

SCAN Update

Imaging Core Meeting
Austin, May 2024

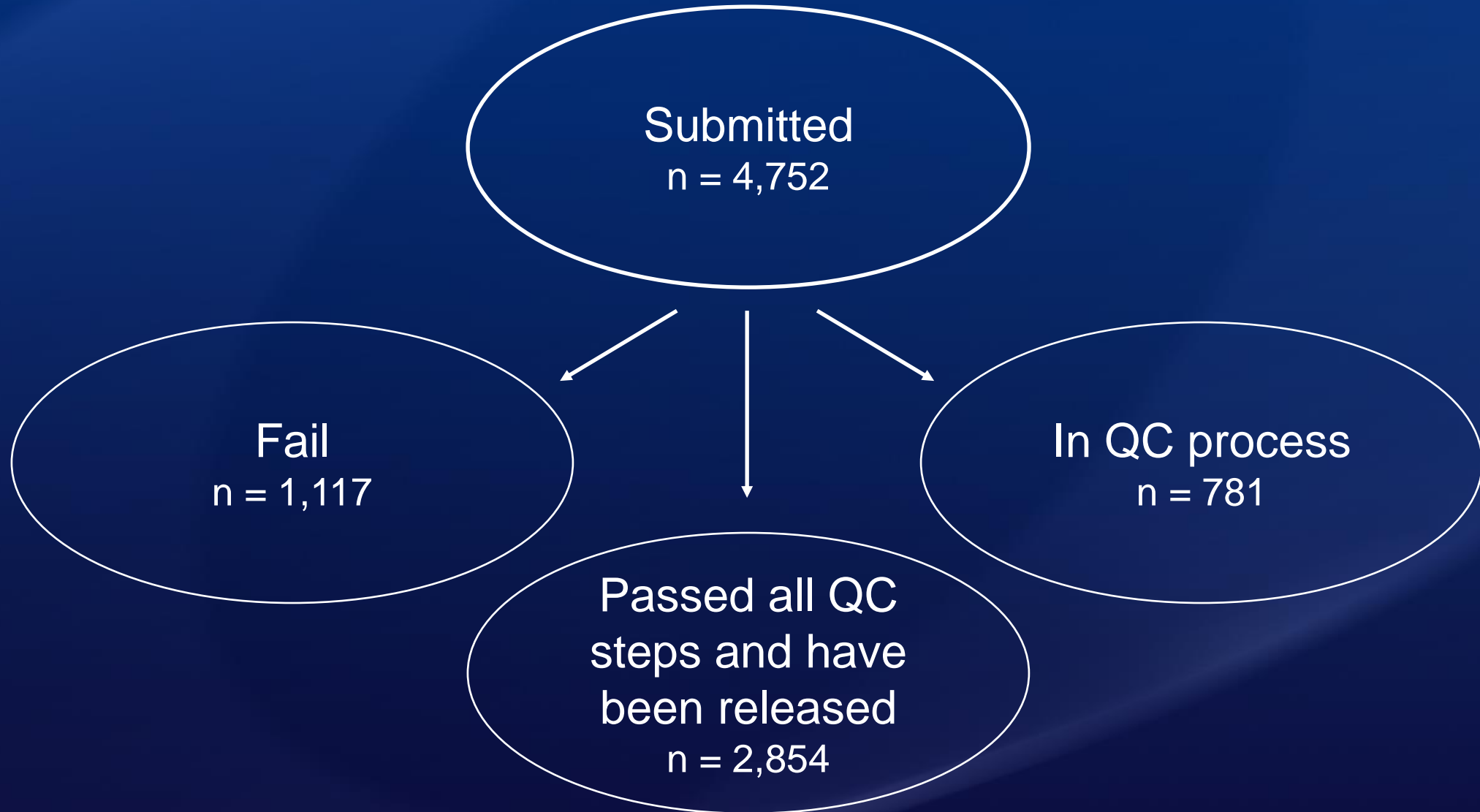
Cliff Jack, Suzanne Baker, Sarah Biber, Bret Borowski, Trevor Chadwick, Karen Crawford, Charles DeCarli, Brittany Hale, Tessa Harrison, Sterling Johnson, Bob Koeppe, Susan Landau, Jia Qie Lee, Oliver Martinez, Beth Mormino, Pauline Maillard, Chris Schwarz, Arthur Toga



Disclosures

Dr Jagust is a member of a data monitoring committee for Lilly and holds equity in Optoceutics and Molecular Medicine

Exam Level Summary: one exam = several series (i.e., 3D T1w, FLAIR, etc): mean 4.7 series per exam (range, 1-46 series/exam)



MRI Workflow operates at series level not by exam

Number of Not Usable Series
(n = 12,136 / 22,589 (54%))

