

The data presented in the following reports reflect the NNTC central database as of
February 03, 2025

Usage Statement

Distribution of the data contained in this report through publication or presentation should be reported to the Data Coordinating Center. Reporting usage of the NNTC resources helps to ensure continuation of this valuable resource!

The NNTC is directly funded by the NIMH, NIA, NIDA, and NINDS.

Questions regarding these data should be directed to the Data Coordinating Center
The Emmes Company
Rockville, MD
nntc@emmes.com

Study Overview

Consortium Members

Cohort Enrollment & Study Status

Co-Enrollments

Cohort Status

Serial Fluid Specimen Inventory

CHARTER Fluid Specimen Inventory

Length of Study Participation

Participants Enrolled by Year

Cohort Status Over Time

Diagnostic Normality

Resource Requests

Cases Shipped

Specimens Shipped

Bibliography

COVID-19

Click on a content link to navigate to the corresponding slide. To return to the Table of Contents from anywhere in the report, click on the NNTC logo found on each slide in the upper left corner.

Cross Sectional Cohort Overview: PWH

Baseline Demographics

Baseline HIV Characteristics

Baseline Psychiatric Diagnoses

Baseline Cognitive Diagnoses

Change in Cognitive Diagnosis

Baseline Neurologic Diagnoses

Total Fluid Specimens Available

Total Assessments Completed

Concomitant Medications

Ancillary Lab Measurements

Comorbidities

Click on a content link to navigate to the corresponding slide. To return to the Table of Contents from anywhere in the report, click on the NNTC logo found on each slide in the upper left corner.

Active Cohort Overview: PWH

Current and Baseline Demographics

Current and Baseline HIV Characteristics

Baseline Frailty Characteristics

Baseline Cerebrovascular Characteristics

HIV Motor Scale

Current and Baseline Psychiatric Diagnoses

Current and Baseline Cognitive Diagnoses

Change in Cognitive Diagnosis:

- Normal at Baseline

- Subsyndromic/ANI at Baseline

- NPI-O at Baseline

- MCMD/MND at Baseline

- HAD at Baseline

Current and Baseline Neurologic Diagnoses

Concomitant Medications

Ancillary Lab Measurements

Click on a content link to navigate to the corresponding slide. To return to the Table of Contents from anywhere in the report, click on the NNTC logo found on each slide in the upper left corner.

Tissue Bank Cohort Overview: PWH

CNS Specimens Available

Fluids Available (%)

Demographics

cART Era Demographics

HIV Characteristics

cART Era Viral Load

Pathological Conditions: Year of Autopsy

Last Psychiatric Diagnosis

Baseline Psychiatric Diagnosis

Cognitive Diagnosis (%)

Change in Cognitive Diagnosis

Neurologic Diagnoses

Concomitant Medications

Ancillary Lab Measurements

Click on a content link to navigate to the corresponding slide. To return to the Table of Contents from anywhere in the report, click on the NNTC logo found on each slide in the upper left corner.

Consortium Members

Texas NeuroAIDS Research Center

University of Texas Medical Branch
Dr. Benjamin Gelman, Principal Investigator

California NeuroAIDS Tissue Network

University of California, San Diego
Dr. David Moore, Principal Investigator

National Neurological AIDS Bank

University of California, Los Angeles
Dr. Elyse Singer, Principal Investigator

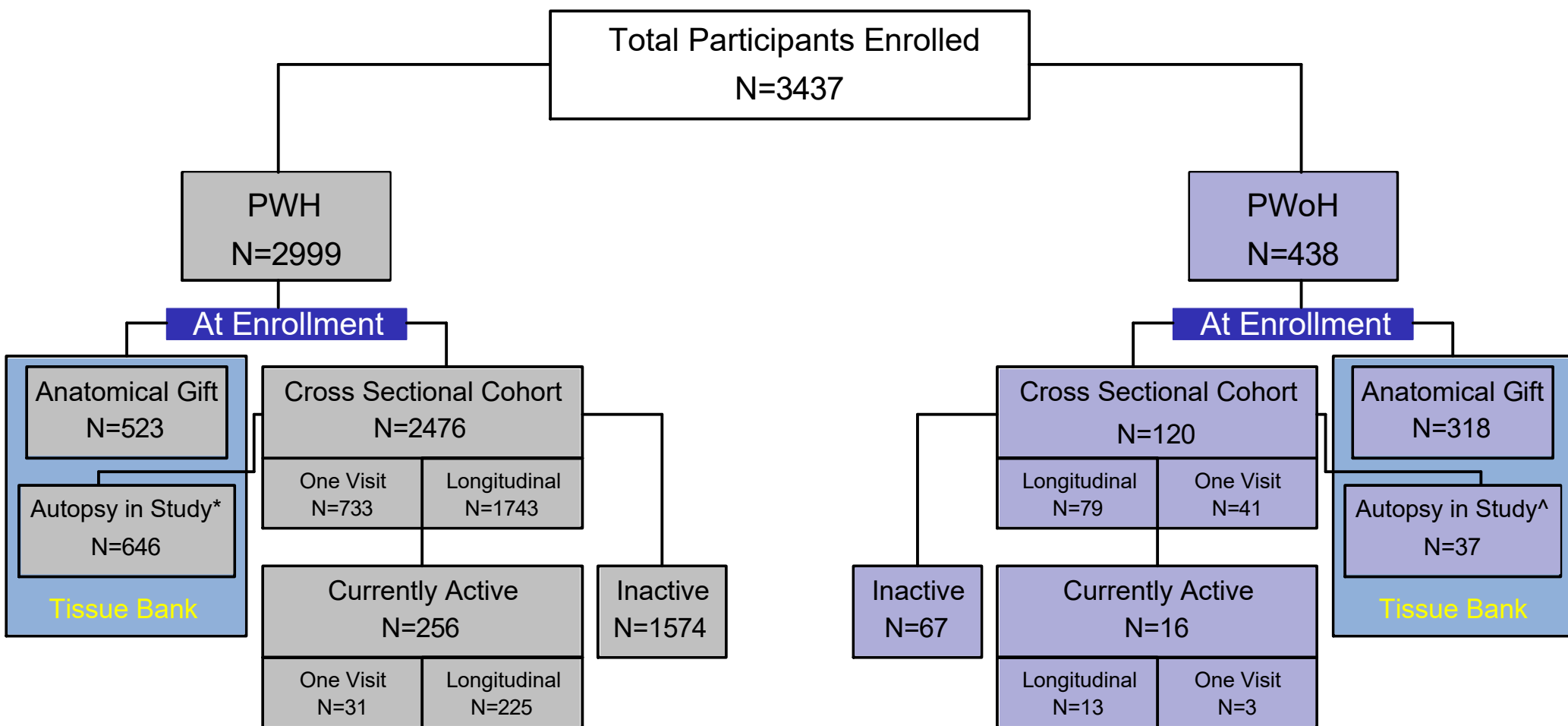
Manhattan HIV Brain Bank

Mount Sinai Medical Center, New York
Dr. Susan Morgello, Principal Investigator

Washington University in St. Louis School of Medicine (WUSM)

Washington University in St. Louis
Dr. Beau Ances, Principal Investigator

Cohort Status Overview



PWH: People with HIV.

PWoH: People without HIV.

Longitudinal Cohort: Participants enrolled with 2 or more study visits.

Tissue Bank: Participants deceased with autopsy.

Total does not include 262 cases categorized as unknown HIV status, unknown study status, lost to follow-up, administratively censored, withdrawn, or deceased without autopsy prior to enrollment.

PWH inactive cases are either lost to follow-up/administratively censored/withdrawn (N=1199) or deceased without autopsy (N=375).

PWoH inactive cases are either lost to follow-up/administratively censored/withdrawn (N=47) or deceased without autopsy (N=20).

* 260 autopsy cases included in Cross Sectional Cohort; 386 autopsy cases included in Longitudinal Cohort.

^ 24 autopsy cases included in Cross Sectional Cohort; 13 autopsy cases included in Longitudinal Cohort.

NNTC Participants Co-enrolled or in a Special Cohort

Study Name:	# Participants Enrolled
WIHS	67
CHARTER	109
Last Gift	43
NIDA Opioid	53

