



Pediatric MR Protocols

This document is the work product of the MR Protocol Committee of the World Federation of Pediatric Imaging:

Michael Gee, Chair
Wendy Lam
Mai-Lan Ho
Yunhong Shu
Camilo Jaimes

Savvas Andronikou
Joanna Kasznia-Brown
Tracy Kilborn
Jaishree Naidoo
Young Hun Choi

Jae-Yeon Hwang
Lizbet Perez Marrero
Pilar Dies-Suarez
Nicole Askelson

With thanks to Vendor Representatives:

GE: Julie Anderson
Philips: Quin Lu and Elizabeth van Vorstenbosch-Lynn
Siemens: Katja Boehm and Samantha Stein

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RAPID BRAIN			Indications:	Brain parenchymal screen
				Pt unlikely to tolerate imaging > 10mins
Sequence	Plane	Duration (approx)		Acute indications
DWI	Axial	1-2 min		Contrast not available
EPI (T2*)	Axial	0.5 min		
T1	Sagittal	2-3 min		
T2	Axial	2-3 min		
FLAIR	Coronal	2-3 min		
	Total time:	~ 10-11 min		

SEIZURE BRAIN				Indications:	Identification of epileptogenic focus
					3T recommended if available
Sequence	Plane	Duration (approx)		Requirements:	Parallel imaging
DWI	Axial	1-2 min			Coil with appropriate channels
T1 BRAVO/MPRAGE/TFE isotropic	Sagittal (with multiplanar reformats)	5-7 min			
T2 (<2 yr) / FLAIR (>2 yr)	Axial	3-5 min			
EPI	Axial	2 min			
	Total time:	~ 10-15 min			

Hydrocephalus-Ventricle Check BRAIN			Indications:	Post-op assessment of vent size
				Child unable to cooperate with longer protocol
Single shot T2	Axial	1		
DWI	Axial	1-2		
Single shot T2	Sagittal	1		
Single shot T2	Coronal	1		
	Total time	3-5 mins		

TUMOR/INFECTION BRAIN					Indications:	Identification of focal CNS lesions
						3T recommended if available
Sequence	Plane	Duration (approx)		Requirements:	Parallel imaging	
DWI	Axial	1-2 min				Coil with appropriate channels
BRAVO/MPRAGE/TFE (3D isotropic)	Sagittal (with reformats)	5-7 min				IV contrast (if available)
T2	Axial	3 min				
SWI	Axial	3-5 min				
Post-contrast T1 CUBE/SPACE/VISTA (3D isotropic)	Sagittal (with reformats)	5-7 min				
Post-contrast FLAIR*	Coronal	3 min	Can perform FLAIR post-contrast for increased sensitivity for leptomeningeal disease, or pre-contrast			
	Total time:	~ 20-30 min				

SHORT ABDOMEN					Indications;
					Detection of abdominal pathology
Sequence	Plane	Respiration status	Duration (approx)		Child unable to hold breath (esp infants and young children)
T2 single shot	Coronal	Free breathing	30- 45 secs		IV contrast not available/indicated
T2 single shot	Axial	Free breathing	30- 45 secs		
T2 FSE fat sat	Axial	Resp trigger	3-5 mins		
DWI	Axial (B=50, 400, 800)	Free breathing (variable NEX)	3-4 mins		
T1 in-opposed	Axial	Resp trigger	3-4 mins		
	Total time:		8-10 mins		

LONG ABDOMEN					Indication:
					Detection of abdominal pathology
Sequence	Plane	Respiratory status	Duration (approx)		Patient able to tolerate 15-20 minutes in scanner
T2 single shot	Coronal	Free breathing	30- 45 secs		Can use breath hold acquisitions to save time if patient able to cooperate
T2 single shot	Axial	Free breathing	30- 45 secs		IV contrast optional
bSSFP	Coronal	Resp triggered	2 mins		
T2 FSE	Axial (resp trig)	Resp triggered	3-5 mins		
T1 in-opp phase	Axial (resp trig)	Breath hold or free-breathing (5 NEX)	2-6 mins		
DWI (if no contrast)	Axial (Free Breathing)		3-4 mins		
T1FS (Pre-post if contrast is used)	Axial	Breath hold or free-breathing (5 NEX)	6 minutes		
	Total time:		~ 15-20 min		

TUMOR/INFECTION SPINE			Indications
			Detection and characterization of a focal abnormality
Sequence	Plane	Duration (approx)	Not meant to be used for the whole spine
T1	Sag	3	IV contrast optional, choose FS or non-FS T1 based on bone vs cord eval
T2 FS	Sag	2:30	
DWI	Sag	1	
Post-contrast T1 FS (bone eval)	Sag	5	
Post-contrast T2	Ax	4	
Post-contrast T1 (cord eval)	Ax	3:30	
		Total time:	~ 20 min

Osteomyelitis			Comments	Indications
				Evaluate for osteomyelitis in a long bone
Sequence	Plane	Duration (approx)		Limit axial coverage to abnormal region seen on other planes to save time
T1	Coronal	3		IV contrast optional
STIR	Coronal	3		
T2 FS	Axial	4-6		
T1	Sagittal	3		
Post-contrast T1 FS	Sagittal	3	Optional if abscess eval is indicated	
Post-contrast T1 FS	Coronal	3		
		Total time:	10-15	
			20-25 with gad	