Radiology

Making Imaging Fun

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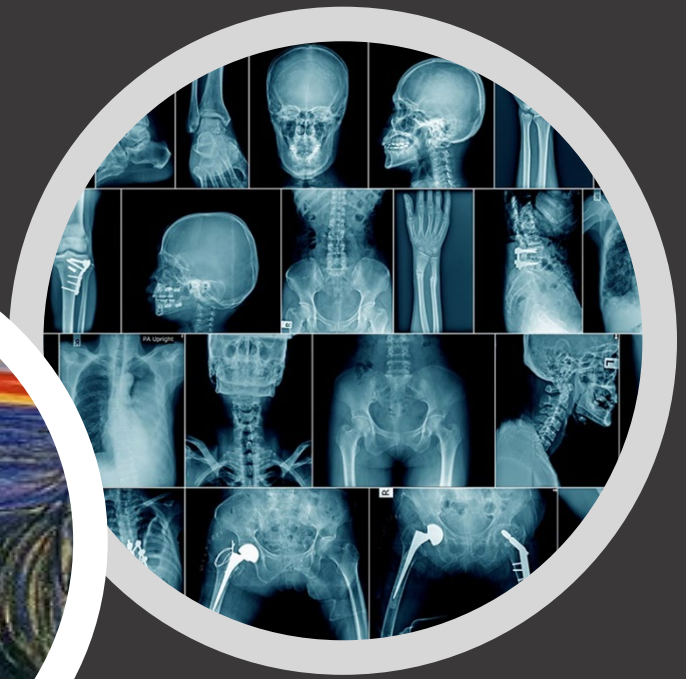



InnoVet

Children's and Parent's Perceptions of a Magnetic Resonance Imaging Examination

■ Jenny Gårdling, MSN, RN; and Marie Edwinson Månsson, PhD, RchN

ABSTRACT: **The aim of this study was to describe children's and parents' perceptions after a magnetic resonance imaging (MRI) examination. Semistructured interviews with eight children and eight parents were conducted. The interviews were analyzed using a phenomenographical approach. Both children and parents perceived a sense of s to have th of the hea given was were anxi still. The the knowl professio**

KEYWORDS

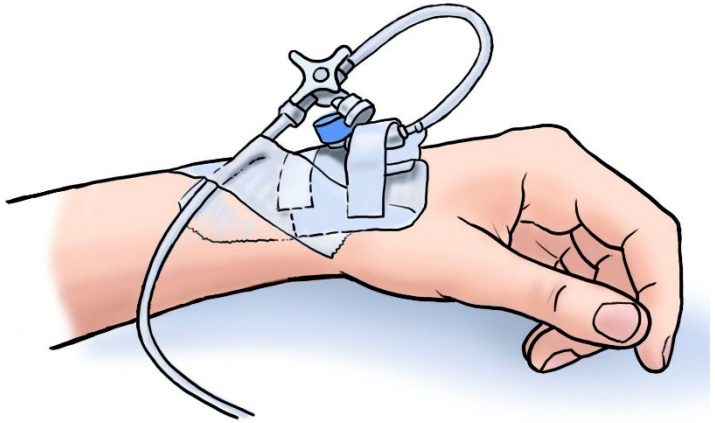
Table 1. Categories of responses

Description categories	Children's perceptions	Parent's perceptions
Security	Preparation	Preparation
	Parents presence	Being present
	The light inside	Health personnel's care
	Personnel alarm	
Anxiety	To little preparation	The sound
	The MRI scanner	The possibility of a failed examination
Laying still	Difficult to know how still	
	Might fall asleep	
Information		The need to prepare their children
		Request for more information

MRI = magnetic resonance imaging.

