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Optimising access to MRI feed and wrap for babies with congenital permanent hearing loss

Hearing Support Service and Audiology,
Sydney Children's Hospital
Dr Carolyn Cottier



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Hearing Support Service (HSS): Who are we?

- **Referrals to HSS at Sydney Children's Hospital (SCH) are made directly from Audiology SCH where a diagnosis of hearing loss has been confirmed following referral from SWISH (Newborn hearing screening)**
- **Multidisciplinary clinic** Baby and family seen in a single appointment in the Audiology Department by Paediatrician, Genetic Counsellor, Social Worker and Paediatric advanced trainee
- **Discussion concerning:-**
 - Hearing loss and parental understanding
 - Investigations for an underlying aetiology
 - Genetic causes
 - Structural causes
 - MRI scan: feed and wrap (<3mo) or under general anaesthetic (>3mo)
 - Prenatal/Perinatal causes including infection such as CMV
 - Early intervention
 - Referrals to ENT and Ophthalmologist
 - Physical examination

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One major problem

In 2023....

20%

2 out of 10 babies have a diagnostic MRI under feed and wrap through HSS, SCH

Aim

100%

We aim to have every baby with a successful MRI

Why? Risks and costs associated with a GA

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The Research...

International Journal of Pediatric Otorhinology 132 (2020) 109910



Contents lists available at ScienceDirect

International Journal of Pediatric Otorhinology

journal homepage: www.elsevier.com/locate/ijporl

87%

Evaluating the success of a newly introduced magnetic resonance imaging scanning of the evaluation of congenital sensorineural hearing

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International Journal of Pediatric Otorhinology 127 (2019) 109662



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60%

Outcomes with non-sedated MRI for infants with sensorineural hearing loss

Evette A. Ronner^a, Rochelle Reid^a, Razan A. Basonbul^{a,b}, Christen Caloway^{a,c}, Julie Arruda^d,
Annita M. V. Almeida^e, Michael G. Chiu^{a,c,*}

International Journal of Pediatric Otorhinology 165 (2023) 111430



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International Journal of Pediatric Otorhinology

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50%

Predictors of successful natural sleep MRI for sensorineural hearing loss in infants

Elizabeth N. Liao^a, Yi Li^a, Andrea Fung^a, Lindsay Lawless^c, Josephine Czechowicz^a,
Melissa Ho^d, Kimberly Luu^a, Lauren Meyer^c, Noura I. Mohamad^a, Garani S. Nadaraja^a,
Emily Taketa^a, Jordan Virbalas^a, Jacqueline E. Weinstein^a, Tiffany Tsai^b, Dylan K. Chan^{a,*}

