

ABCD MRI Protocol

The ABCD MRI protocol utilizes technical advances in scanner hardware and post-processing techniques to create a harmonized protocol that enables an advanced imaging protocol across sites and scanner manufacturers without the need for any non-commercially available upgrades. The ABCD MRI protocol is currently available on Siemens, GE, and Philips MRI scanners.

The ABCD imaging protocol includes:

- 1) a 3D T₁-weighted magnetization-prepared rapid acquisition gradient echo scan, for cortical and subcortical segmentation;
- 2) a 3D T₂-weighted variable flip angle fast spin echo scan, for detection and quantification of white matter lesions and CSF;
- 3) a high angular resolution diffusion imaging (HARDI) scan, with multiple b-values, for segmentation of white matter tracts and measurement of diffusion parameters;
- 4) high spatial and temporal resolution resting state and task fMRI scans.

General scan parameters can be found here:

https://abcdstudy.org/images/Protocol_Imaging_Sequences.pdf

More detailed parameters can be found in the protocol files for each manufacturer, located here:

https://github.com/nih-fmrip/abcd_protocols

For sites that wish to scan an ABCD-like protocol at non-ABCD sites, please contact the appropriate vendor representative to ensure that you have the necessary hardware as well as the additional pulse sequence files that are required to scan the ABCD protocol:

GE: Suchi Banerjee (Suchandrima.Banerjee@ge.com)

Philips: Peter Martin (peter.martin@philips.com)

Siemens: Guy Poloni (guy.poloni@siemens-healthineers.com)