SCAN PET Protocol

Largely based on ADNI – meant for compatibility

Scanner qualification

Acquisition Protocols

Data uploads

Quality Control

Pre-processing

Data analysis

Scanner Qualification

If a scanner is qualified for ADNI, no need for re-qualification

All scanners not previously qualified will need to follow the standard ADNI protocol: Imaging of Hoffman brain phantom (supplied by SCAN) with F18 radioactivity x 2 uploaded for QC

As in ADNI, a single scanner must be used for all imaging in SCAN

PET Acquisition Protocols

Amyloid	PIB	10-15 mCi	40-60 or 50-70 min frames
	Florbetapir	10 mCi	50-70 or 50-60 min frames
	Florbetaben	8 mCi	90-110 min frames
Tau	Flortaucipir	10 mCi	80-100 min frames
	MK6240	5-10 mCi	70-90 or (90-110 possible) min frames
	PI2620	5 mCi	AD: 45-75 min frames Non AD: 0-60 or 30-60
	Other tau tracers	Pending	Pending
	FDG	5 mCi	30-60 min frames

Protocol Modifications/Deviation

Centers wishing to collect novel frames or dynamic data are free to do so, but will be required to upload the standard frames

Scans that do not comply with protocol will not be QC'd, curated, or counted towards center numbers

Imaging protocols for new tracers will be defined by consensus and data

Data Uploads

Image data will be managed by NACC and LONI together

Uploads of images to NACC/LONI

All scans accompanied by an “information sheet” listing acquisition conditions/parameters

Quality Control/Pre-Processing

University of Michigan – Bob Koeppe (ADNI Methods)

QC

Subject motion

Check Field of View

Artifacts

Check data against headers and protocol

Pre-processing

Coregister and average frames that pass QC

Standard voxel size/grid

Reorientation/intensity normalization

Smoothing on a per-scanner basis to 8 mm isotropic resolution

Data Analysis

Contemporaneous MRI is desired but not required

We will use MRI-free processing pipelines

All numerical data returned to NACC where they can be linked to participant

All QC'd and processed scans to NACC/LONI

Data Analysis: PET

Amyloid PET

Regional FreeSurfer based SUVRs

Centiloid Conversion of all data

Amyloid positivity based on accepted thresholds

Tau PET

Regional FreeSurfer based SUVRs

Aggregate summary ROIs (Braak stages, meta-ROI)

FDG-PET (Depending on need)

FreeSurfer based SUVRs

Atlas-based spatial normalization with calculation of SUVRs in meta-ROI