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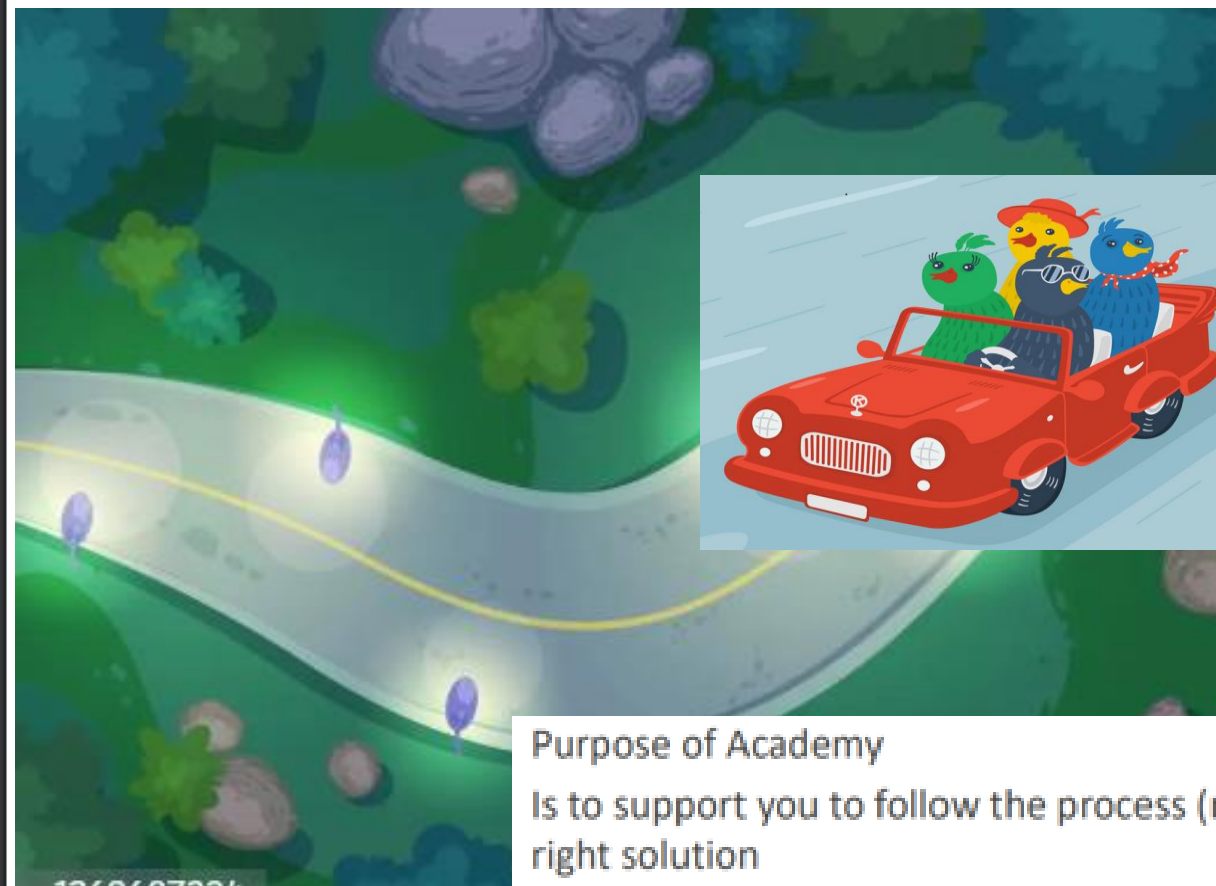
^d Department of Audiology, University of California, San Francisco, San Francisco, CA, USA

^e Department of Child Life Services, University of California, San Francisco, San Francisco, CA, USA



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Quality Improvement Academy: Our journey begins



Sally Tufts
Social Worker



Andrew Geyl
Audiologist



Dr Carolyn Cottier
Paediatrician



Florencia Montes
Audiologist

Purpose of Academy

Is to support you to follow the process (methodology) that will lead you to find the right solution

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High Impact/Low effort

- Parents accompanying infant as far as possible ✓
- Move feed & sleep MRI slot from pm to am/more flexible appointments ✓
- Consent obtained by HSS registrar after hearing diagnosis confirmed, before HSS appointment, to expedite MRI scan ✓
- Fact sheet infant MRI ✓

High Impact/High effort

- SCHN video infant MRI ✓
- More ABR apts per week to reduce wait list
- SW to meet with families in MRI
- Pulse oximeter alternatives (finger wrap)

Low Impact/ Low Effort

- Change name to "Feed & Sleep"
- Earmuffs to reduce risk of waking up baby with noise ✓
- Modification to settling room: dim light, comfortable chair/smaller table ✓

