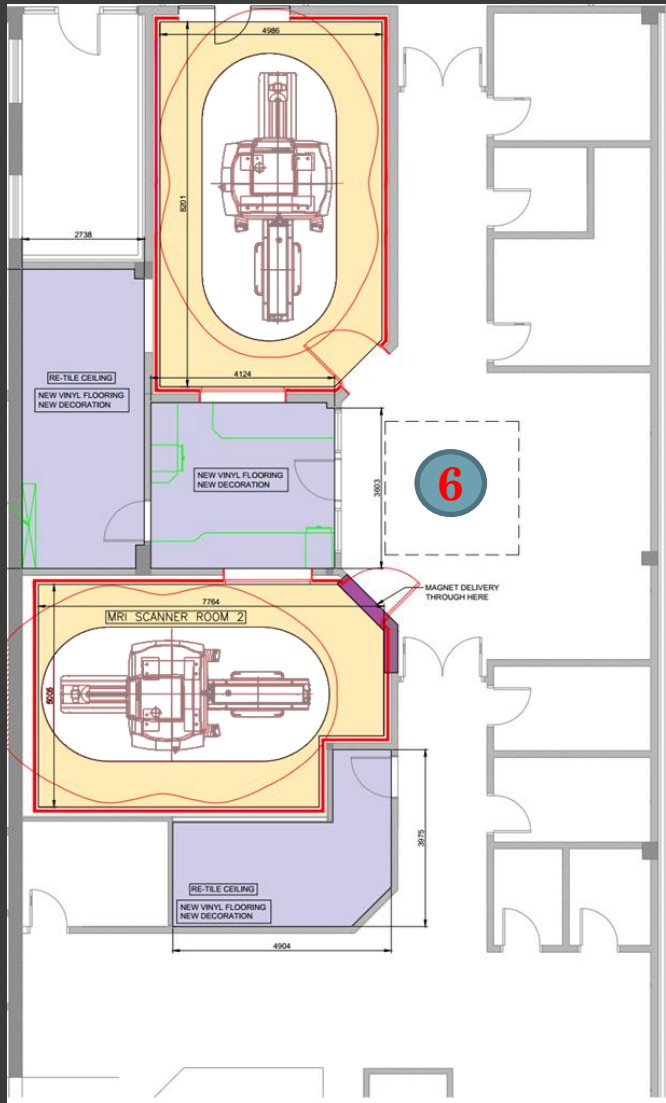


5

Having a Scan



THE MRI DEPARTMENT



6

After the Scan



FILMING INSIDE AN MRI SCANNER



FILMING INSIDE AN MRI SCANNER



FILMING INSIDE AN MRI SCANNER



FROM VIDEOS TO APP

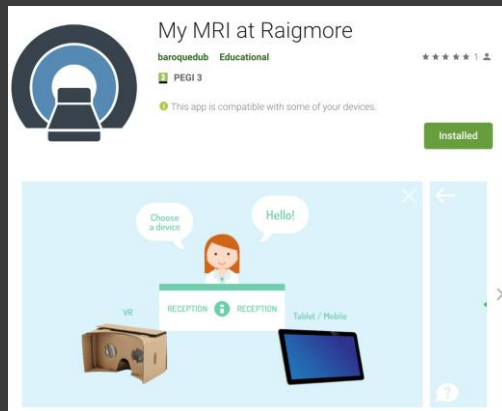
- ❑ Originally just videos
- ❑ Jerome Di Pietro (App developer at KCL)
- ❑ Android + iOS
- ❑ YouTube videos