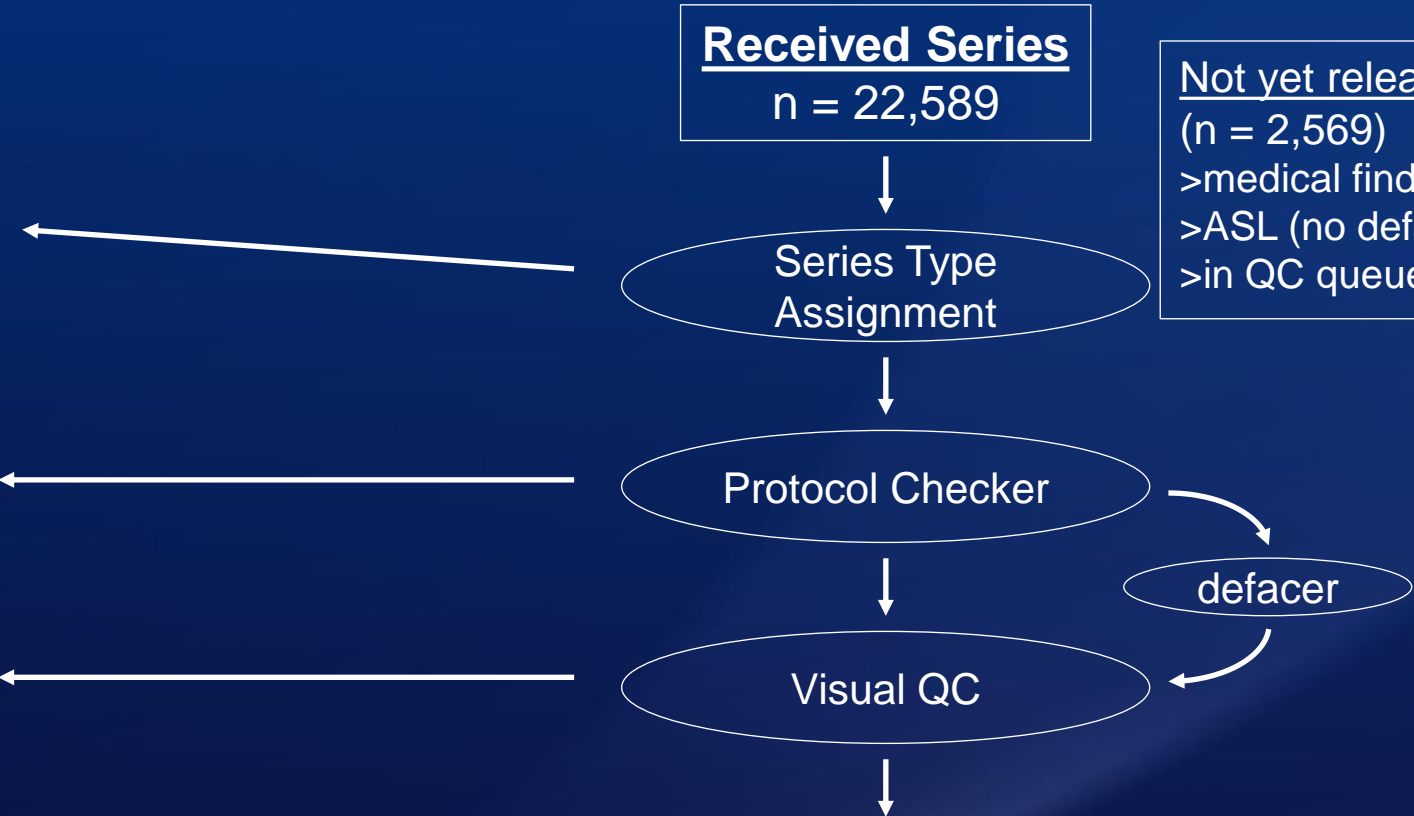
- Not relevant series (n = 5,831)
 - Scout, derived maps, cal scan, etc

- Errors (n = 5,485)
 - Site defaced
 - Missing slices
 - Wrong parameters
 - Site over anonymized DICOM

- Visual QC fail (n = 820)
 - Motion
 - Susceptibility artifact
 - Malfunctioning coil