Low Impact/High Effort

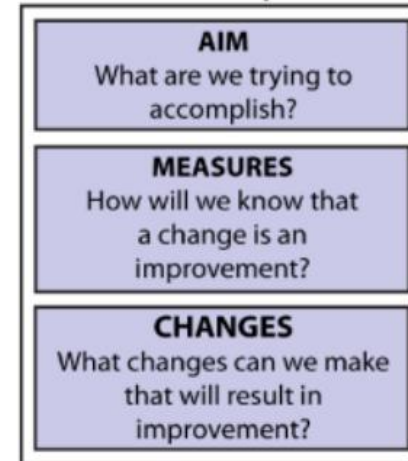
Change Ideas 

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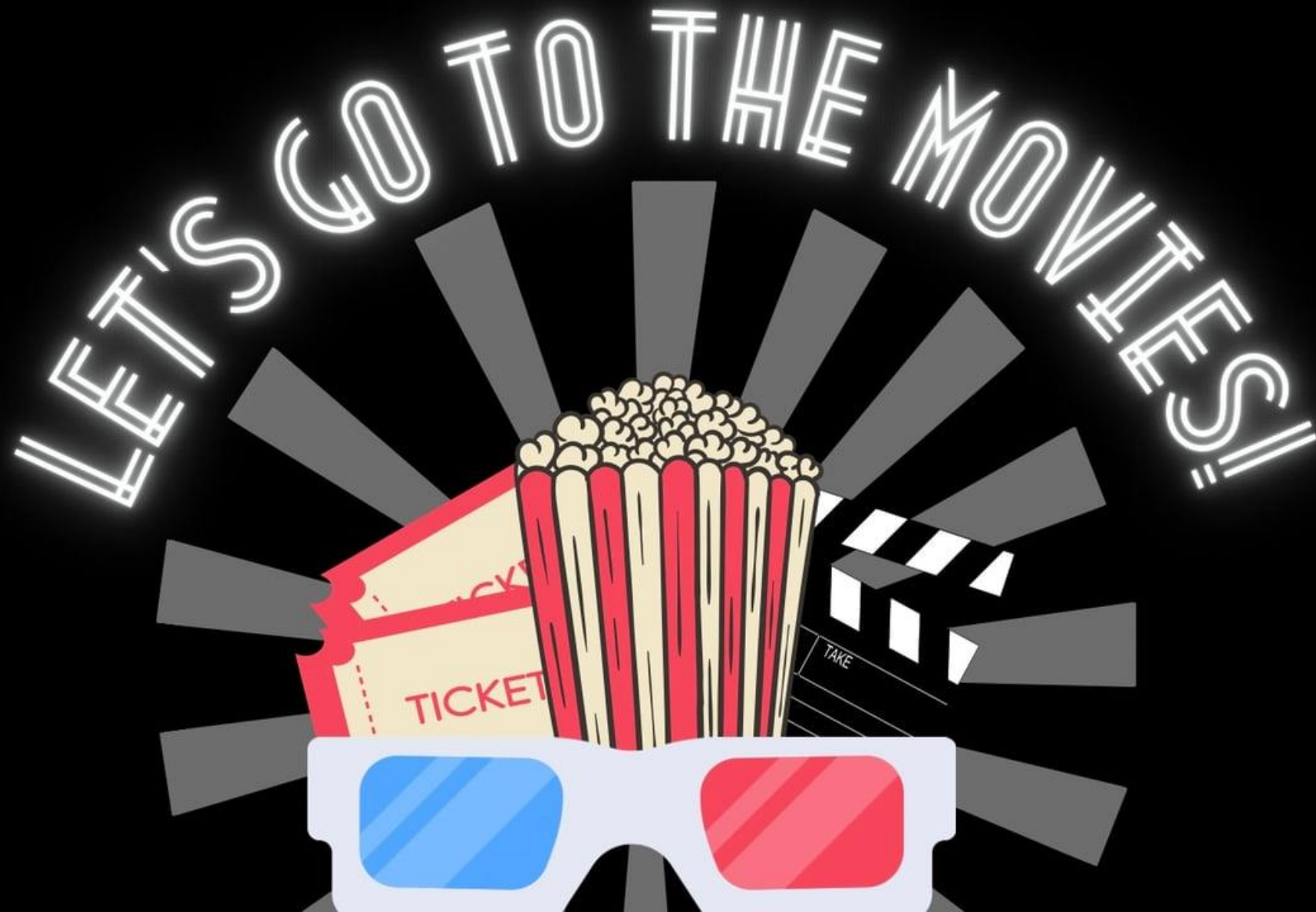
PDSA cycle: Plan and Do MRI social story Consultation

- Parents
- Paediatric Imaging Department
 - Radiographers
 - MRI nurse educator
 - Nurse Unit Manager
- Audiologists
- Simulation team SCH

The Model for Improvement



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MRI: feed and wrap flow
The process for a Paediatric scan