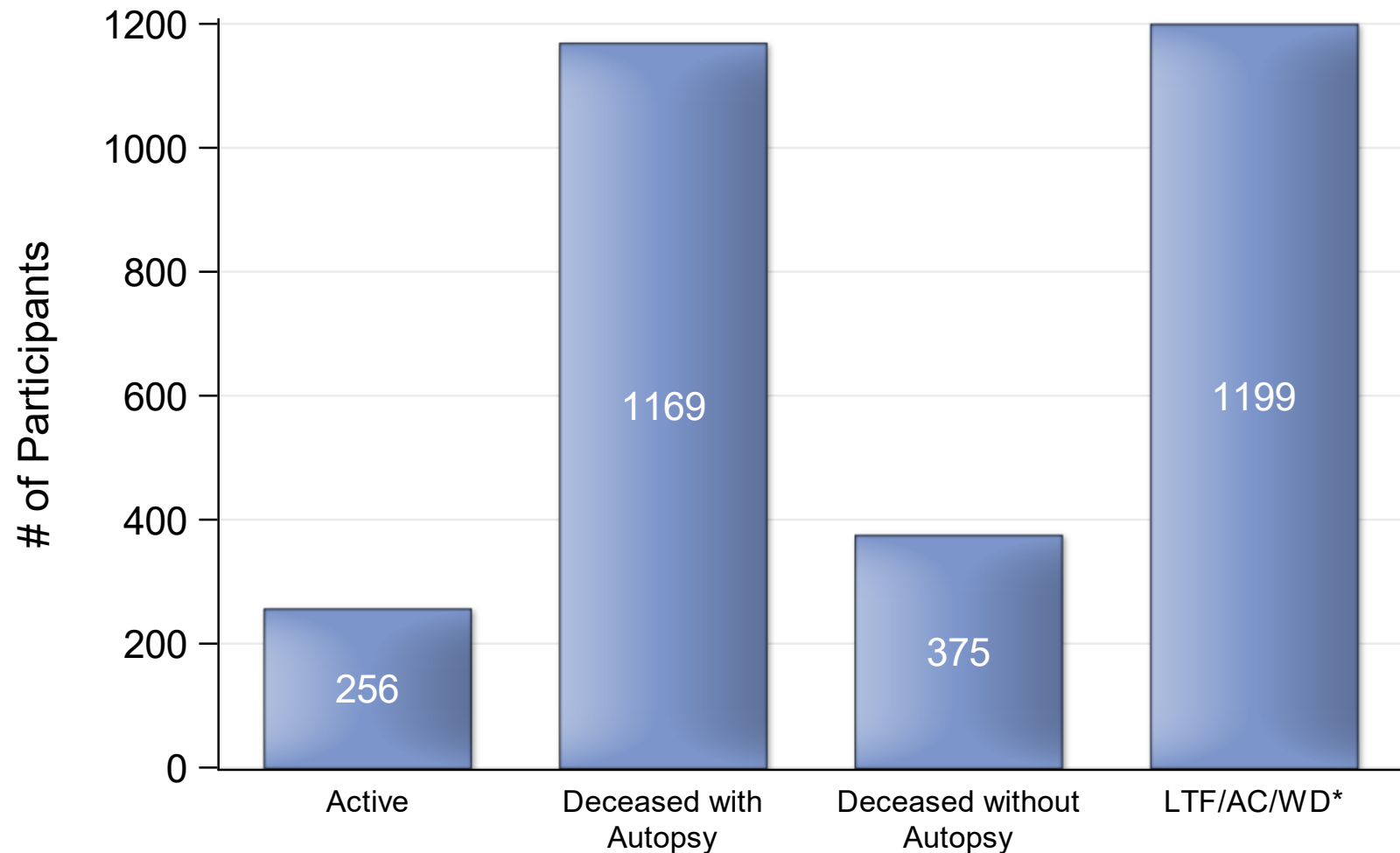
WIHS: The Women's Interagency HIV Study (WIHS) was established in 1993 as a multi-center, prospective, observational cohort study of women living in the United States. The study was closed in 2018 after which it was merged with the Multicenter AIDS Cohort Study (MACS) under a unified study comprising a cohort of men and women, known as the MACS/WIHS Combined Cohort Study (<https://statepi.jhsph.edu/mwccs/>).

CHARTER: The CNS HIV Antiretroviral Therapy Effects Research (CHARTER) was funded initially in 2002 and continues currently under the project name CHARTER Plus, with the aim of exploring the changing presentation of HIV neurological complications in the context of highly active antiretroviral therapy (HAART). The database and specimens are available for researchers and can be accessed through a NNTC application request.

Last Gift: The Last Gift Study was launched in 2017 with the aim of identifying dynamic reservoirs of HIV by following participants with HIV closely at end of life (EOL) to collect blood and support a body donation upon death and a rapid tissue donation to support further research (<https://lastgift.ucsd.edu>).

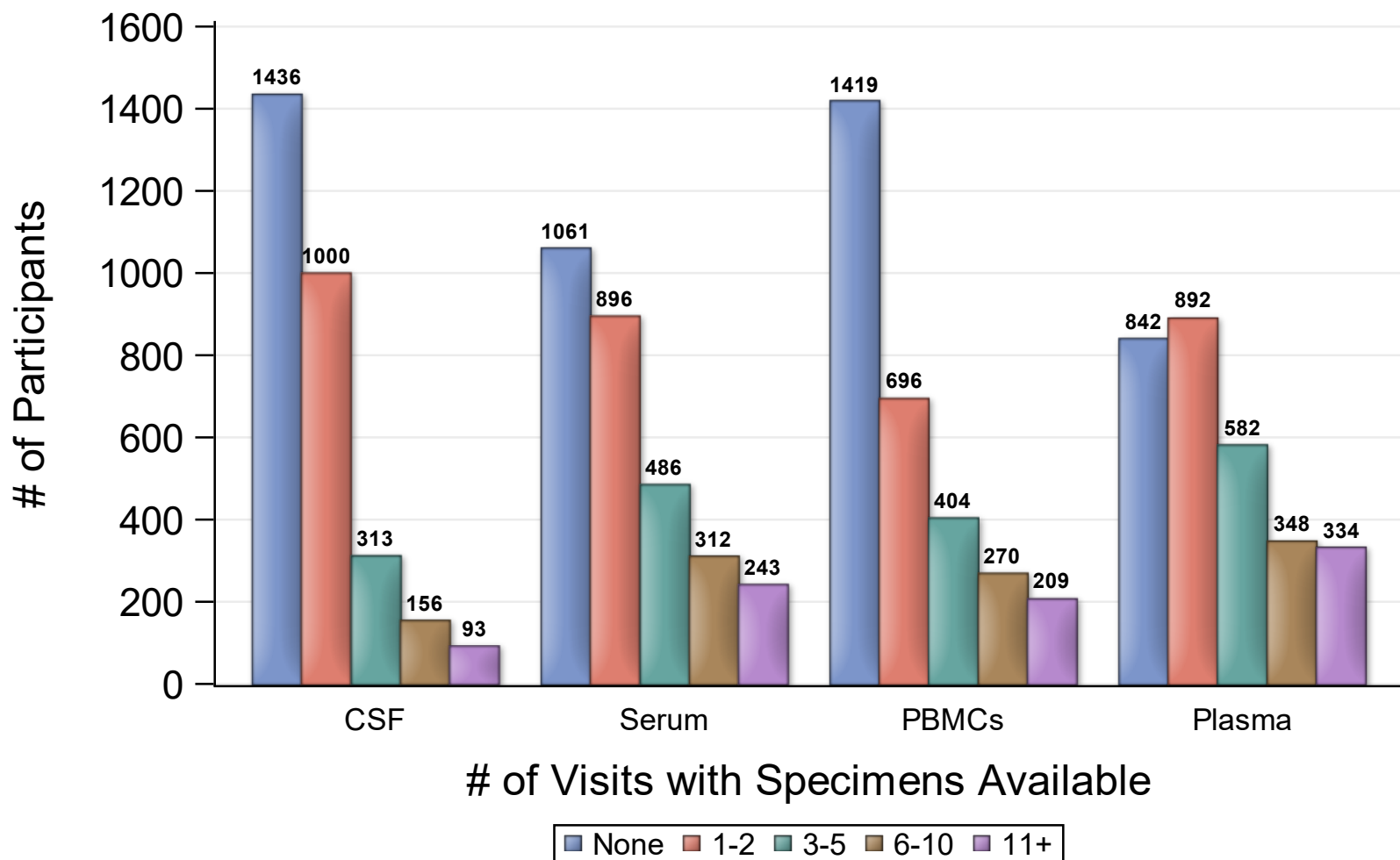
NIDA Opioid Study: The NIDA Opioid Study was a supplemental grant that was awarded to the NNTC starting in 2019 to allow for the collection of up to 100 brains from donors without HIV who died of an opiate related overdose. The tissues collected are designed to bolster the supply of HIV negative control samples to support substance use focused research on the impact of opiate use and HIV. Samples may be requested through the NNTC application process.

Cohort Status (N=2999)



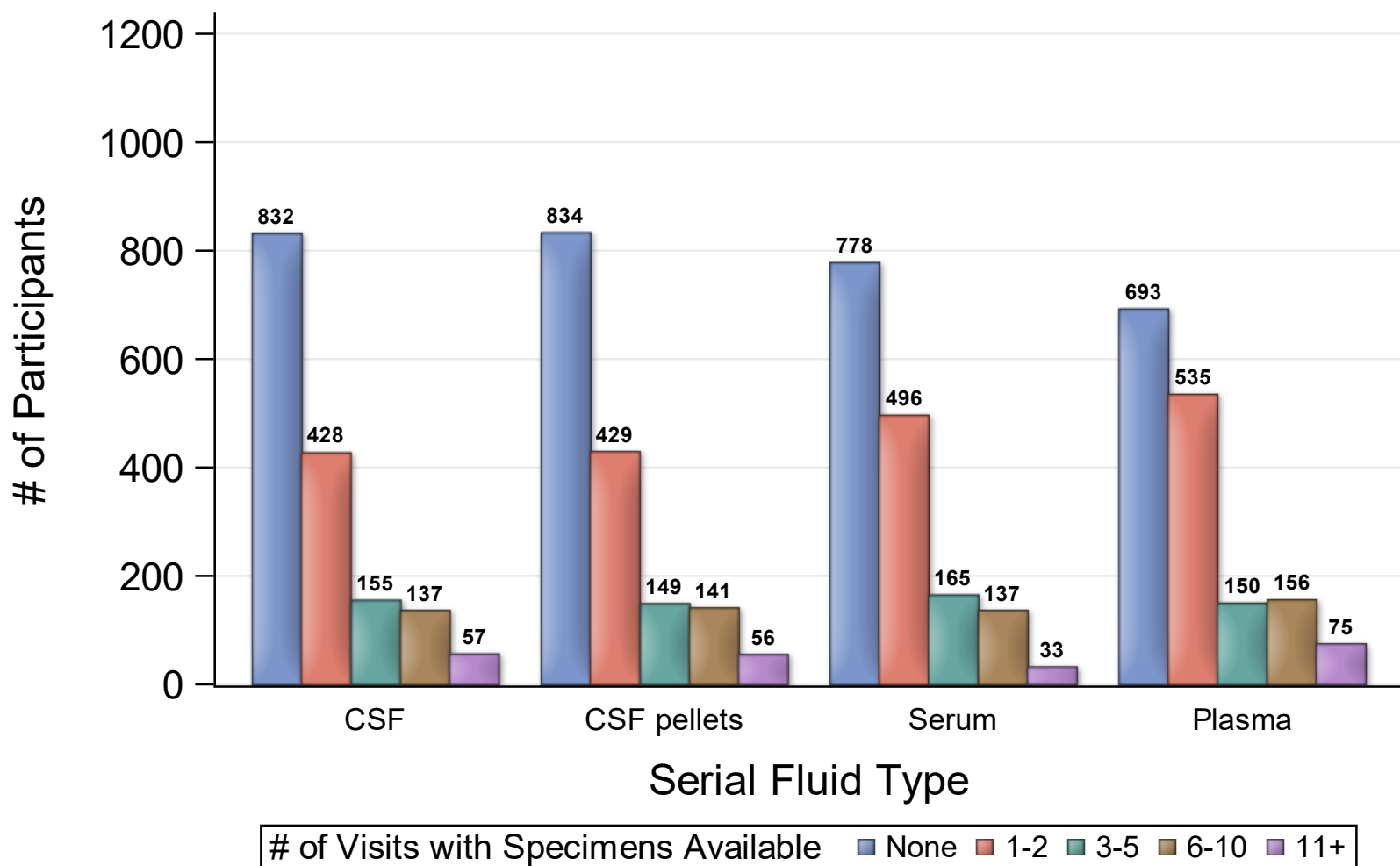
*Group #'s reflect only those lost to follow-up (LTF), administratively censored (AC), or withdrawn (WD) on study