Received Series
n = 22,589

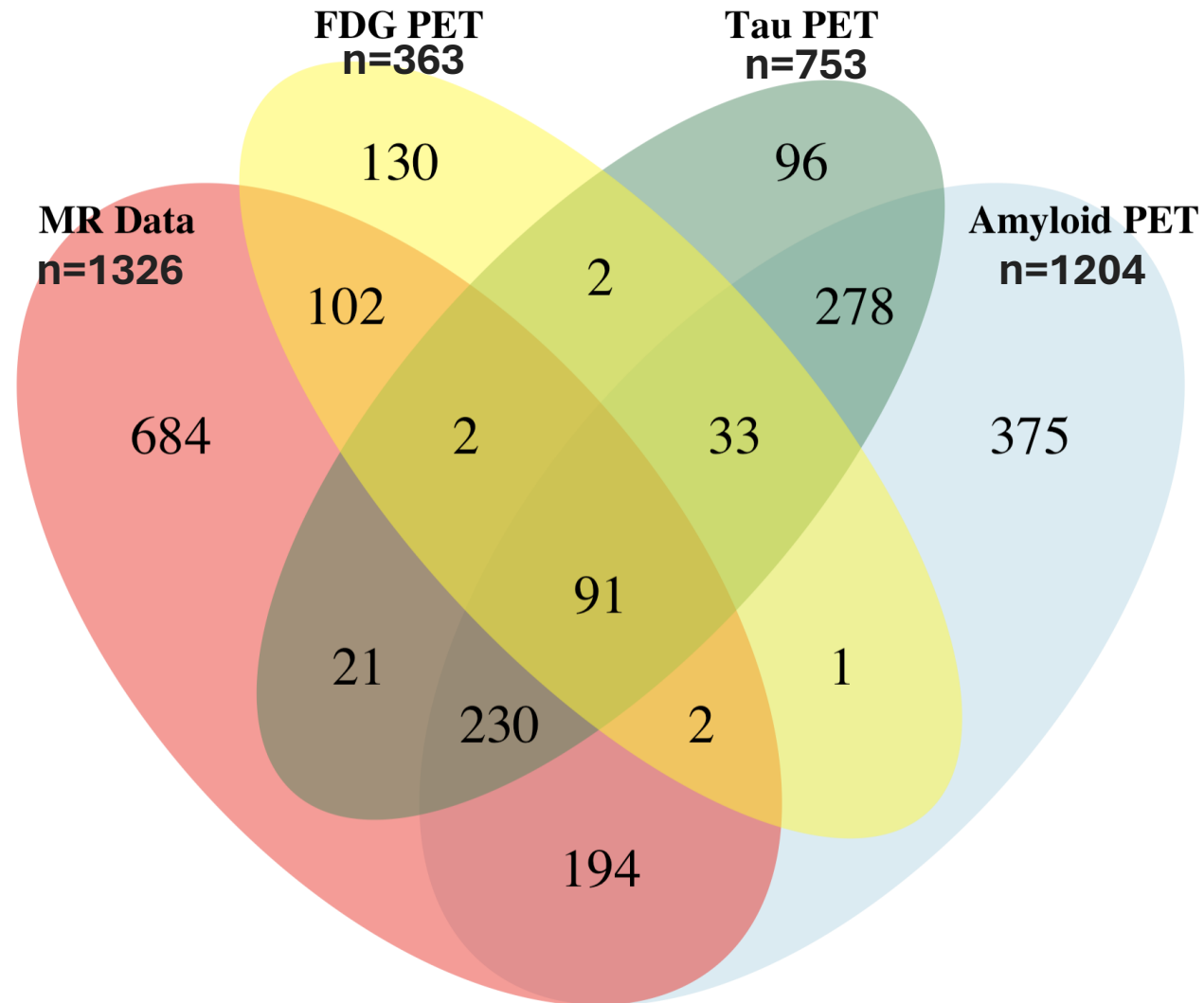
Not yet released
(n = 2,569)
>medical findings
>ASL (no deface)
>in QC queue



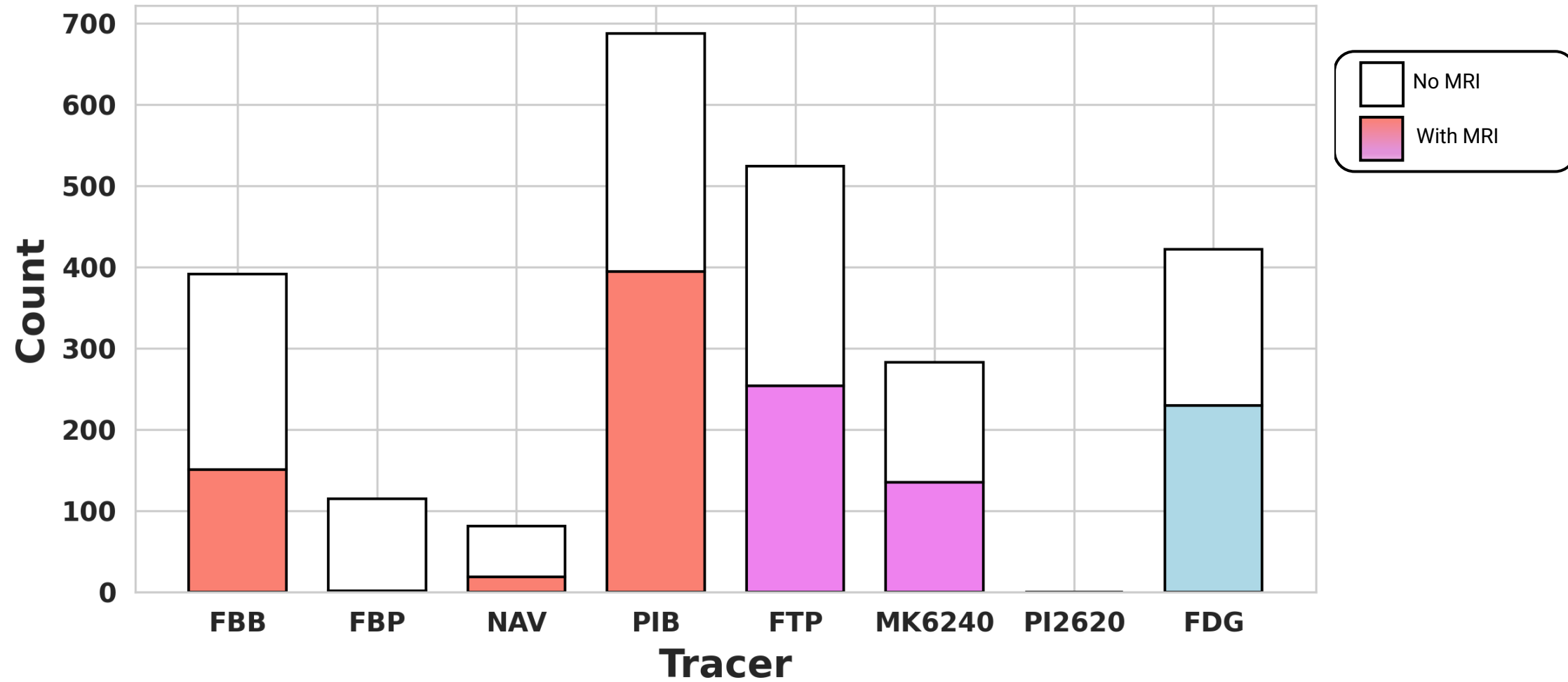
Number Released								
T1	FLAIR	T2	GRE / T2*	dMRI	ASL	HRH	fMRI	Total
2,909	2,699	233	543	573	0	583	344	7,884