J Radiol Nurs 2014;33:30-34

MRI is a lengthy scan & children are required to keep still



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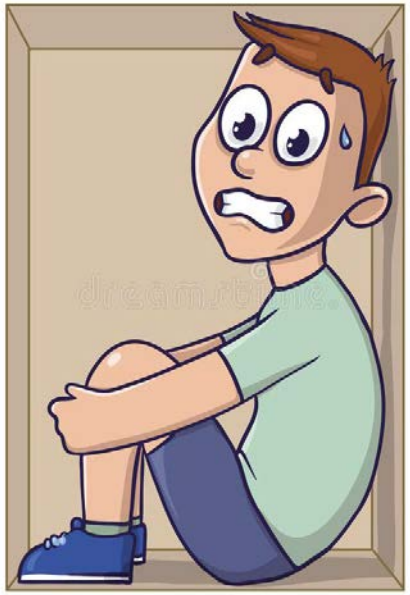
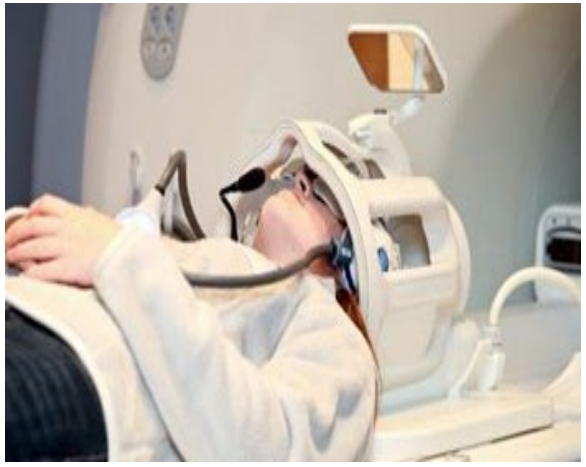


Family-friendly environment

Child-centered Programs

Unique at HKCH



Jointly developed by Radiology, Sedation Team & Hospital Play Service

Preparation play is the key

- ✓ Given useful information reduces anxiety
- ✓ Aware of own strengths & develop confidence
- ✓ Reduce negative sentiments

Play as intervention

- ✓ Employing different play tools
- ✓ Provide information through play
- ✓ Using interesting metaphors (e.g. Donut)

Mock Scan

First and only MRI simulator in HK & Asia

Home On-line Interactive Program

- COVID-19 new ‘norm’
- More time to explore coping strategies
- MRI machine craft making at home
- Craft creates an imaginary space for patients
- Integrated into a new hybrid intervention format

Early Intervention by video

How we do it

1 month to a week **prior examination**	A week to a few days before examination (30-45mins /session)	15mins – 1 hour (depends on patient's condition & procedure needed)
Assessment	Early Intervention & Continuous Assessment	Intervention

Referral from medical team / anaesthesist

Discuss case needs

- MRI experience/ history
- Knowledge about procedure
- Emotional condition

- Home preparation play (on-line)

Coping style

- Temperament
- Anxiety level

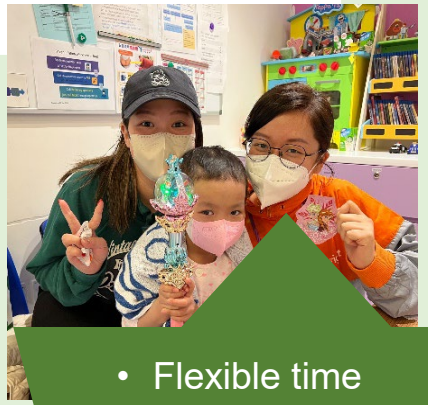
MRI Mock scan

On-day support

- Preparation play
- IV block
- distraction

How we do it

1 month to a week **prior examination**	A week to a few days before examination (30-45mins /session)	15mins – 1 hour (depends on patient's condition & procedure needed)
Assessment	Early Intervention & Continuous Assessment	Intervention



Referral from me
team / anaesth

Discuss case needs

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HPS discuss with nurse about patient's concerns and readiness

- Home
play
C
- Temp
- Anxiety lev

- Less time constraint for early intervention
- HPS facilitates smooth engagement

- Flexible time management
- Teamwork
- Radiology team could plan according to patient readiness