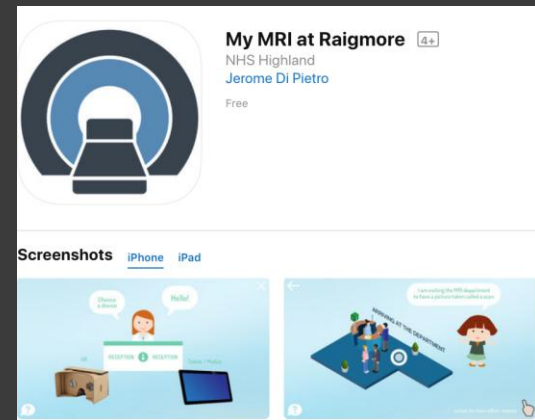
<http://baroquedub.co.uk/>



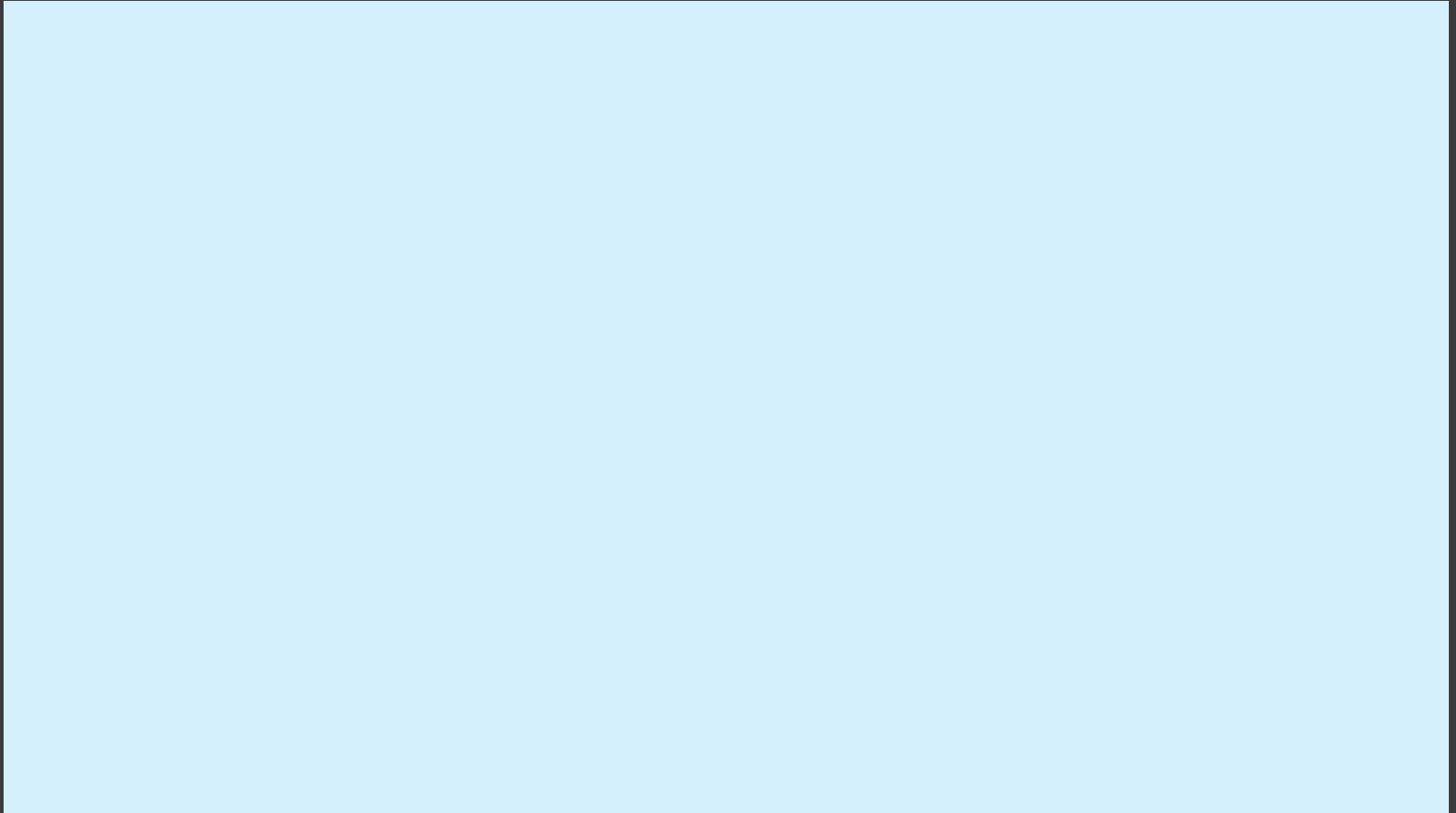
Play
store



App
store



RESULTS



RESULTS



OUR EXPERIENCES

OUR EXPERIENCES

How we used the app

1. Extremely anxious patient's referred to play specialists
2. In MRI waiting area
3. **Post out a headset with appointment letters
(Children can prepare at home)**

ASSESSING BENEFIT - PATIENTS

➤ Surveyed 23 patients (4-11yrs)	
➤ On a scale of (1-10) did they find the app:	Average response
• Enjoyable?	9
• Helpful?	8
• Easy?	10
• Answered thoughts/questions?	Agree
• Feels more positive about having MRI?	Agree
• Recommend to others?	100% Yes

ASSESSING BENEFIT - STAFF

➤ Surveyed 10 staff on a scale of (1-10) do they think children found the app:	Average response
• Enjoyable?	9
• Helpful?	9
• Easy?	9
• Answered the child's thoughts/questions?	Agree
• The child felt more positive about having MRI?	Strongly Agree
• Useful for their job preparing children?	Strongly Agree
• Recommend to children?	100% Yes
• Can save a child needing a GA for their MRI?	100% Yes

AVOIDING GENERAL ANAESTHETIC

Tested the app on 5 patients booked for GA

Patient 1:

- 8 yrs
- MRI for stroke
- 35min



Patient 2:

- 8 yrs
- MRI for tumour
- 30min



Patient 3:

- 5 yrs
- MRI for tumour
- 30min



Patient 4:

- 4 yrs
- MRI spine
- 20min



Patient 5:

- 12 yrs
- MRI epilepsy
- 40min



TESTIMONIAL'S

From Kids:

"I cant wait for my scan!"