3,646 Analyzed MRI + PET Scans in 2,241 Participants

("baseline" only)



Analyzed PET Scans (Total=2503)



(Unique PET Scans including longitudinal)

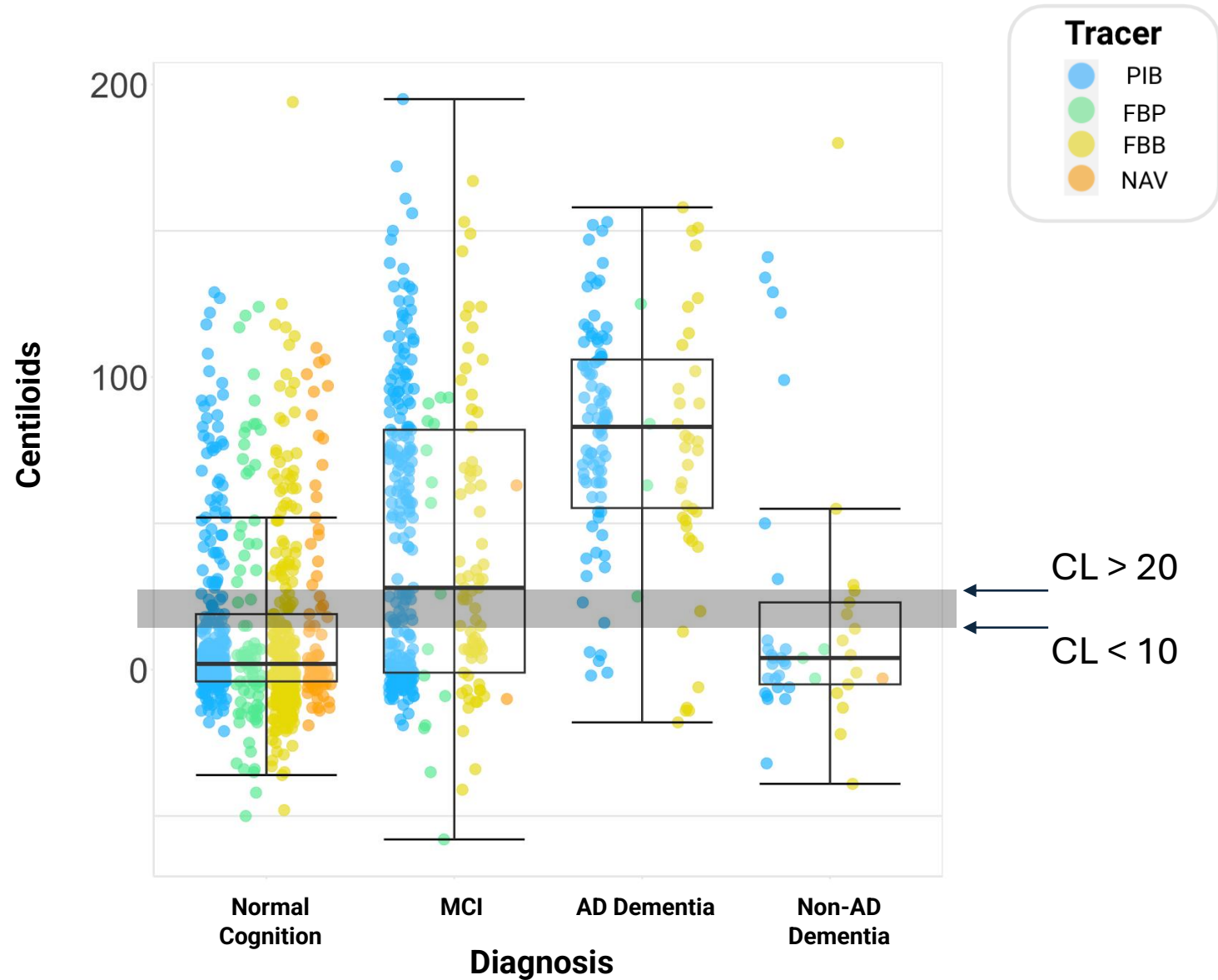
Sample Characteristics (N=1294)