Serial Fluid Specimen Inventory



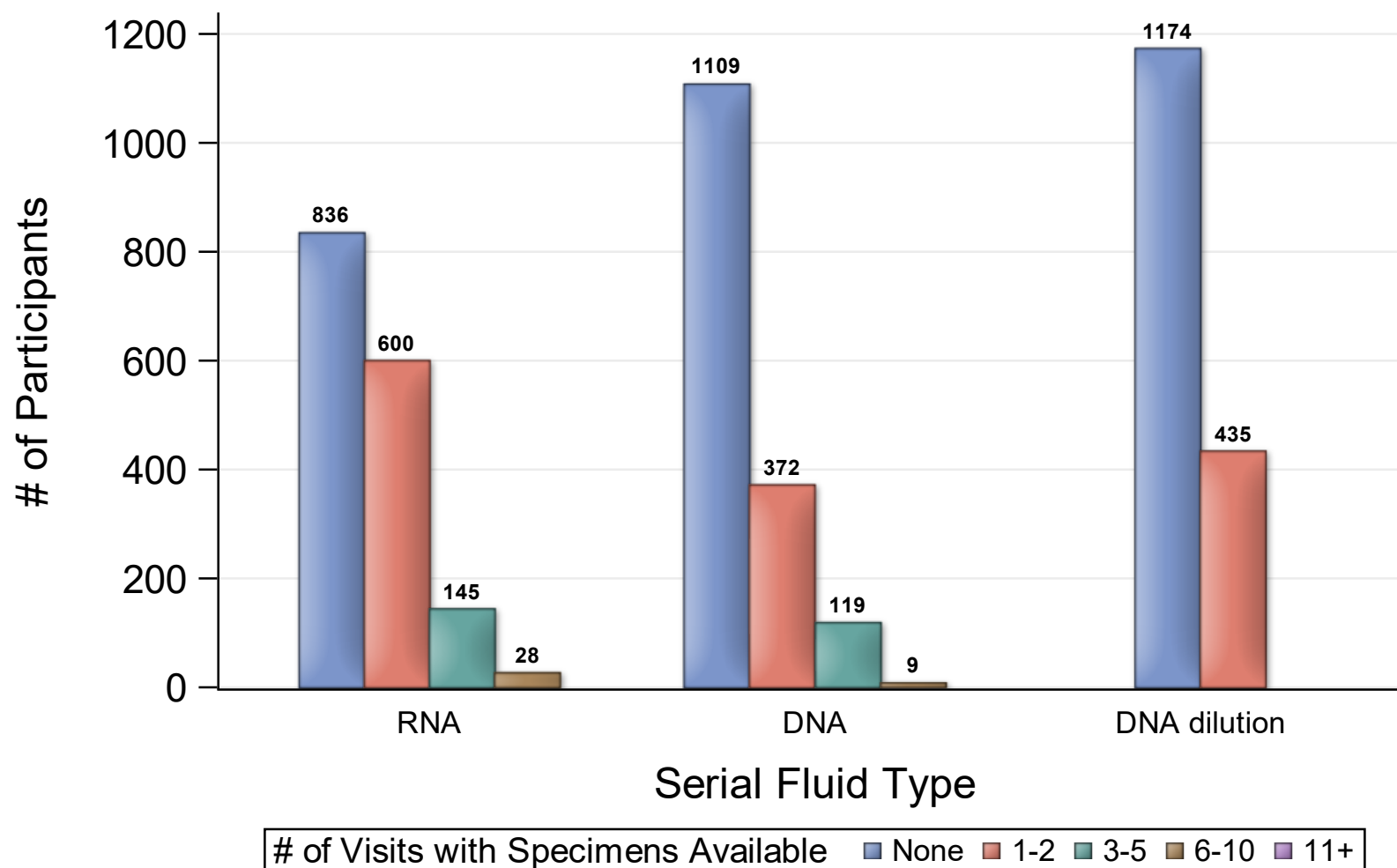
*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted; Inventory totals include both ante- and post-mortem collections.

CHARTER Serial Fluid Specimen Inventory



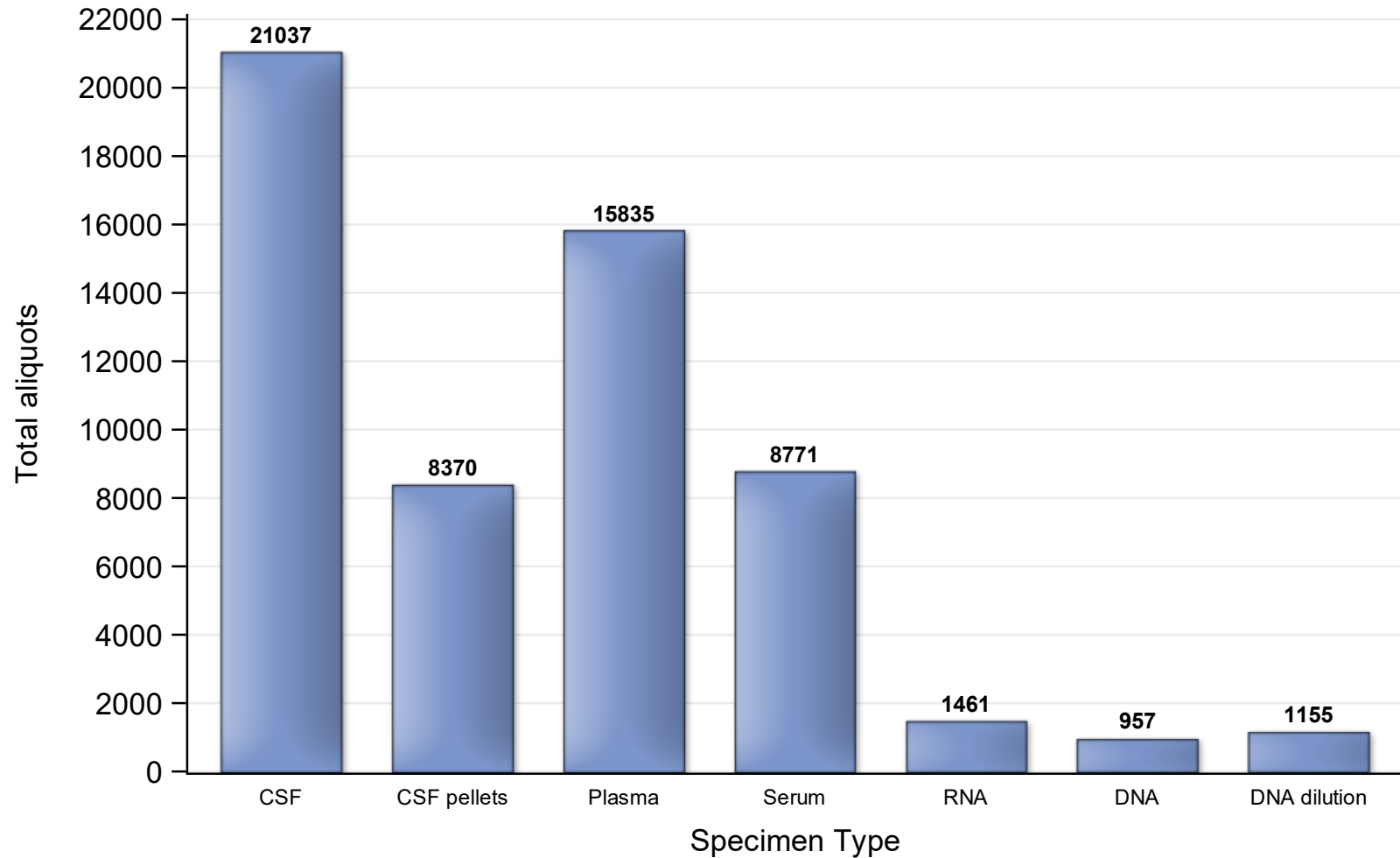
*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted. CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