The Sydney
children's
Hospitals Network

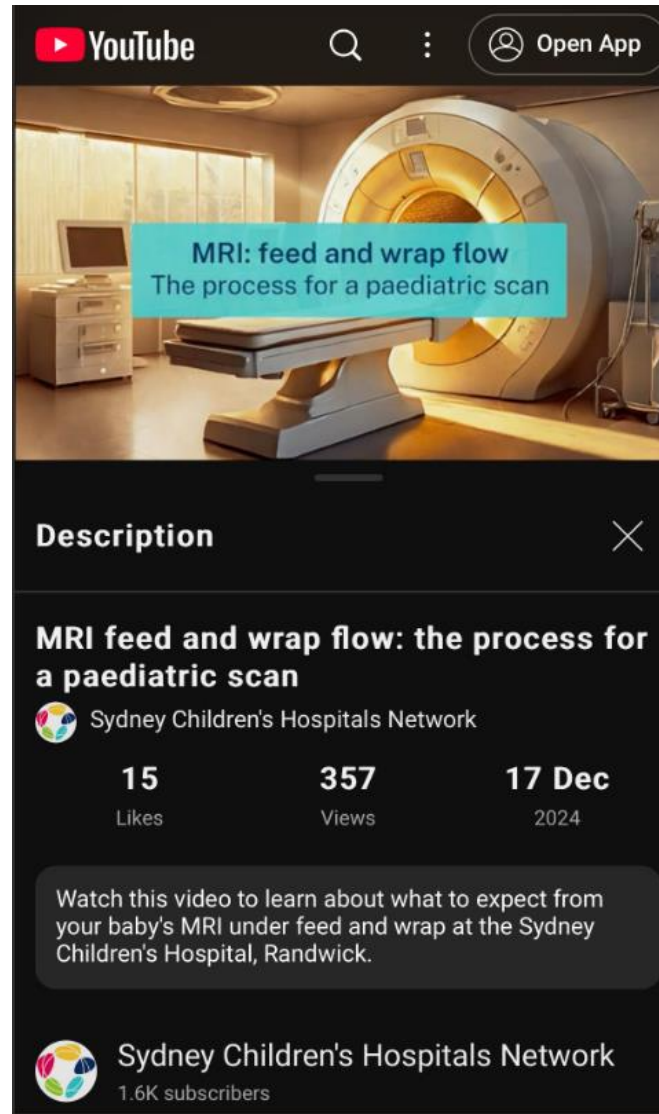
care, advocacy, research, education

Kids Simulation Australia



The Sydney children's
Hospitals Network

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The image shows a mobile YouTube video player interface. At the top, there is a black header with the YouTube logo, a search icon, a menu icon, and an 'Open App' button. Below the header is a video thumbnail showing an MRI machine in a clinical setting. A teal text box is overlaid on the thumbnail with the text: 'MRI: feed and wrap flow' and 'The process for a paediatric scan'. Below the thumbnail is a 'Description' section with a close icon. The description text reads: 'MRI feed and wrap flow: the process for a paediatric scan' followed by the channel name 'Sydney Children's Hospitals Network'. Below the description are three statistics: '15 Likes', '357 Views', and '17 Dec 2024'. A grey text box contains a summary: 'Watch this video to learn about what to expect from your baby's MRI under feed and wrap at the Sydney Children's Hospital, Randwick.' At the bottom, the channel name 'Sydney Children's Hospitals Network' and '1.6K subscribers' are displayed.

YouTube

Open App

MRI: feed and wrap flow
The process for a paediatric scan

Description

MRI feed and wrap flow: the process for a paediatric scan

Sydney Children's Hospitals Network

15 Likes 357 Views 17 Dec 2024

Watch this video to learn about what to expect from your baby's MRI under feed and wrap at the Sydney Children's Hospital, Randwick.

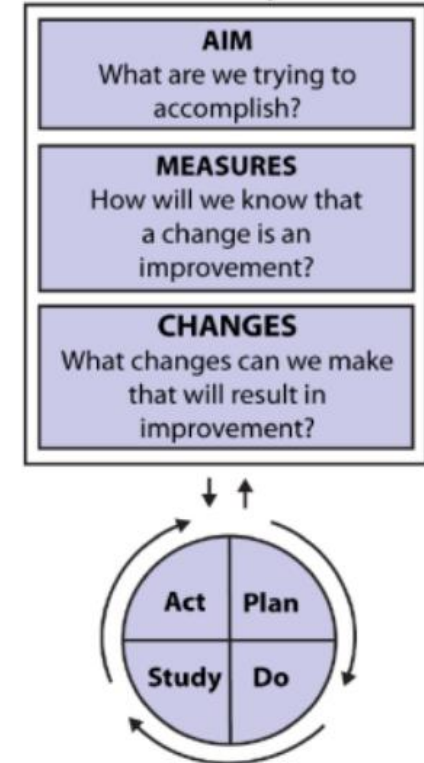
Sydney Children's Hospitals Network
1.6K subscribers