Without FDG, non-AD MCI patients, longitudinal scans

	Normal	MCI	AD	Non-AD dementia
N	781	326	135	52
Age	72	72.8	70.5	67.5
Sex (%M)	66.1	45.4	58.5	28.8
Education	16.5	16.3	16.3	16.5
URGs	232	71	13	3
MMSE	29.3	28.7	26	26
%A β positive	28.8	58	88.9	28.8
Centiloids	13.9	43.8	79.1	20.9

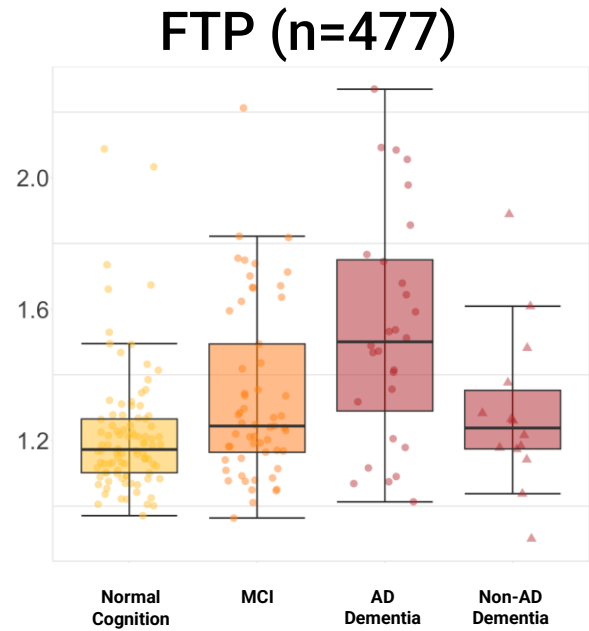
Available data: Numerical values for FreeSurfer ROIs, reference regions, centiloid values (amyloid), data dictionary

Harmonized Amyloid (Centiloids) by Tracer and Diagnosis

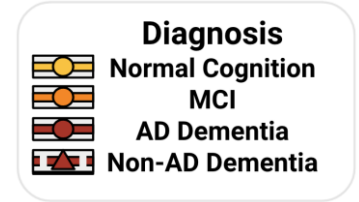
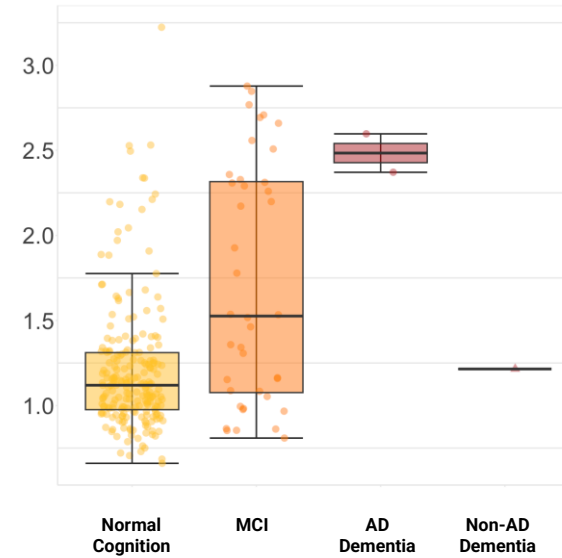


Tau PET (FTP and MK6240) by Diagnosis

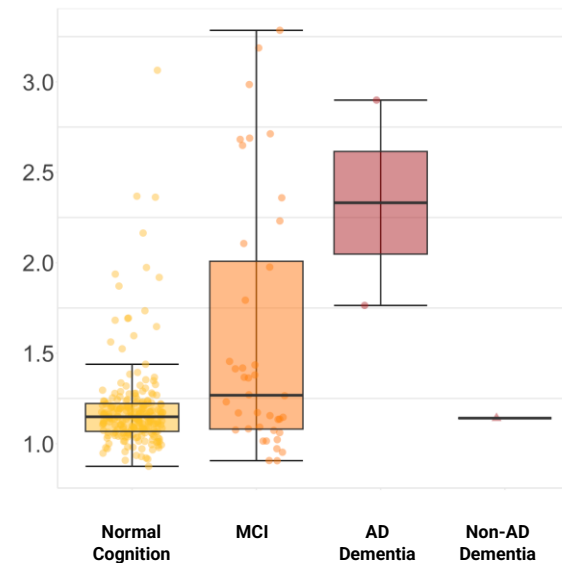
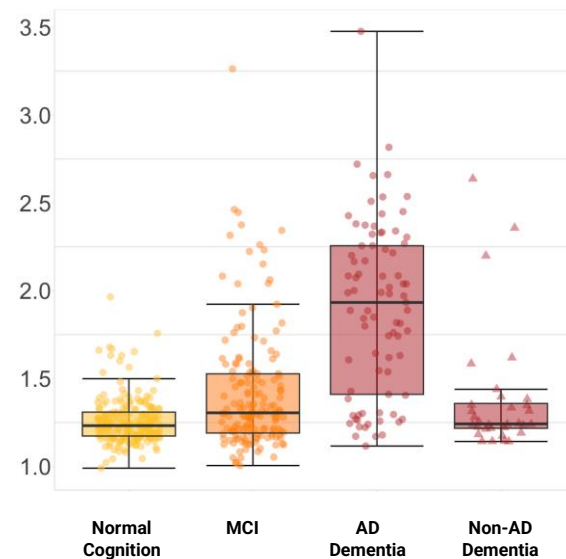
Entorhinal SUVR