CHARTER Serial Fluid Specimen Inventory

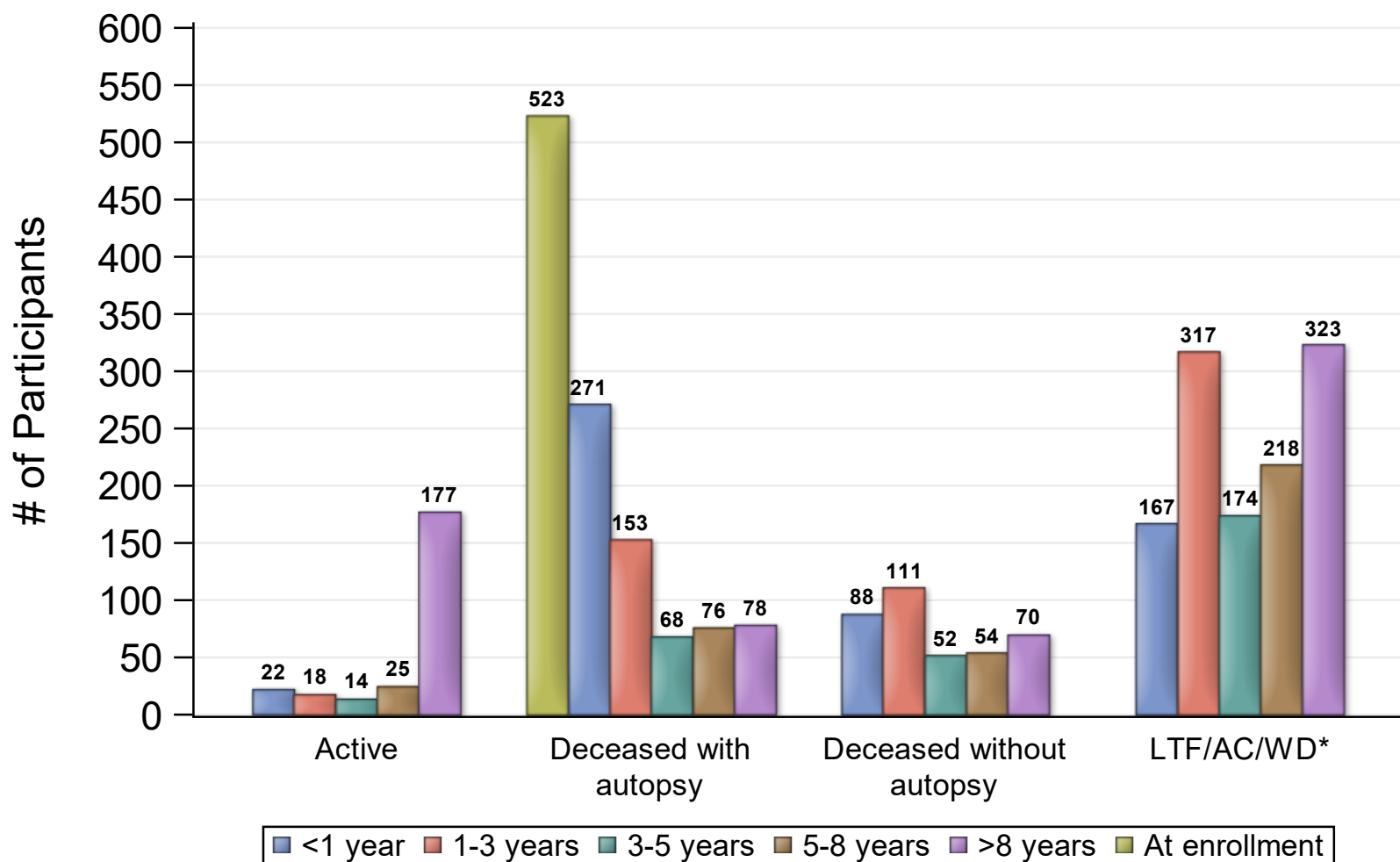


*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted.
CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

Total Available CHARTER Aliquots by Specimen Type

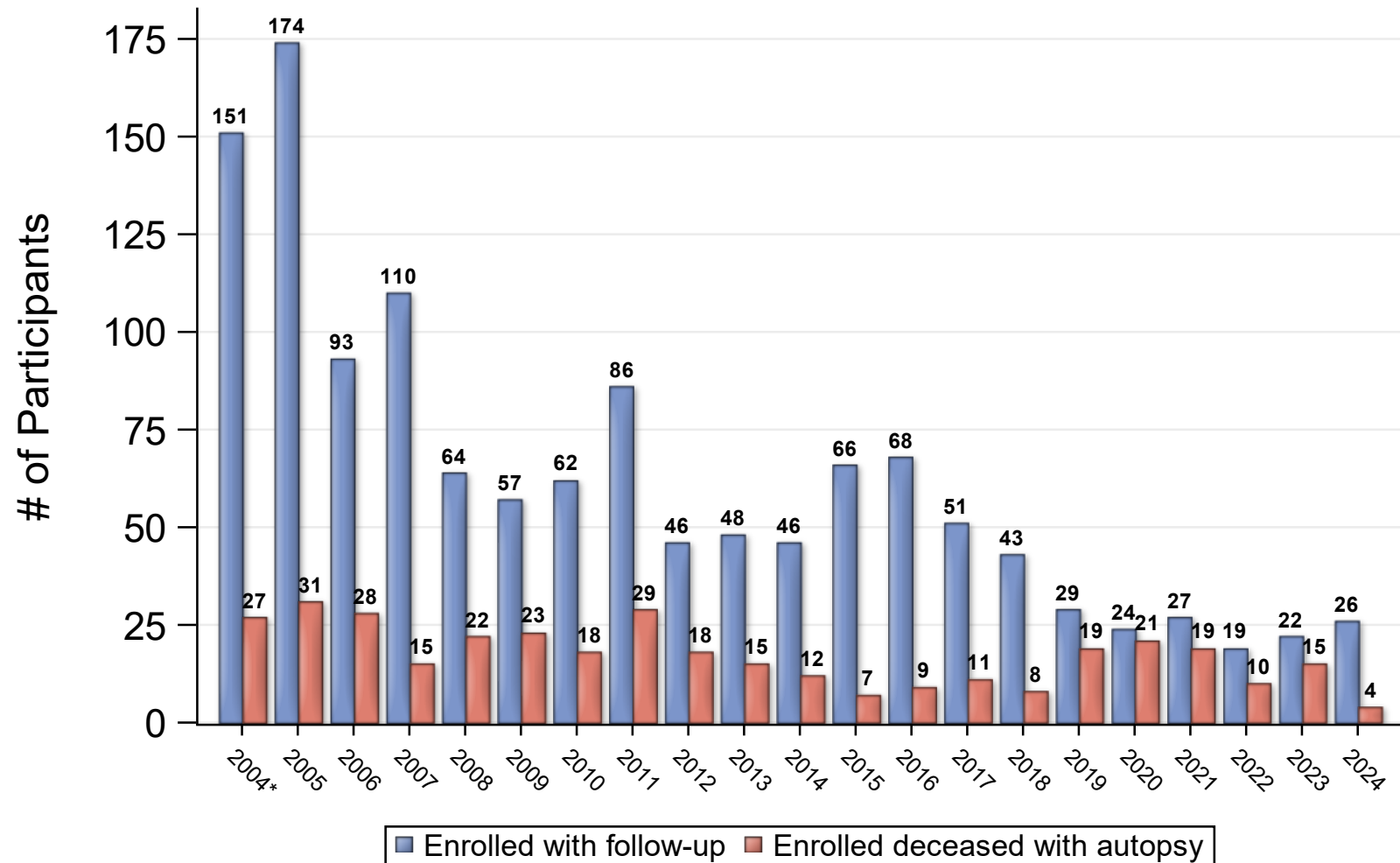


Length of Study Participation



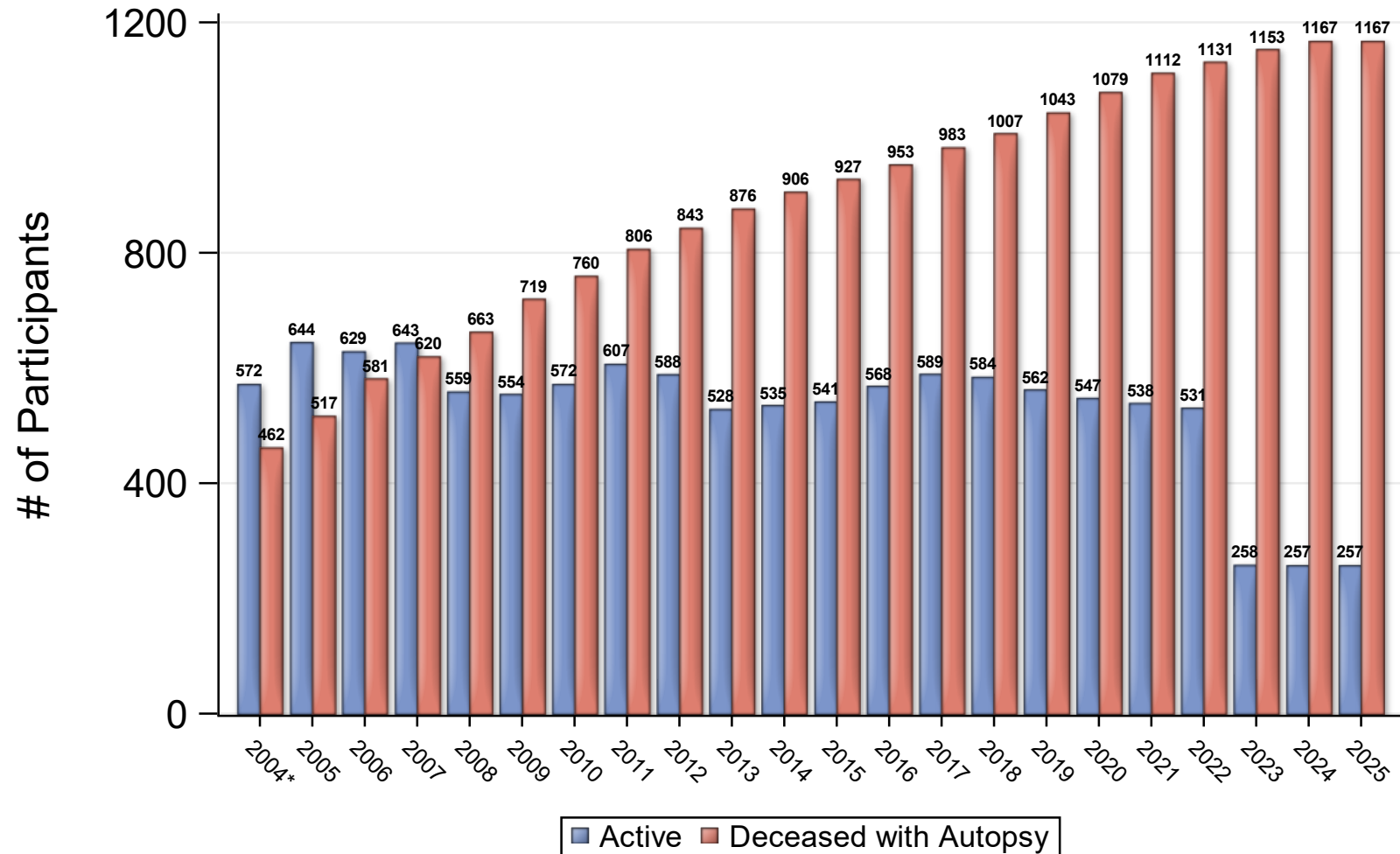
*LTF = Lost to follow-up (LTF); AC = Administratively censored; WD = Withdrawn

