Online supplement 1: MRI protocol

Sequence	SPGR inspiration/ expiration	FS T2 weighted PROPELLER	ZTE	MRA Fiesta
Acquisition plane	Sagittal	Axial	Axial	Coronal
TR/TE (ms)	1.5/0.6	*/73	1.1/0	3.6/1.1
flip angle (°)	2	90/120	2	50
RF	Selective	Selective	Non-selective	Selective
In-plane matrix	120x120	340x340	200x200	220x220
k-space trajectory	Cartesian	BLADES	Radial	Cartesian
In-plane Field-of-view (FOV)	36	34	30	40
RecFOV	0.75	-	-	-
Actual voxel resolution (mm^3)	3.0x3.0x3.0	1.0x1.0x3.5	1.5x1.5x1.5	1.8x1.8x1.8
Slices	90 (as in VIBE)	50-70	200	60-80
Slice thickness	3.0	3.5	1.5	1.8
Receiver bandwidth (KHz)	90	83.33	62.5	100
Parallel imaging	ARC (1.5x1.2)	3.0	None	Asset (2.0)
Number of average	1	2.0	2.5	1
No. of spokes per segment	-	14	512	150-180 ms
Physiological triggering	BH	Prospective pencil beam navigator	Prospective projection navigator	Respiratory gated and cardiac triggered
Scan time (sec) RR=20	+/- 6sec	+/- 5 min	+/- 6 min	+/- 6 min

Online supplement 1: MRI protocol. FOV; Field Of View, FS: fat suppressed, NEX; Number of Excitations, PROPELLER; Periodically Overlapping ParalLEL Lines with Enhanced Reconstruction, RF; radio frequency, SPGR; Spoiled Gradient Echo Sequence, TE; Echo Time, TR; Repetition Time. * TR chosen depended on the respiratory frequency of the patient.

Online supplement 2:

Online supplement 2A: Structured CT report

Structured CT report Congenital Lung Abnormalities

Scan protocol:

☐ Inspiration ☐ Volumetric Slice thickness: mm

☐ Expiration ☐ Volumetric Slice thickness: mm

Contrast enhancement:

☐ None

☐ Venous phase

☐ Arterial phase

A. Findings:

Location & extent:

	RUL	RML	RLL	LUL	LLL
Extent					

1= ⅓ lobe 2= ⅔ lobe 3=complete lobe

Airway:

☐ Normal connection

☐ Bronchomalacia

☐ Atresia

B. Lesion:

Cystic tissue:

- Structure:
  - ☐ Dominant cyst ☐ Cluster of multiple uniform cysts
- Average cyst size: mm
- Size of largest cyst: mm
- Content:
  - ☐ Air-filled
  - ☐ Fluid-filled
  - ☐ Air-Fluid levels

Solid tissue:

	RUL	RML	RLL	LUL	LLL
Extent					

1= ⅓ lobe 2= ⅔ lobe 3=whole lobe

- Density:
  - ☐ Homogeneous
  - ☐ Heterogeneous

C. Border:

☐ Well-defined ☐ Ill-defined

D. Vascularization:

Arterial:

☐ Normal pulmonary

☐ Aberrant :

Number & Size: Origin:

Venous:

☐ Normal pulmonary

☐ Aberrant :

Number & Size: Origin:

E. (Surrounding) tissue:

	RUL	RML	RLL	LUL	LLL
Atelectasis					
Low-attenuation					
Hyperinflation					

1= ⅓ lobe 2= ⅔ lobe 3=whole lobe

☐ Mass effect

☐ Mediastinal shift

☐ Mediastinal herniation

F. Conclusion

☐ CPAM

☐ BPS

☐ Hybrid lesion

☐ CLO

☐ BA

☐ BC

Online supplement 2B: Structured MRI report

Structured MRI report Congenital Lung Abnormalities

A. Findings:

Location & extent:

	RUL	RML	RLL	LUL	LLL
Extent					

1= ⅓ lobe 2= ⅔ lobe 3=complete lobe

Airway:

☐ Normal connection

☐ Bronchomalacia

☐ Atresia

☐ Not clearly visible

On which sequence was the airway best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

B. Lesion:

Cystic tissue:

- Structure:
  - ☐ Dominant cyst
  - ☐ Cluster of multiple uniform cysts
  - ☐ Not clearly visible
- Average cyst size: mm
- Size of largest cyst: mm
- Content:
  - ☐ Air-filled
  - ☐ Fluid-filled
  - ☐ Air-Fluid levels
  - ☐ Not clearly visible

On which sequence was the cyst(s) best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

Solid tissue:

	RUL	RML	RLL	LUL	LLL
Extent					

1= ⅓ lobe 2= ⅔ lobe 3=whole lobe

- Density:
  - ☐ Homogeneous
  - ☐ Heterogeneous

On which sequence was the solid tissue best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

C. Border:

☐ Well-defined ☐ Ill-defined ☐ Not clearly visible

On which sequence was the lesion border best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

D. Vascularization:

☐ Normal pulmonary

☐ Aberrant :

Number & Size: Origin:

On which sequence was the vascularization best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ MRA

E. (Surrounding) tissue:

	RUL	RML	RLL	LUL	LLL
Atelectasis					
Low-attenuation					
Hyperinflation					
1= ⅓ lobe 2= ⅔ lobe 3=whole lobe					

☐ Mass effect

☐ Mediastinal shift

☐ Mediastinal herniation

On which sequence was atelectasis best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

On which sequence was low-attenuation best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

On which sequence was hyperinflation best visualized:

☐ SPGR inspiration

☐ SPGR expiration

☐ T2-w PROPELLER

☐ ZTE

☐ Other, namely…

F. Conclusion

☐ Post- surgical CLA

☐ CPAM

☐ BPS

☐ Hybrid lesion

☐ CLO

☐ BA

☐ BC

Online supplement 3: Qualitative scoring method

Depiction of fissures	1. Unacceptable (invisible interlobar fissure) 2. Fair (blurred interlobar fissure) 3. Good (visible interlobar fissure)
Depiction of intrapulmonary vessels	1. Unacceptable (invisible peripheral pulmonary vessels) 2. Poor (barely visible peripheral pulmonary vessels) 3. Fair (visible peripheral pulmonary vessels) 4. Good (visible peripheral pulmonary vessels with clear margin) 5. Excellent (visible peripheral pulmonary vessels with clear margin)
Depiction of bronchi	1. Unacceptable (indistinguishable lobar bronchial walls) 2. Poor (visible lobar bronchial walls with <10 visible segmental bronchial walls) 3. Fair (visible lobar bronchial walls with >10 visible segmental bronchial walls) 4. Good (visible lobar bronchial walls with >10 visible segmental bronchial walls, with few visible sub/segmental bronchial walls) 5. Excellent (visible sub-subsegmental bronchial walls)
Image noise/artifacts	1. Unacceptable 2. Above average noise/artifacts 3. Average and acceptable 4. Less than average noise/ artifacts 5. Minimum of no noise/artifacts
Overall acceptability	1. Unacceptable 2. Suboptimal 3. Satisfactory 4. Above average 5. Superior

Online supplement 3: Qualitative scoring method adjusted from Bae *et al*. (European Radiology 2020)