MK6240 (n=259)

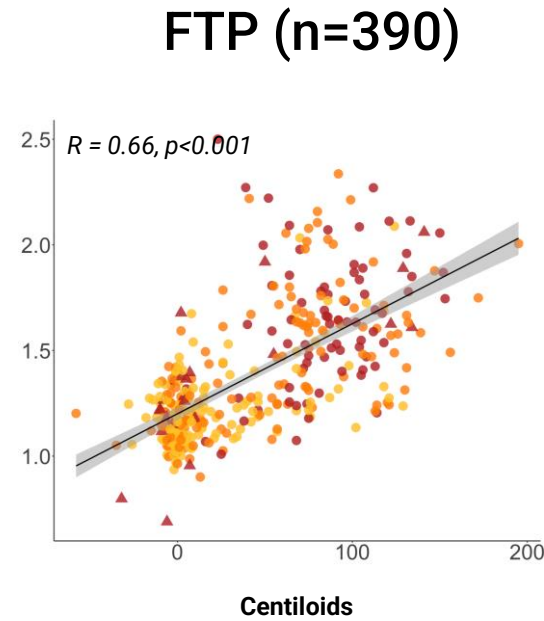


Metatemporal SUVR

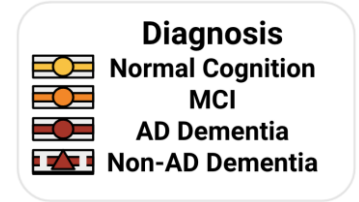
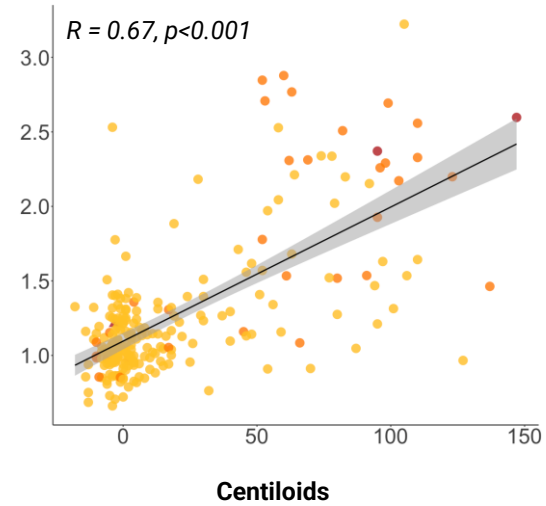


Tau SUVRs vs Amyloid (Centiloids)

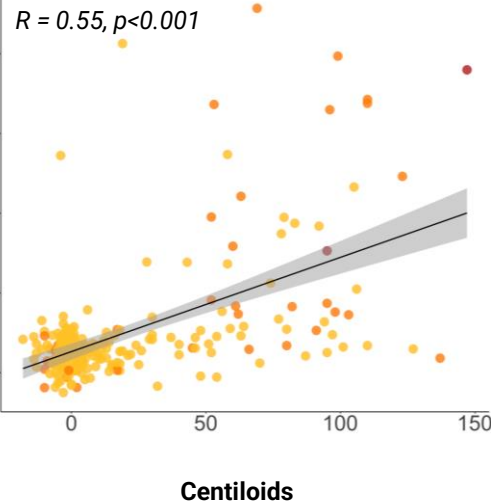
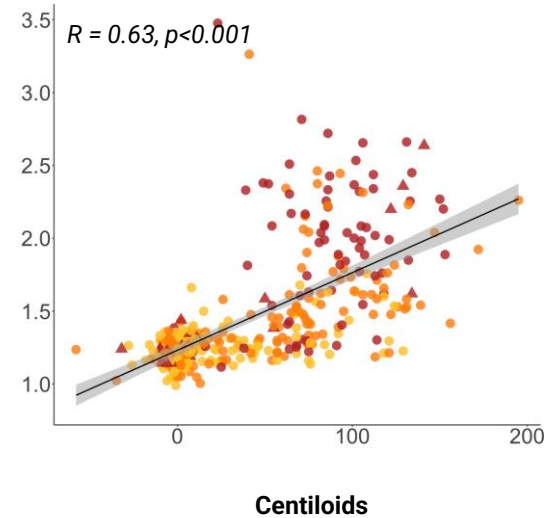
Entorhinal SUVR



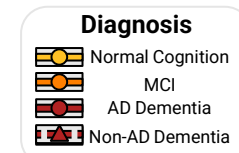
MK6240 (n=228)