Participants Enrolled by Year



*1164 Enrolled with follow-up and 162 Enrolled deceased with autopsy prior to 2004

Cohort Status Over Time



*770 Active and 397 Deceased w/ Autopsy prior to 2004

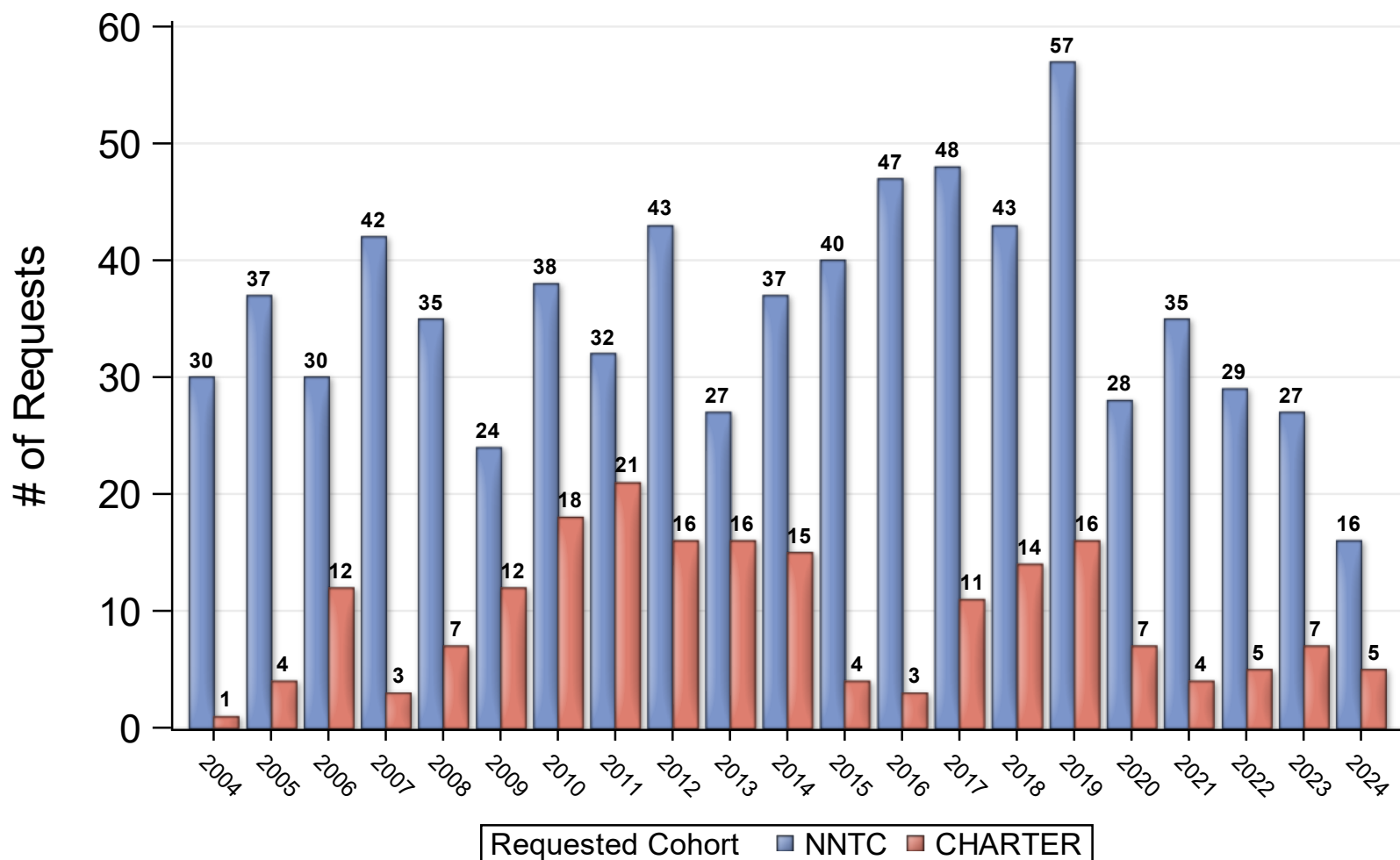
Diagnostic Normality

Diagnosis at Baseline:	Active Cohort (N=256)	Overall Cohort (N=2476)
Normal Neuromedical Diagnosis	95 (37%)	589 (24%)
No abuse/dependence on PRISM/CIDI*	87 (34%)	518 (21%)
Both normal (Neuromedical & PRISM/CIDI)	38 (15%)	144 (6%)

Diagnosis \geq 5 yrs on study:	Active Cohort (N=202)	Overall Cohort (N=1020)
Normal Neuromedical Diagnosis	73 (36%)	308 (30%)
No abuse/dependence on PRISM/CIDI*	72 (36%)	251 (25%)
Both normal (Neuromedical & PRISM/CIDI)	31 (15%)	85 (8%)

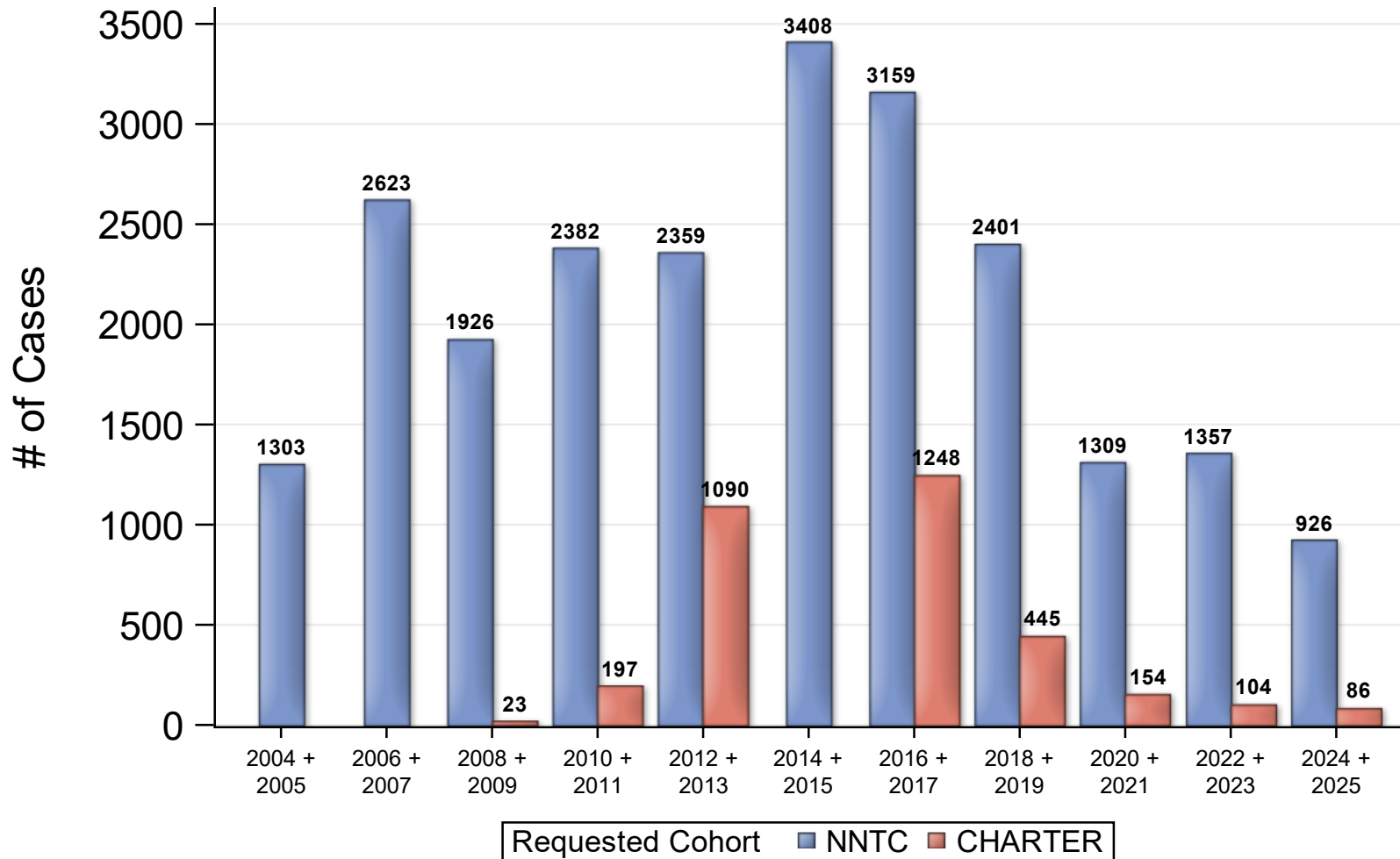
*No abuse/dependence diagnosis reflects those cases with a submitted PRISM/CIDI where all drug categories are reported as 'normal'.

Requests Submitted (N=1003)



*95 requests submitted prior to 2004. Resource requests include consortium-wide requests and local requests for biospecimens, as well as requests for data and Letters of Support for grant submissions.