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Next steps in the PDSA Cycle: Study

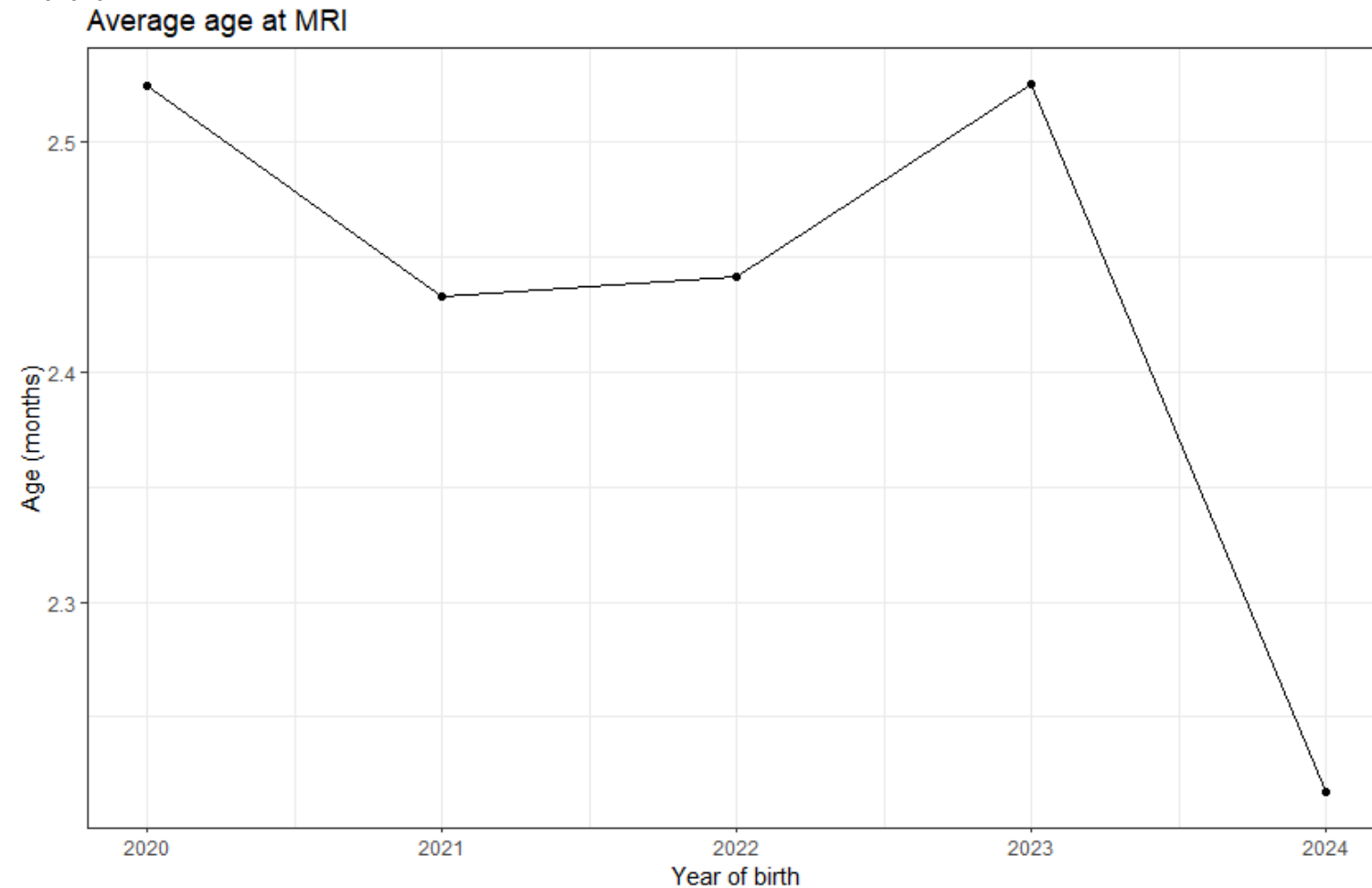
- Evaluation: feedback from parents (questionnaire)
- Data: success rate
 - Will we show an increased success rate?
 - Other factors: age of baby at scanning
- Ethics approval: CHARLI
- Available to all families of babies requiring MRI under feed and wrap regardless of the underlying condition
 - How to share across SCH effectively?