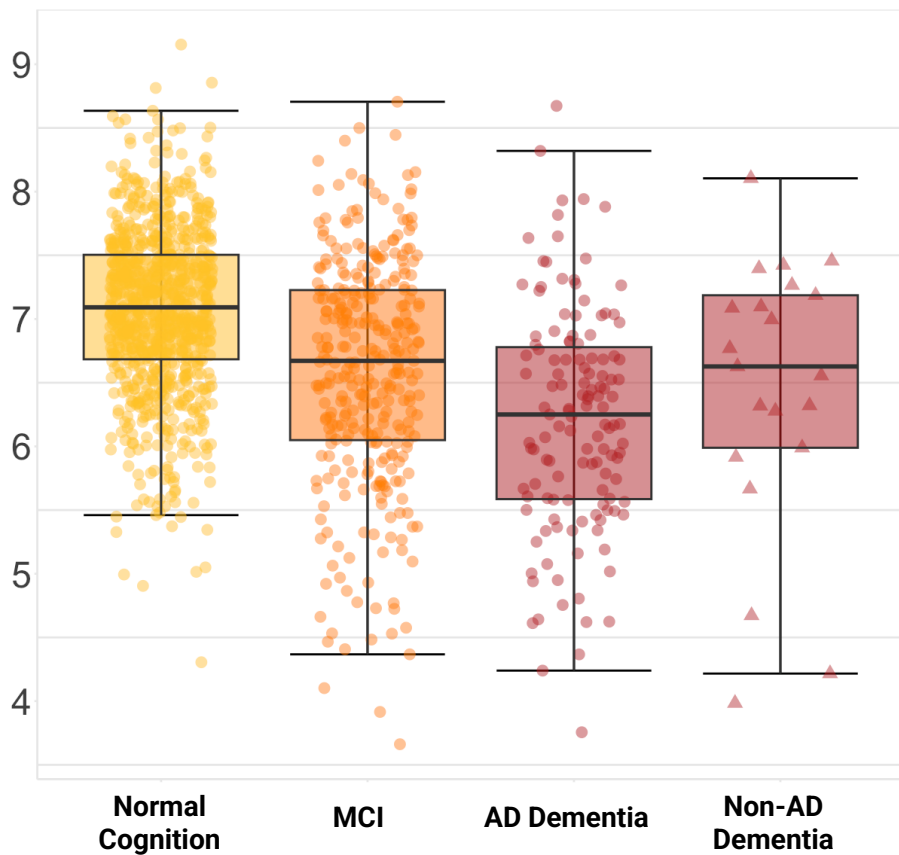
Metatemporal SUVR



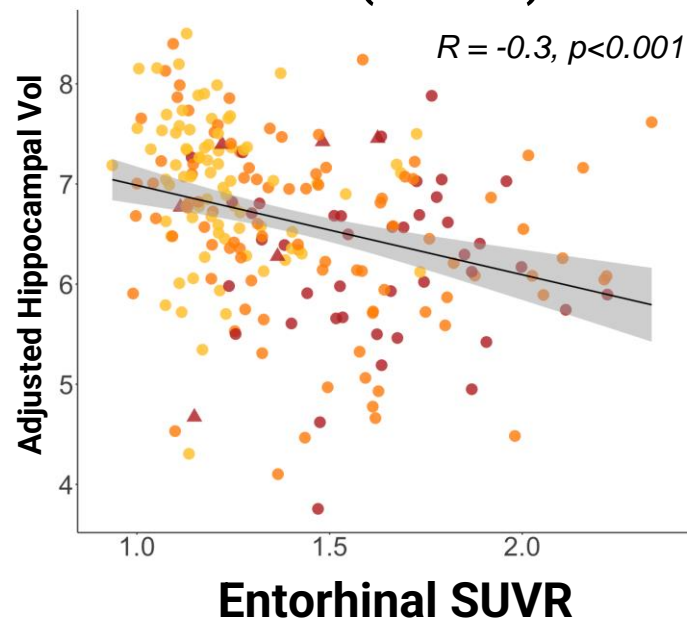
Adjusted Hippocampal Volume vs Tau



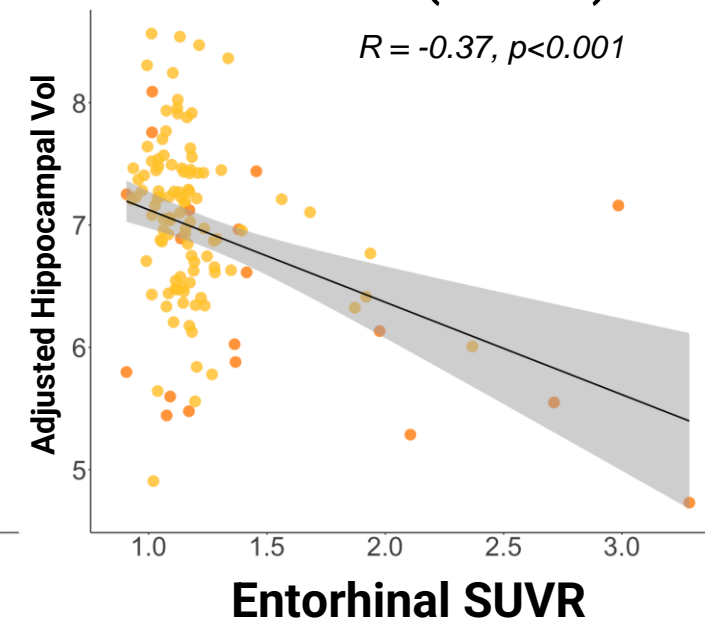
Adjusted Hippocampal Vol (n=1297)