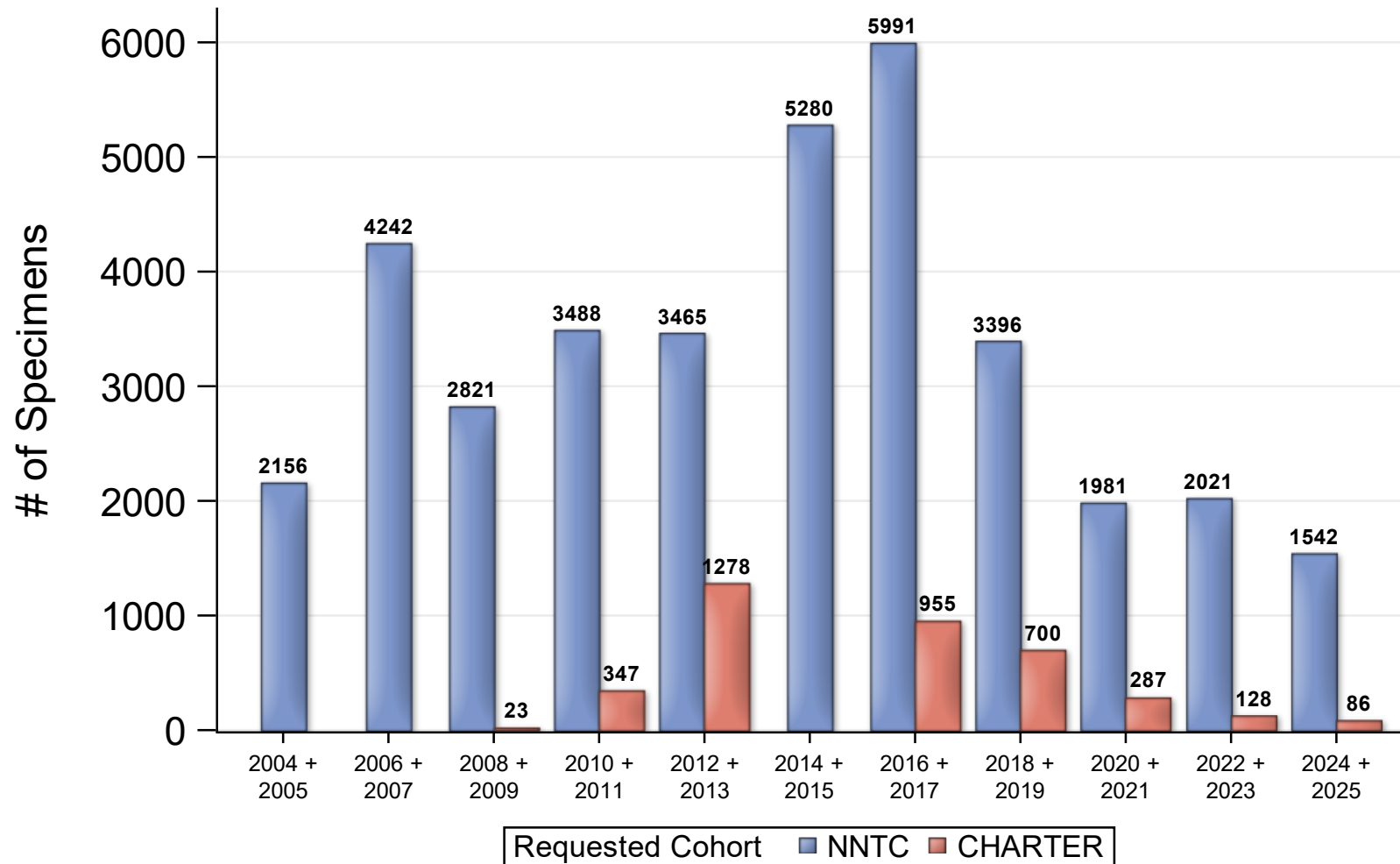
Cases Shipped (N=28123)



*1623 cases shipped prior to 2004. More than one specimen may be shipped per case.

Information limited on CHARTER shipments. CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

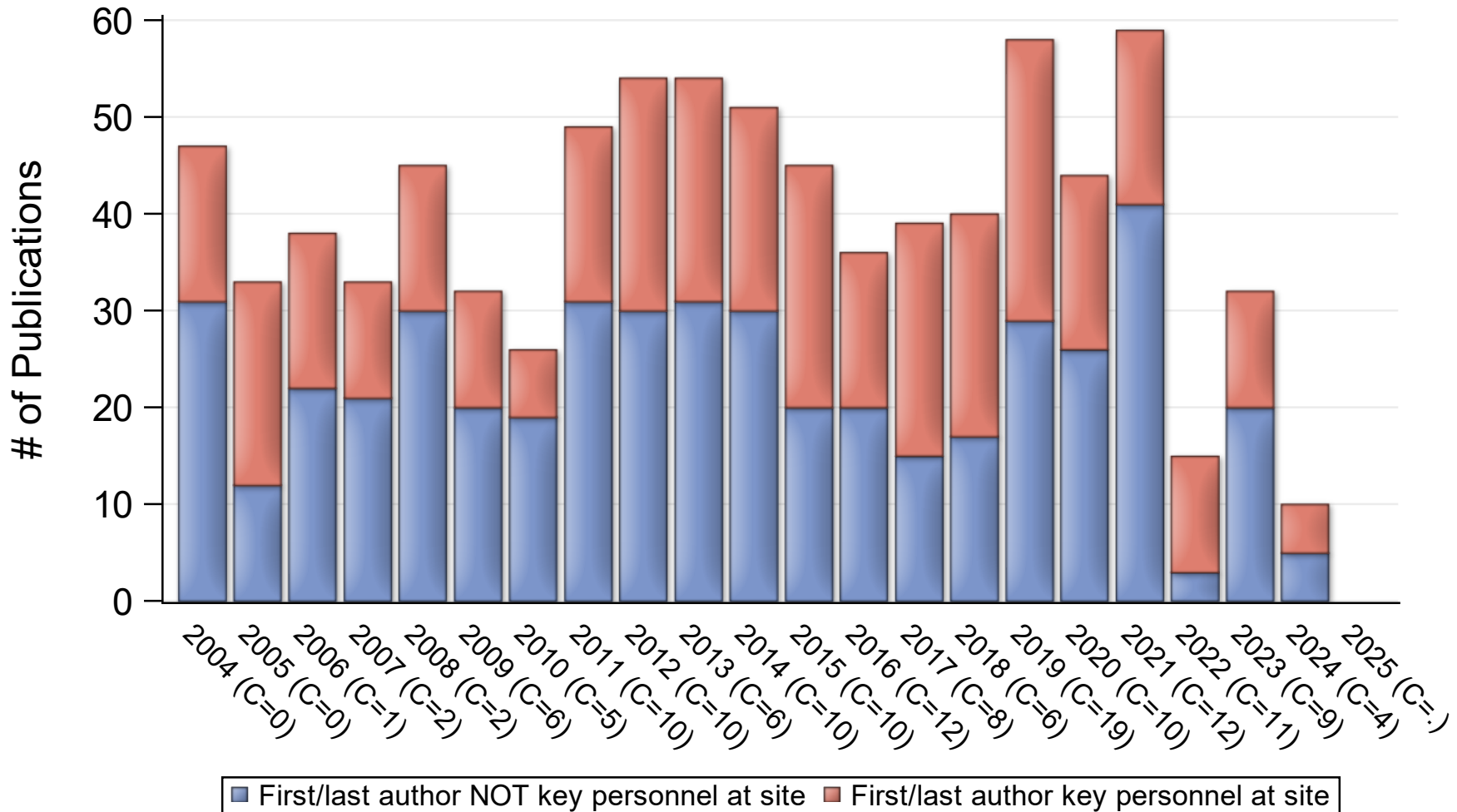
Specimens Shipped (N=42634)



*2447 specimens shipped prior to 2004.

Information limited on CHARTER shipments. CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

Total Publications* (Total N=914; CHARTER N=153)



*74 publications prior to 2004.

Total N includes 153 CHARTER (C=) publications. Total does not include 0 In Prep/Submitted/In Press, 281 Meeting Presentations/Abstracts, 12 Dissertations/Theses, 33 Books/Book Chapters, 8 Student Awards, or 24 Miscellaneous/Grants

CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

Test Results

<u>Result</u>	<u>N</u>	<u>%</u>	<u>Assay</u>	<u>N</u>	<u>%</u>
Negative	364	86	CDC PCR Test (FDA Approved)	73	17
Positive	58	14	Roche COBAS 6800 System	38	9
Unique participants tested positive	40	29*	Other	37	9
	3	.	Agena MassARRAY	34	8
Nasopharyngeal swab	126	30	DiaSorin Molecular PCR Test (FDA Approved)	33	8
Nasopharynx	71	17	COVID-19 IgM/IgG Rapid Test	29	7
Anterior Nares	53	12	ABBOT SARS-COV-2 IGG/IGM ASSAY	28	7
Nasal swab	33	8	Cepheid GeneXpert	21	5
Blood	8	2	Lumria Dx	17	4
Pharyngeal swab	1	0	Panther	13	3
Unknown	133	31	ID NOW Assay	8	2
			DiaSorin IgG test	4	1
			COV-2 NAAT	4	1
			SARS-COV-2 NAAT	4	1
			ABBOT SARS-COV-2 IGG/IGM ASSAY RAPID ID N	1	0
			IGM/IGG RAPID TEST	1	0
			MOLECULAR COVID-19 PCR TEST (FDA APPROVED)	1	0
			NASAL SWAB	1	0
			RAPID ID NOW COVID-19 ASSAY	1	0
			RAPID TEST	1	0
			SARS COV-2-RAPID ID NOW	1	0
			SARS-COV-2 RAPID ID NOW	1	0
			Unknown	74	17

*Of unique participants tested.

Specimen collections

Type:	# cases*
CNS tissue	10
Systemic tissue	10
Pre-mortem fluids	37
Post-mortem fluids	6

*Indicates collection of at least one specimen type in respective category:

CNS: fixed/frozen brain, spinal cord, trigeminal and dorsal root ganglia.

Systemic: Pituitary gland, peripheral nerve, lymph node, liver, spleen, adipose tissue, bone marrow, muscle, hair, heart, thymus, kidney, lung, eye, bowel, and testes.

Pre-mortem fluids: plasma, serum, PBMC, CSF, and urine.

Post-mortem fluids: plasma, cardiac aspirate, CSF, serum, urine, and ascites fluid.

Cross Sectional Cohort Overview

Baseline Demographics

<u>N</u>	<u>2472</u>
<u>Age</u>	
Mean	46.7
SD	11.1
25th Percentile	39
Median	45
75th Percentile	53

Baseline Demographics cont.

