

icobrain MRI guidelines for neurological conditions

Transforming patient care through imaging AI

Acquisition guidelines

Artifacts and anatomical deviations

Please do your best to make sure the images are free of controllable artifacts and have minimal to no extensive deviations to normal anatomical brain structures. We understand that sometimes factors such as surgical implants and pathological abnormalities are unavoidable, but please note that these too may have a detrimental impact on the results of fully automatic measurements.

Time interval between scans

If available, send the prior unprocessed MRI images chronologically for longitudinal comparison. When the time interval between the two follow-up sessions is shorter than 120 days the annualized brain volume change measurement will not be provided, since the anatomical volume change would typically be as low as (or lower than) the measurement error.

Scanner variability

For generation of longitudinal comparison icobrain reports, it is necessary to include images acquired with the same sequences on the same scanner model, using an identical, or very similar, acquisition protocol, between acquisitions.

Protocol guidelines

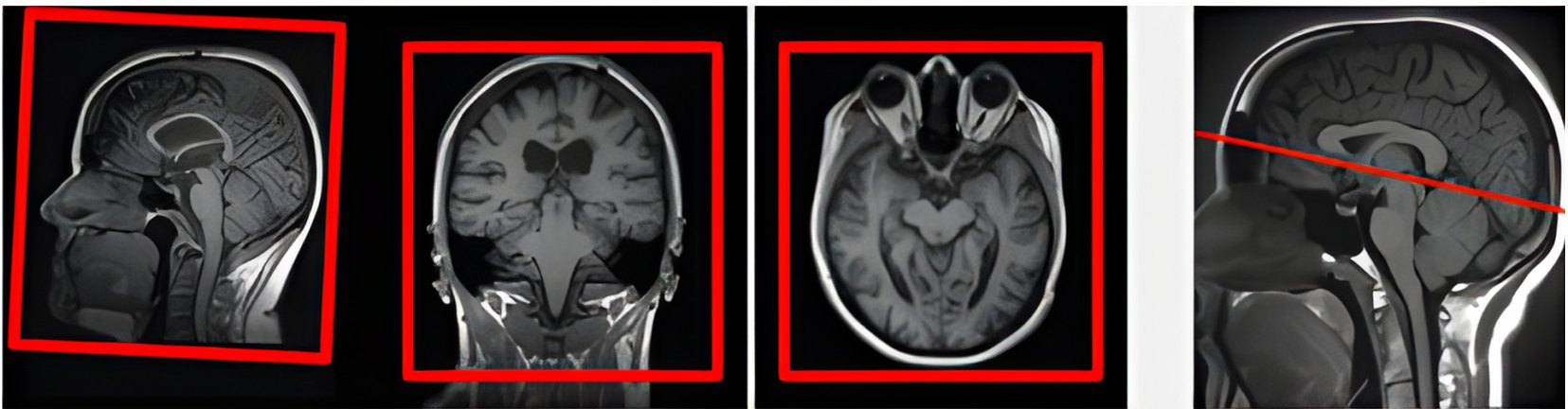
The acquisition protocol has an impact on the quality of the provided measurements. It is therefore of great importance to comply with our protocol guidelines and acquire high quality brain images.

An ‘unusable’ report will be returned when the image transfer was interrupted or incomplete, or not in compliance with the protocol guidelines. If the missing sequence is available in your PACS, you can resend the complete session again.

Scans from all MR scanner brands and models are accepted. Sequences need to be acquired from a single adult patient (≥ 16 years for all modules except icobrain ep - icobrain ep accepts patients ≥ 4 years of age).

-  icobrain ms
3D T1w pre-contrast & 2D or 3D FLAIR
-  icobrain dm
3D T1w pre-contrast + 2D FLAIR & 2D T2*GRE
-  icobrain aria
2D FLAIR & 2D T2*GRE
-  icobrain tbi
3D T1w pre-contrast & 2D or 3D FLAIR
-  icobrain ep
3D T1w pre-contrast & 2D or 3D FLAIR

Note that for icobrain dm the FLAIR and GRE images are optional inputs



FOV & Positioning
Make sure to include the entire head (brain + skull). Incline: anterior commissure-posterior commissure line. Some angulation correction is applied but excessive head tilt can affect the segmentation.

Sequence	Sequence names	Slice Thickness & Slice Gap
3D TI-weighted pre or post contrast	Siemens: MPRAGE or T1 mpr Philips: TFE GE: SPGR or FSPGR or BRAVO Canon/Toshiba: FFE3D Hitachi: GEIR or RSSG	Preferred voxel size: 1 mm x 1 mm (not required) Preferred spacing/slice gap: 0mm Preferred slice thickness + slice gap: equals 1 mm Max slice thickness + slice gap: equal or less than 1.5 mm
3D or 2D FLAIR (preferred 3D)	Siemens: SPACE 3D TFLR or 3D IR-TSE Philips: VISTA 3D TFLR or 3D IR-TSE GE: CUBE FLAIR Canon/Toshiba: 3D MVOX FLAIR Hitachi: isoFSE FLAIR	Preferred voxel size: 1 mm x 1 mm (not required) Preferred spacing/slice gap: 0mm 3D preferred slice thickness + slice gap: equals 1 mm 2D Max slice thickness + slice gap: equal or less than 3mm