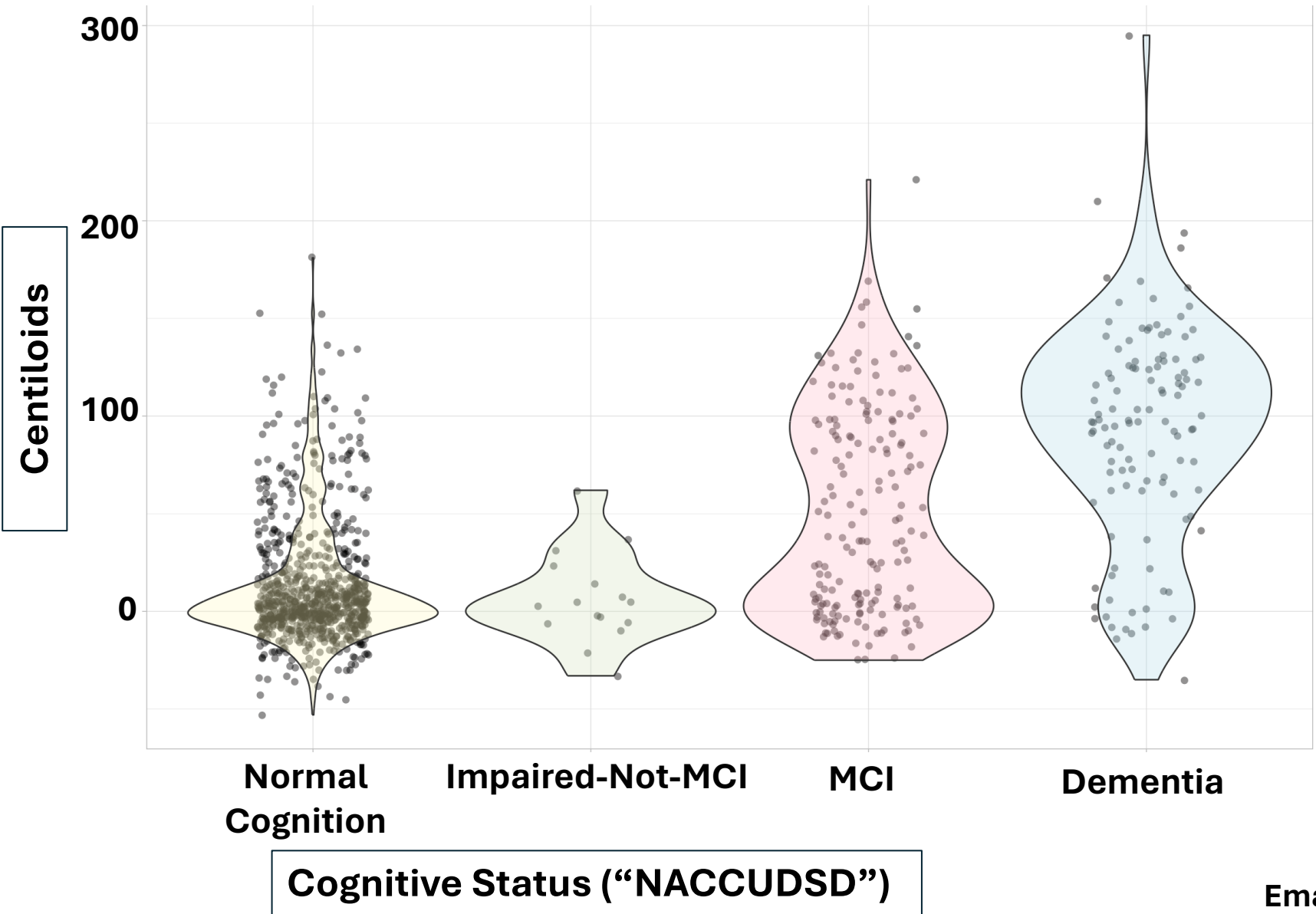
FTP (n=218)



MK6240 (n=146)



SCAN-Legacy




These scans were acquired before the start of SCAN and were gathered and analyzed at Stanford using methods identical to other PET images in the program. All data will be merged with other SCAN data

Amyloid	
PIB	531
FBP	560
FBB	244
Total Amyloid Scans	1335
Tau	
FTP	115
MK6240	103
Total Tau Scans	218



Email bmormino@stanford.edu to contribute

Requests to Sites

- Update certified scanner(s) to the ADNI 4 protocol – contact Bret Borowski (SCANmri@mayo.edu)
- Do not upload exams acquired prior to 01 January 2021
- Do not self deface series
 - This is done centrally by SCAN for all relevant series prior to release
 - Defacing free for all creates undesirable data heterogeneity
- Do not self anonymize DICOM
 - This is done by LONI at upload
 - May be impossible to protocol check or even display as an image
- Do not upload same exam(s) multiple times - adds unnecessary investigation and clean-up time/effort which diminishes throughput
-  Do not upload exams with wrong patient ID