	<u>N</u>	<u>%</u>
<u>Sex</u>		
Male	2014	82
Female	456	18
<u>Ethnicity</u>		
Hispanic origin	662	27
<u>Race</u>		
White	1386	56
Black	810	33
Other	274	11

Baseline Demographics cont.

	<u>N</u>	<u>%</u>
<u>Furthest Education</u>		
8th grade or less	238	10
Some High School	472	21
High School Graduate	505	22
Some College/Associate's Degree	641	28
College Graduate	257	11
Advanced Degree work	179	8

Baseline HIV Characteristics

	<u>N</u>	<u>%</u>
<u>HIV risk</u>		
IV drug use	595	24
Male to male sex	1167	47
Heterosexual sex	547	22
Other	161	7
ARV med use	2288	92

Baseline HIV Characteristics cont.

CD4 Count (N=2299)

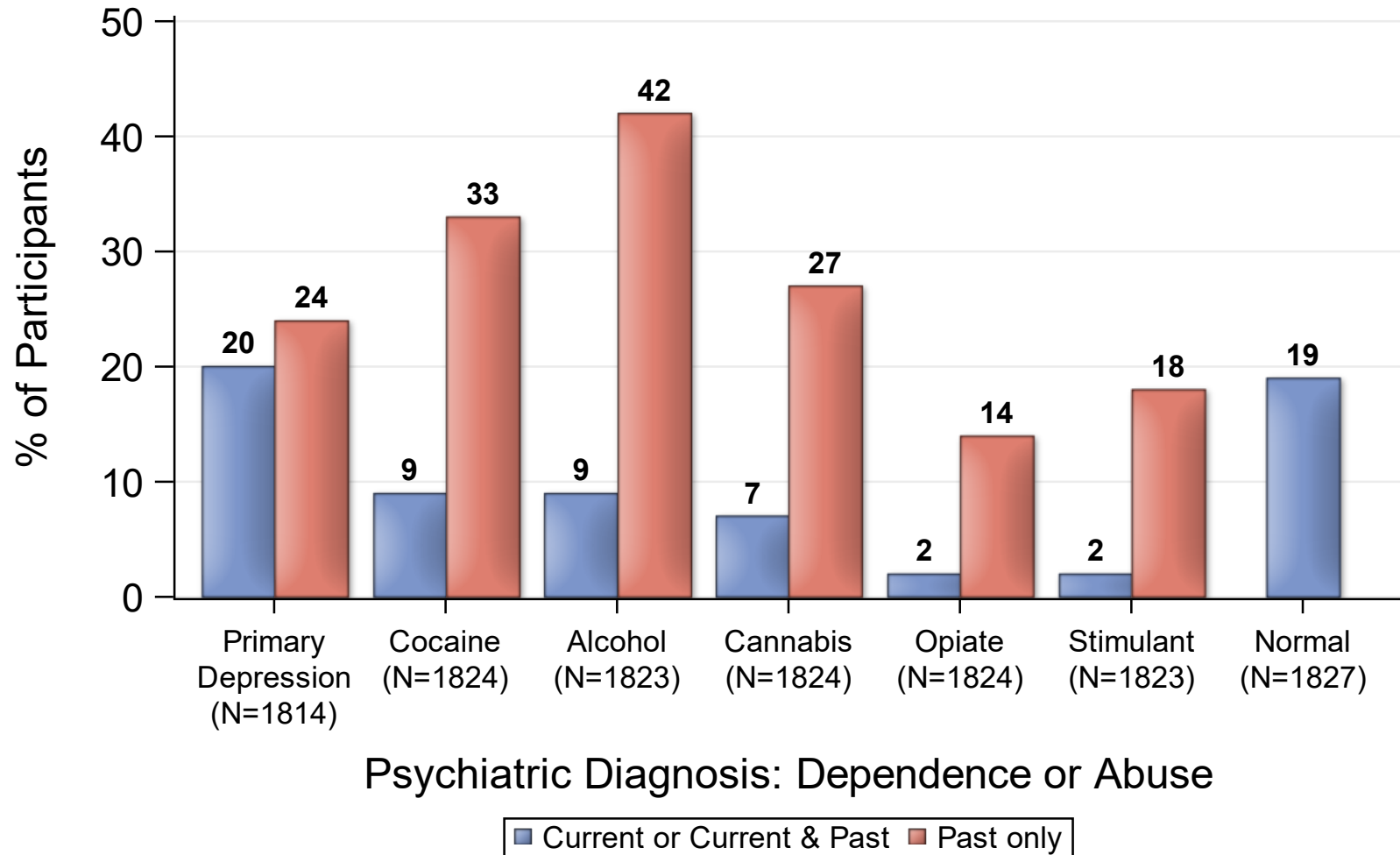
25th Percentile	52
Median	173
75th Percentile	407

Log Plasma Viral Load* (N=2043)

25th Percentile	1.70
Median	2.60
75th Percentile	4.50

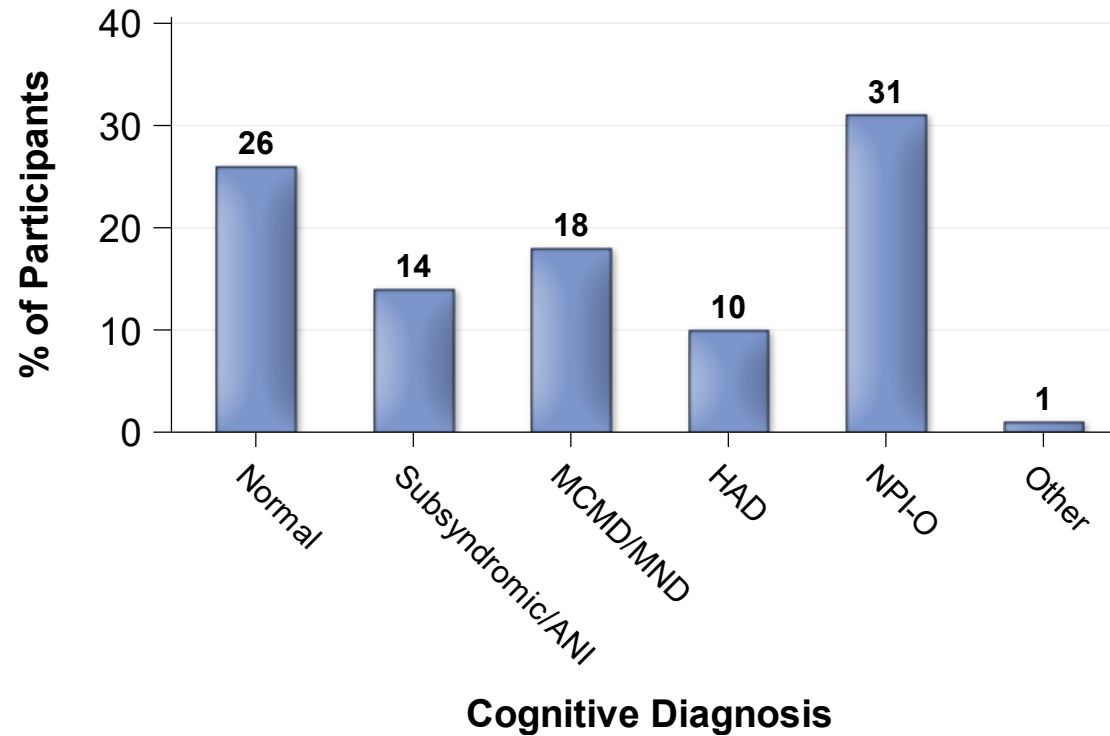
*Among those with known ARV medication status. 7 participants had detectable VL values of 0 where a viral log could not otherwise be calculated.

Baseline Psychiatric Diagnoses



*Please note the totals listed above reflect only those cases in the cross sectional cohort who have undergone a PRISM/CIDI evaluation at baseline.

Baseline Cognitive Diagnosis (N=2281*)



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

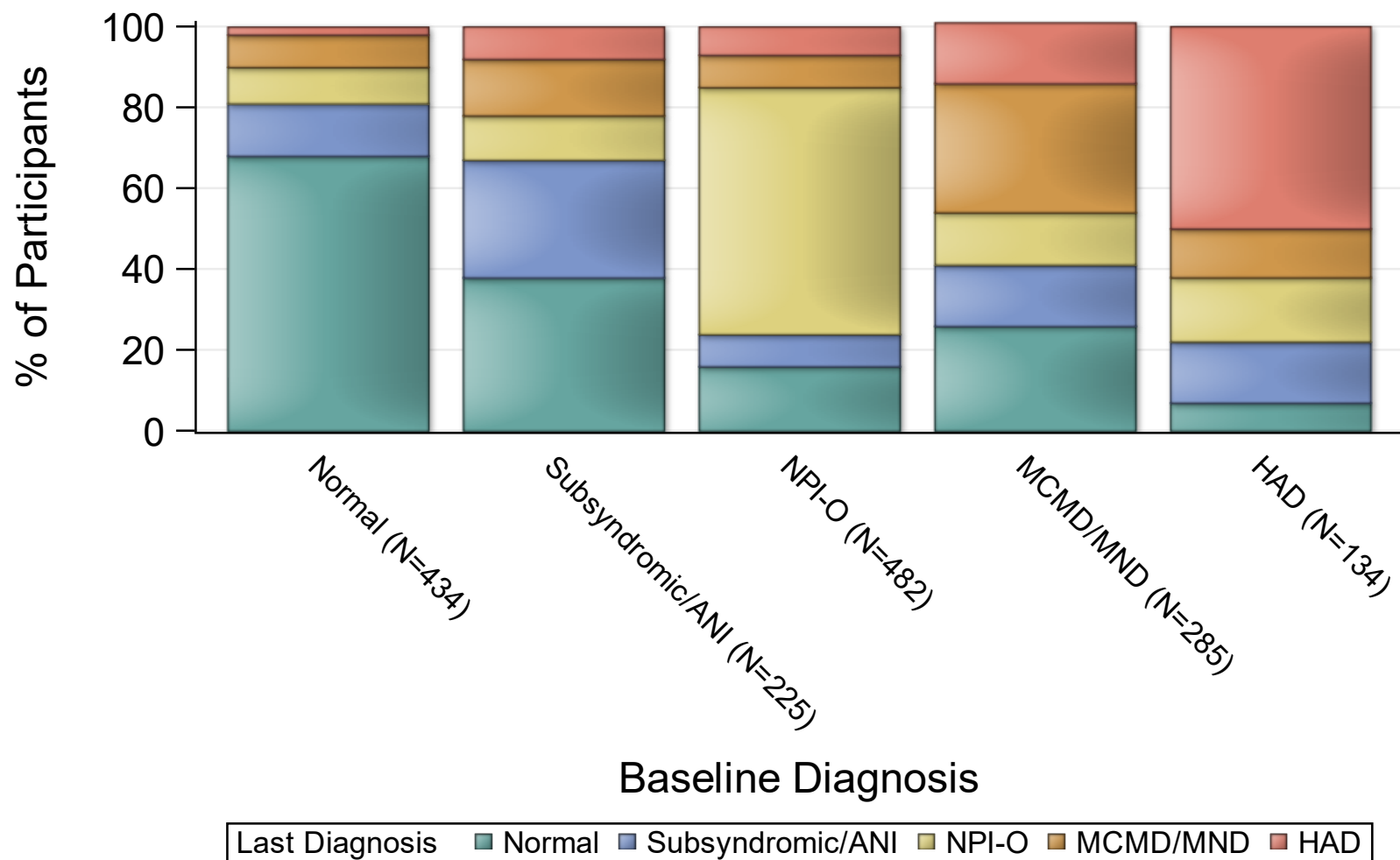
MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