The Model for Improvement



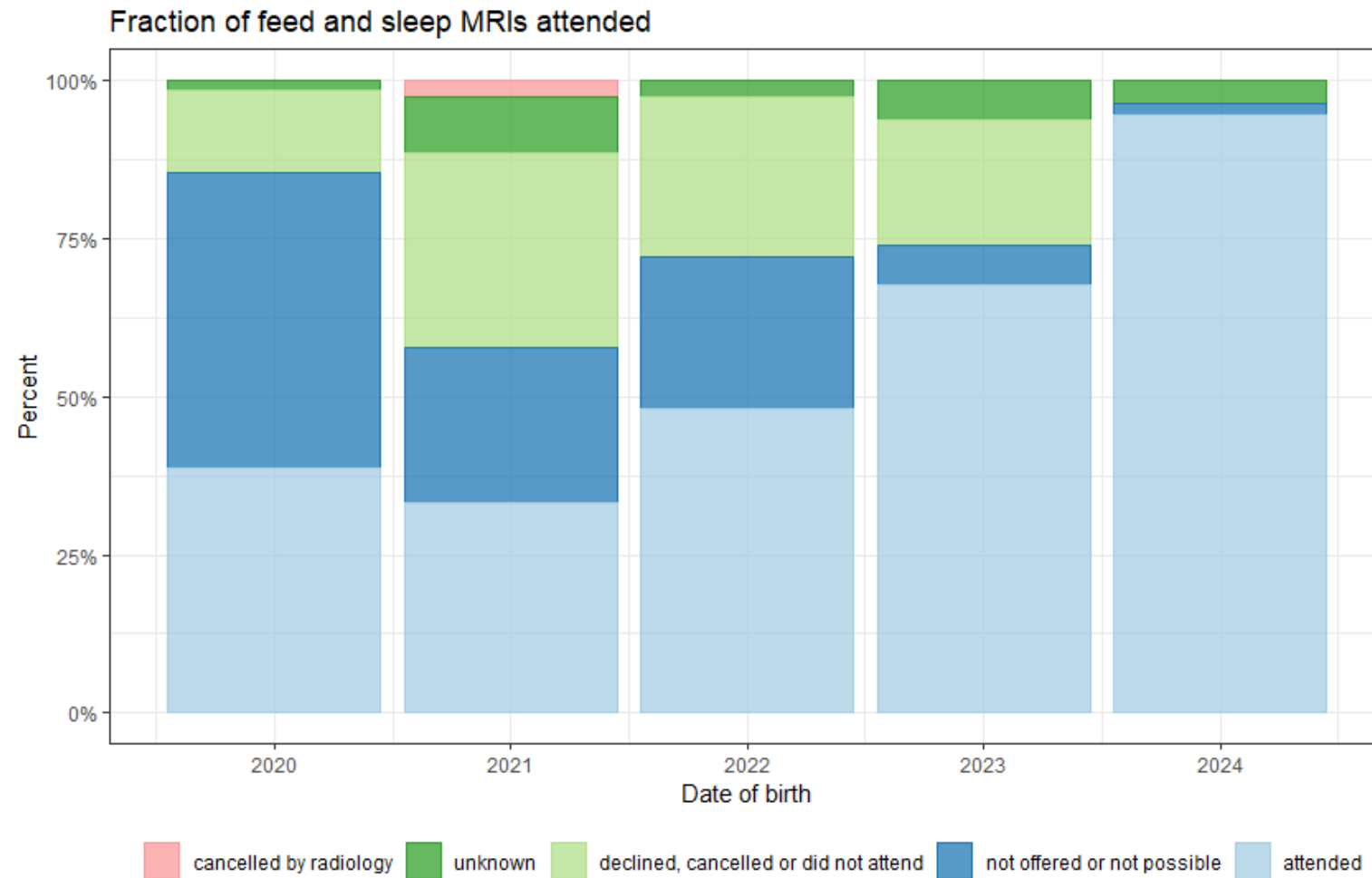
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Results so far...