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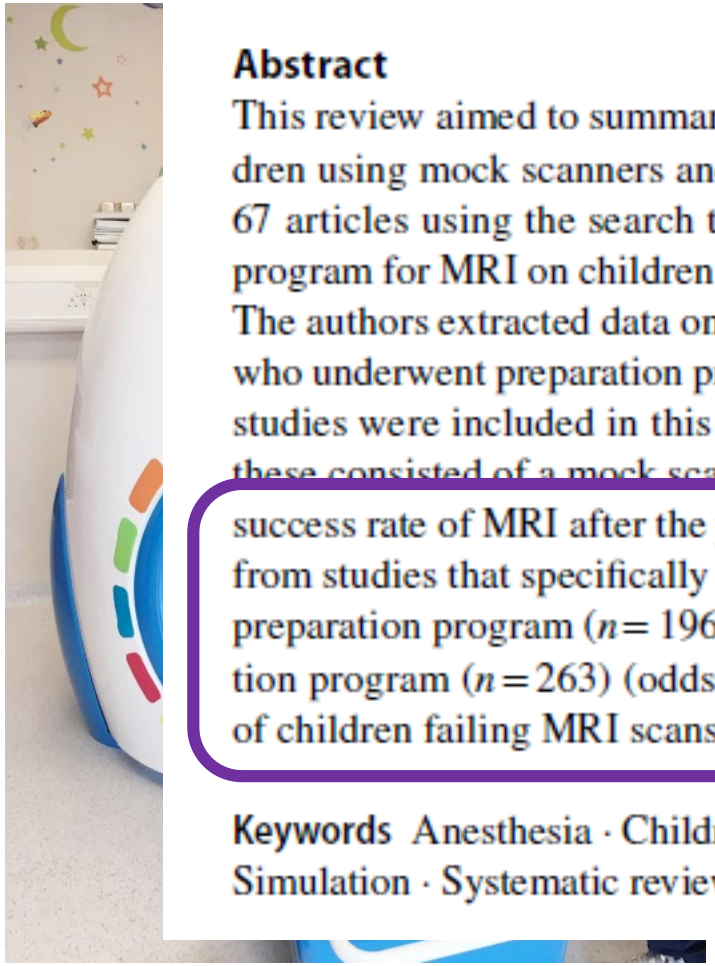
REVIEW

Effectiveness of mock scanners and preparation programs for successful magnetic resonance imaging: a systematic review and meta-analysis



Abstract

This review aimed to summarise the effectiveness of preparation programs for magnetic resonance imaging (MRI) in children using mock scanners and the success rates by systematically reviewing the current literature. We initially identified 67 articles using the search terms "MRI," "mock" and "child" on online databases. All studies involving a preparation program for MRI on children ages 18 years or younger, healthy children and those with medical diagnoses were included. The authors extracted data on study design, participant data, details of the MRI protocol and the total numbers of patients who underwent preparation programs and were scanned while awake, without sedation or general anesthesia. Twenty-three studies were included in this review. Preparation programs included in-home and hospital/research facility components; these consisted of a mock scanner, explanatory booklets, recorded MRI scan sounds and other educational materials. The success rate of MRI after the preparation program reported in each study ranged from 40% to 100%. When all participants from studies that specifically assessed the efficacy of preparation programs were combined, participants who underwent a preparation program ($n = 196$) were more likely to complete a successful MRI than those who did not undergo a preparation program ($n = 263$) (odds ratio [OR] = 1.98). Our results suggest that preparation programs may help reduce the risk of children failing MRI scans.

Keywords Anesthesia · Children · Magnetic resonance imaging · Meta-analysis · Mock scanner · Role playing · Sedation · Simulation · Systematic review

Multidisciplinary collaboration & early engagement reduce obstacles

6Y/M; referred by Dr. V

1st intervention

Meet outside the hospital @HPS Office
Aim to build rapport
Developmental play: drawing & role play
Assessment: Clear on MRI procedure, but scared and anxious about the hospital

2nd intervention

Mock scan in HKCH
Aim to familiarise with the hospital setting, feel relaxed and interested
Prepared the play tools using mini bus theme
Patient pretended to be a driver and ‘drove’ all around the MRI center with an ‘MRI suite road map’
Reward token scheme
Aim to encourage and enhance the interaction with medical staff as passengers
Outcome: Unsuccessful mock scan (unable to even sit on the bed), improved rapport & trust with med staff

Multidisciplinary collaboration & early engagement reduce obstacles

3rd intervention

Zoom meeting before the schedule appointment day
Aim to help him recall memory on the hospital routine, environment and teach the coping strategies (e.g. deep breathe, hug his favourite toys, reward scheme)
Outcome: patient recalled hospital setting and procedure, practised deep breathing with HPS

Procedure Scheduled day

HPS on Zoom while medical staff at hospital
Patient brought his favourite toys
All medical staff gave the patient a sticker

