

Latest revision: 2022-10-02

MR1: BRAIN contrast

DWI & ADC map

T1 AX

T1SAG

FSE (TSE) T2 AX

FLAIR AX

GRE T2*AX

GE: MPGR AX

Siemens: FLASH 2D AX

Philips: FFE AX

Toshiba: FE AX

GAD T1 AX

GAD T1 SAG

GAD T1 COR

(if patient is not moving, then do GAD volume acquisition T1 AX, then reconstruct the GAD T1 SAG & COR from it. If so, do not perform actual GAD T1 SAG and COR).

MR2a: BRAIN noncontrast

DWI & ADC map

T1 SAG

FSE (TSE) T2 AX

FLAIR AX

GRE T2*AX

MR2b: BRAIN ER stroke

DWI & ADC map

FSE (TSE) T2 AX

FLAIR AX

GRE T2*AX

MR3: BRAIN MS (multiple sclerosis)

DWI & ADC map

T1AX

T1SAG

FSE (TSE) T2 AX

FLAIR SAG

FLAIR AX

GAD T1 AX

GAD T1 COR

MR4: BRAIN trauma bleed

Do: MR2: BRAIN noncontrast

MR5: BRAIN nontrauma bleed

Do: MR1: BRAIN contrast

MR6: BRAIN seizure new onset adult (and children 10 years and older)

Do: MR1: BRAIN contrast
Replace GRE T2* AX with T2* COR

MR7: BRAIN seizure chronic adult (and children 10 years and older)

DWI & ADC map
T1SAG whole brain (include all of temporal lobes)
FSE (TSE) T2 AX whole brain
FLAIR COR whole brain
GRE T2* COR thin slice whole brain (slice 5, skip 0.5)
Ultrafast gradient echo COR whole brain (nose to back of skull, slice 1.5, skip 0)
 GE: 3D FGRE or 3D Fast SPGR COR
 Siemens: 3D MP RAGE COR
 Philips: 3D TFE
 Toshiba: QUICK 3D

note: all coronals FOV = 22 X 16
precise head positioning and centering are critically important in all COR (use standard angling).
If FLAIR or T2 shows a mass, then skip the Ultrafast gradient echo COR whole brain, and instead do
GAD T1 AX and GAD T1 COR

MR8: BRAIN pediatric routine (age 0 - 10 years)

Note: for age greater than 10 years, use adult brain protocol

Schedule with anesthesiology service unless referring physician or parent is confident that sedation is not necessary.
Some sleeping infants can be scanned without medication: use your judgement

DWI & ADC map
T1 SAG
T1 AX
FSE (TSE) T2 AX
FLAIR AX

Send to PACS and have a neuroradiologist (Nam or Pulnik) look at images and have them decide whether to give GAD
If no neuroradiologist is available, it is your (the technologist's) option to ask a non-neuroradiologist at any facility if he wants to look at the pre-contrast images. If no radiologist is willing and/or available to view the pre-contrast images, then give GAD (if it was ordered as with and without contrast):

GAD T1 COR
GAD T1 SAG
GAD T1 AX

The radiologist who makes a decision not to give contrast must interpret and dictate the case.

MR9: BRAIN pediatric seizures (age 0 -10 years)

Note: for age greater than 10 years, use one of the (appropriate) adult seizure protocols

All sequences are whole brain

DWI & ADC map

T1 SAG
TSE T2 AX (age <1 year: TR = 3000, TE = 120) (age >1 year: TR = 2500, TE = 80)
T1 AX
FLAIR COR
Ultrafast gradient echo COR (see abbreviations page) slice 1.5, skip 0
GAD T1 AX
GAD T1 COR

MR10: SELLA

DWI & ADC map
T1 SAG whole brain
FLAIR AX whole brain
T1 COR sella
FSE (TSE) T2 COR sella (only if you see obvious sellar and suprasellar mass)
GAD dynamic T1 COR sella (only if you do NOT see obvious sellar and suprasellar mass)
GAD T1 COR sella (FATSAT if patient has had sella surgery before)
GAD T1 SAG sella (FATSAT if patient has had sella surgery before)
GAD T1 AX whole brain