"That is all I need, that is easy"

"wowwww FAB"

From Parents:

"Cannot believe it is the actual MRI scanner that he will be lying in"

"This is sooooo Cool"

"I really do not think he would have lay without seeing this"

CURRENT USE



..... in use for 18 months

OTHER PROCEDURES

Anaesthetics



Nuclear medicine

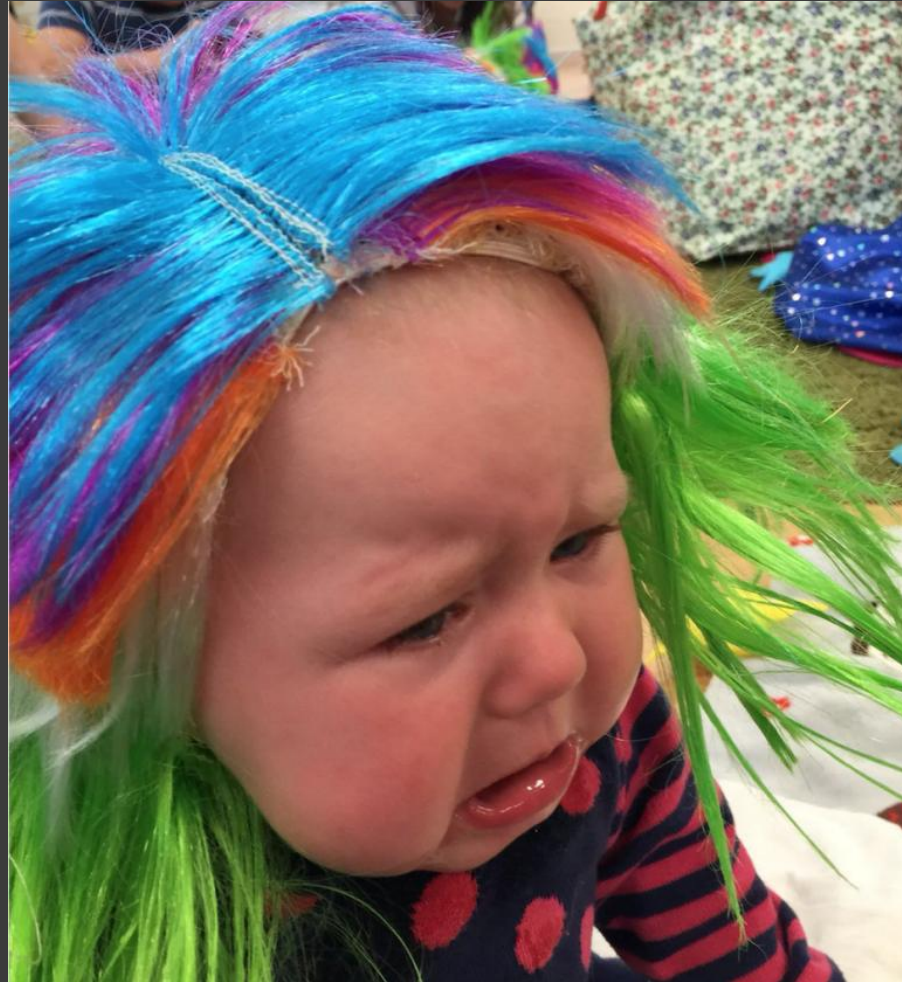


Cardiac Catheterisation



Surgical safety training (lasers)

VR FOR PATIENT DISTRACTION



PLASTER ROOM

Facebook post interface showing a user's profile picture, search bar, and navigation icons (Home, Friends, Messages, News Feed, Profile).

added 4 new photos — with [redacted] and [redacted] ...

September 7 at 4:53pm · 🌐

So four weeks ago [redacted] broke his elbow. Today my amazing little man got his pins out and doesn't need a cast. They used virtual reality to keep his mind off them being taken out. I couldn't be more proud of him. Thank you to everyone that's supported him over the last month. Onwards and upwards xxx



👍 Like 💬 Comment

👍 🤩 ❤️ [redacted] and 203 others



VR FOR ANAESTHETICS



VR FOR ANAESTHETICS

But what about the human
interaction?

SOCIAL VR



THANKS FOR LISTENING



We made this.

Stewart Murdoch
Adam Scotson
Fiona Philips
Aoibhinn and Cormac McGrath
Jonathan Ashmore
Jerome Di Pietro

About
this app



With thanks to
The Archie Foundation
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Dr Manasi Nandi

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v.1.9.1

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