Hybrid Intervention Mode

Early online intervention on preparation shows better outcome

7Y/F, Precocious puberty

Assessment

- Patient expressed she was scared and did not want MRI
- Indifferent and did not answer or ask questions
- Patient had little understanding of the procedure

Intervention

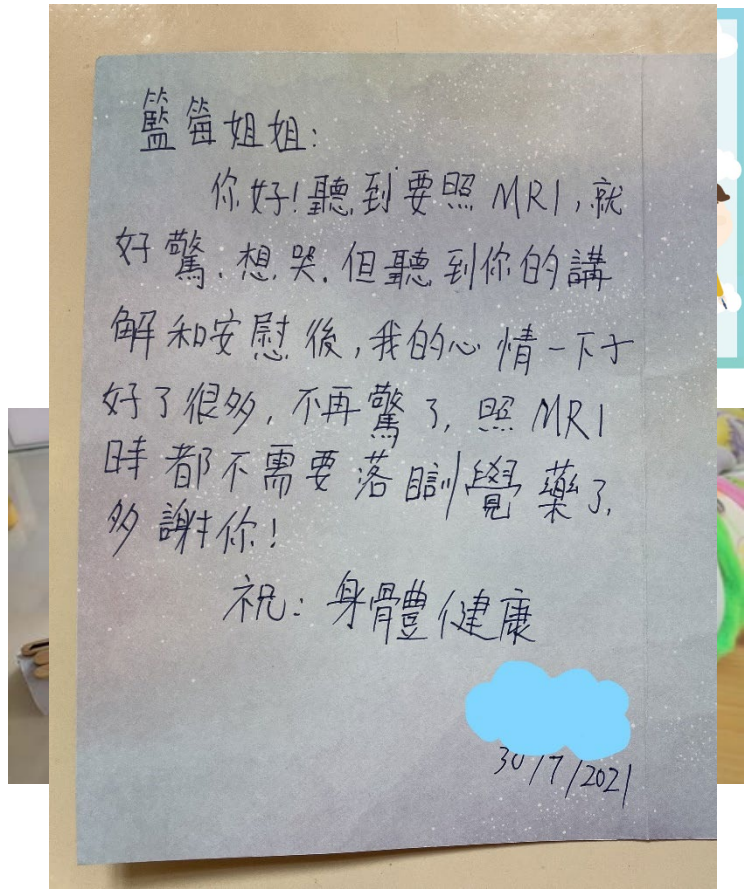
HPS talked about what MRI was by using online play materials

Outcome

- Patient's emotion and reaction became more positive
- Express her feelings on the day

Results

- Successful scan without sedation
- Thank you card!



Playright @HKCH Radiology

Type of services	Total beneficiaries	Age range		Type of intervention	
Online support (5/2020 - 4/2022)	137	0-3 yr	0	Preparation play (MRI)	115
		4-8yr	85		
		9-12yr	50	Distraction play	52
		Above 12	2	Emotional support	4
*On-site support (4/2019 - 1/2022; 5/2022 - 9/2022)	178	0-3 yr	13	Preparation play (MRI)	204
		4-8yr	89		
		9-12yr	102	Distraction play	131
		Above 12	65	Preparation play (IV)	33
				Emotional support	31
Total	**338**				

Impact of HPS intervention

Results at Caritas Medical Center, Hong Kong
Successful rate of MRI with and without play intervention from year 2013 to Aug 2019

Year	Total Patients N	Successful Rate N (%)	No Sedation N (%)	Oral Sedation N (%)	IV Sedation N (%)	Oral + IV Sedation N (%)	Patient required sedation N (%)
2013 to Feb 2017 (No play intervention)	51	48 (94.1%)	10 (19.6%)	18 (35.3%)	5 (9.8%)	11 (21.7%)	41 (80.4%)
May 2017 to July 2019 (With play intervention)	60	58 (96.7%)	38 (63.3%)	8 (13.3%)	5 (8.3%)	9(15%)	22(36.7%)