Data from Sydney Children's Hospital Randwick, 2020 - 2024

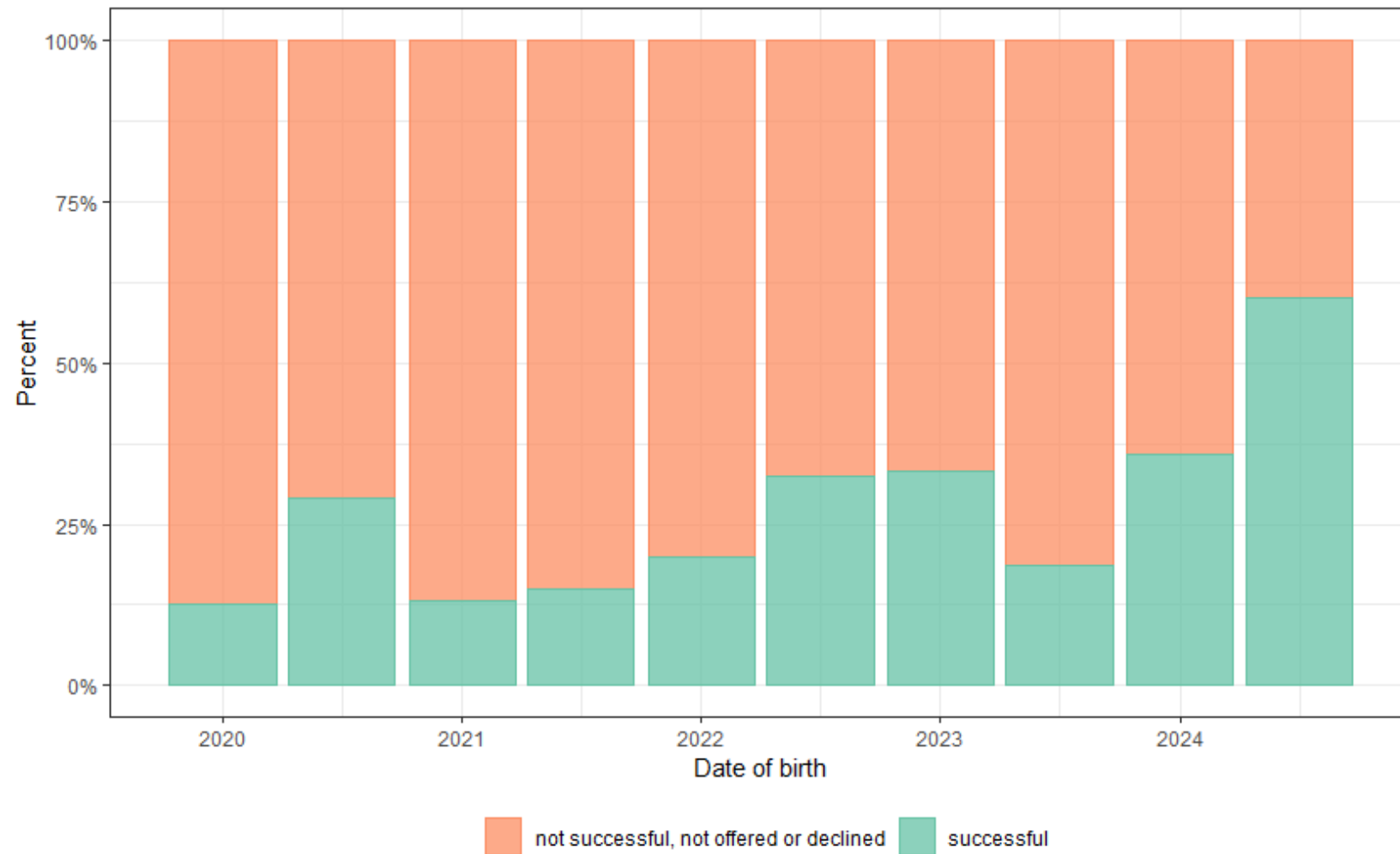
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Data from Sydney Children's Hospital Randwick, 2020 - 2024

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Fraction of all neonates referred to the Hearing Support Service



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With Thanks....

Thank you to my Audiology Colleagues,
especially Florencia Montes and Andrew Geyl

Thank you to our parents, babies and
stakeholders

Special thank you to Helen Cowan, Department of Imaging, talented actors and Sam Carmont from the
Simulation Lab



The Sydney
children's
Hospitals Network