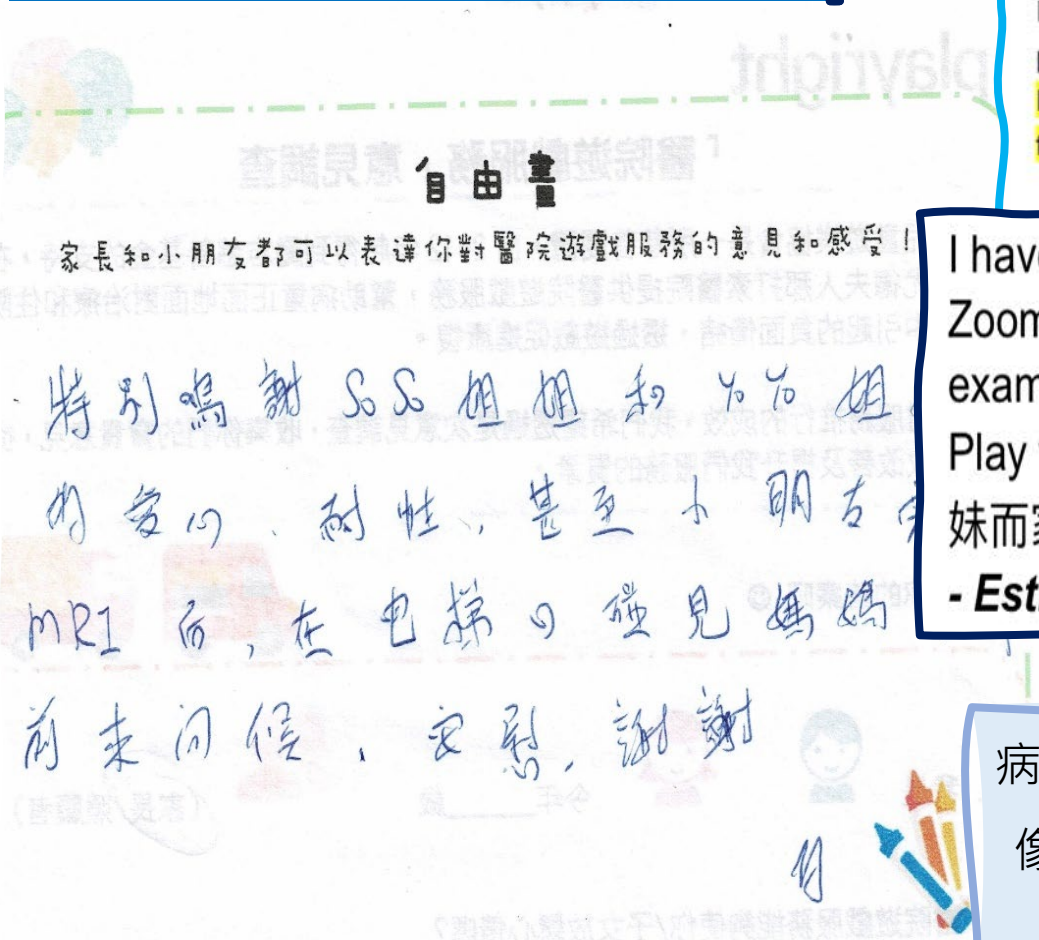
Lee et al, 2019

Feedback from staff and parents

The girl is quite emotional and full of fears and anxieties. She screamed even for a gentle touch from the nurse. She had previous history of screaming though out an CT scan.

Today, the Playright specialist helped her to recall memory of how the MRI exam would run; talked with her to relieve a bit her anxiety. The MRI procedure today should be the best experience she ever had because she was more willing to listen to our instructions. The image quality was good due to her cooperation.

I have called the case nurse and given a recommendation to apply Playright or other hospital play services for this poor girl in the future imaging appointments, not only MRI. I wish the Playright support can help the girl building trust to hospital staff and being more prepared to the imaging and other procedures.



I have to report to you about the big success of our first e-Play or e-HPS today. Using Zoom in iPad, our play specialists helped a 9 yo girl coping with her MRI exam, espeically on the procedure of needle puncture. The girl was keen to join the e-Play when I asked her mother. I worried for their long waiting time but PCA told me "妹妹而家同Playright玩得好happy". So Radi needs P

- Esther Poon (Radiographer, RAD)

病童有兩位遊戲師陪著，只站在床尾，就好像Ketamine and midazolam (鎮靜劑)一樣

- Iris (Radiographer, HKCH)

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Thank you!