NPI-O = Neuropsychological Impairment - Other cause, not HIV

*Please note the totals listed above reflect only those cases in the cross sectional cohort who were assigned a cognitive diagnosis at baseline.

Change in Cognitive Diagnosis



Baseline Neurologic Diagnoses

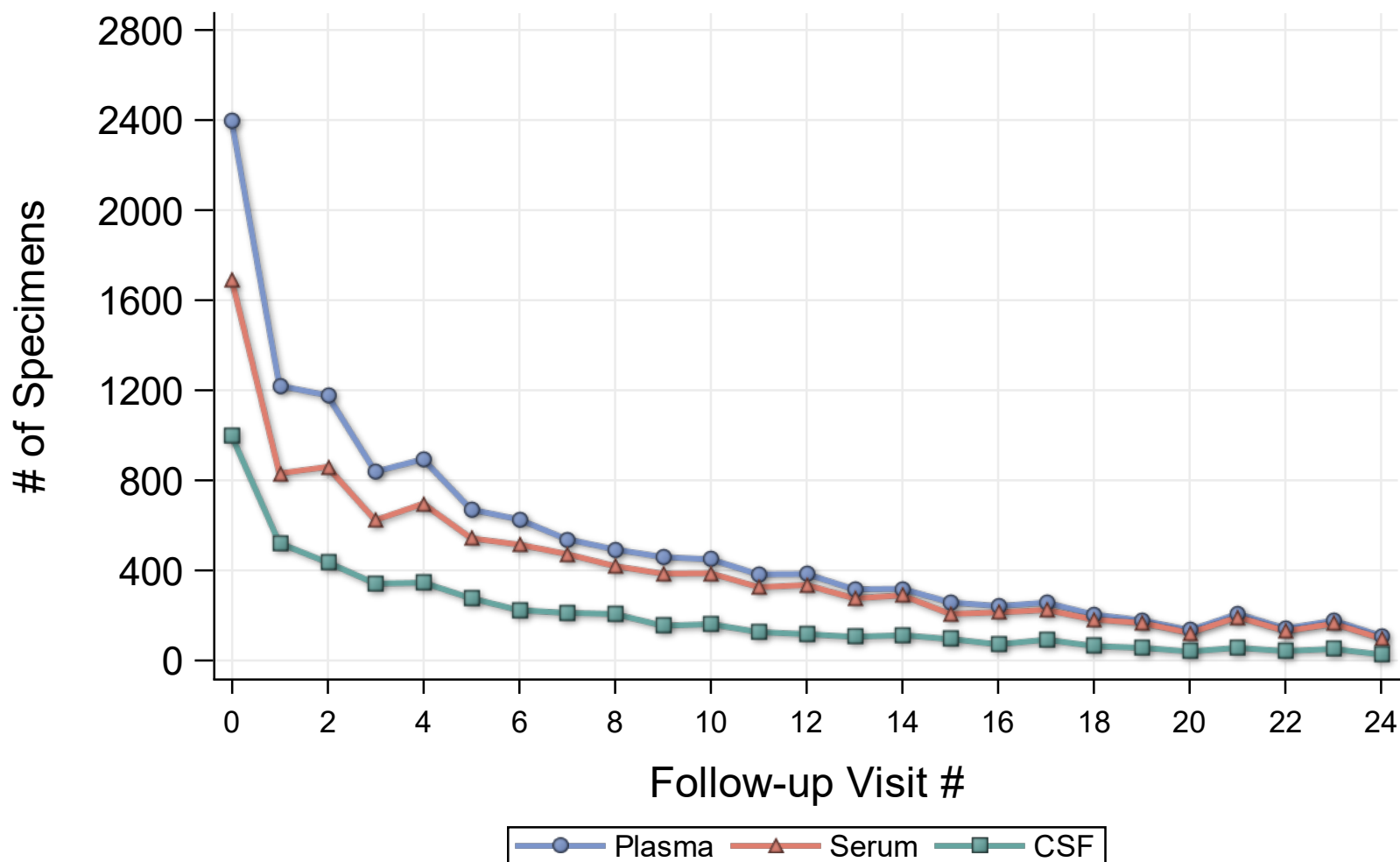
Clinical Myelopathy (N=2262)

	<u>N</u>	<u>%</u>
HIV associated	166	7
Other	30	1
None	2066	91

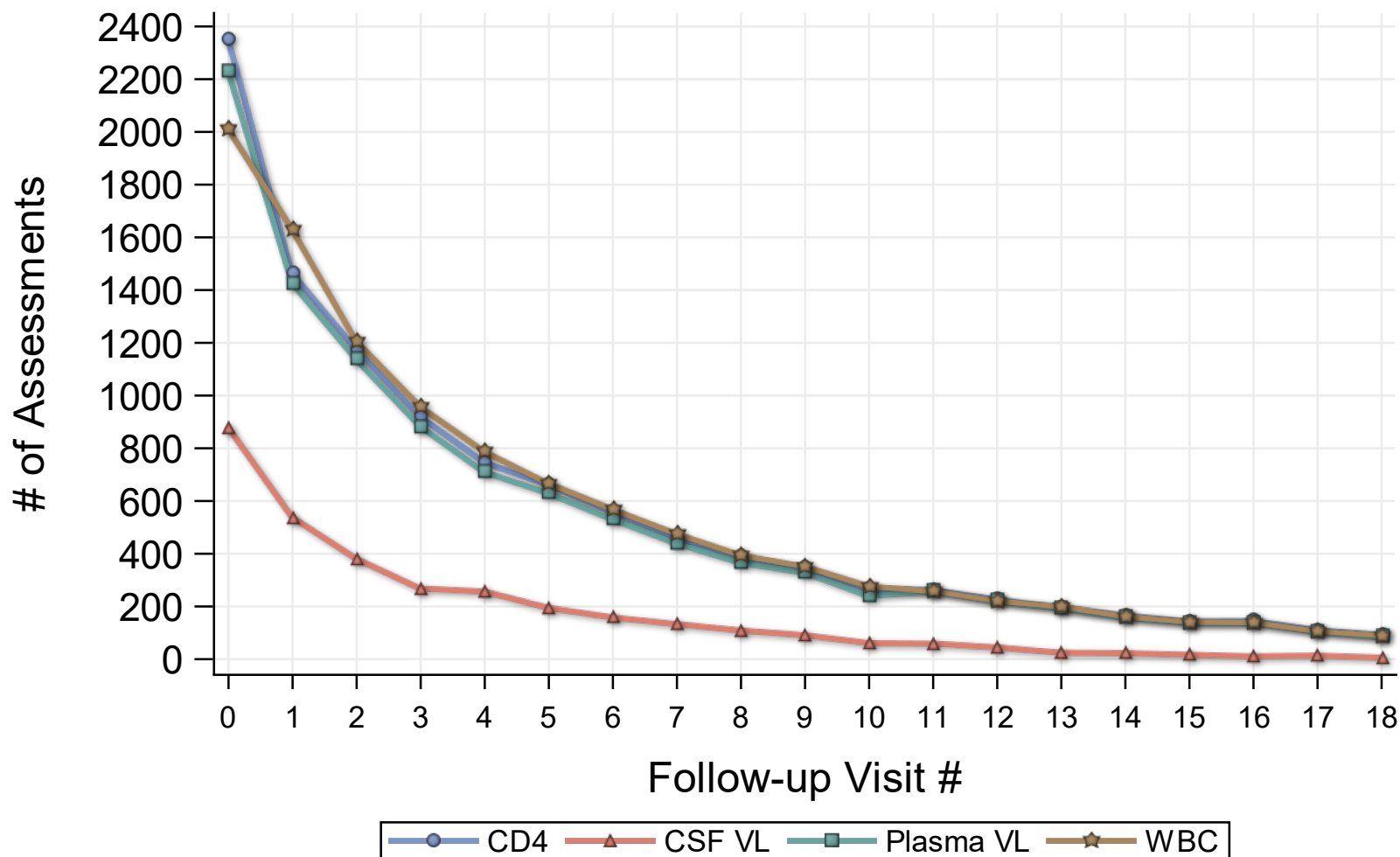
Neuropathy (N=2128)

HIV associated DSP	714	34
Nucleoside associated	11	1
HIV/nucleoside	210	10
None	1193	56

Number of Available Fluid Collections, By Visit



Number of Assessments Completed, By Visit



Participants Reporting Concomitant Medications

Medication	# of Pts (N=2011)	%
Central Nervous System Agents	1781	88.6
Anti-infective Agents	1565	77.8
Gastrointestinal Drugs	1236	61.5
Cardiovascular Drugs	1154	57.4
Vitamins	1118	55.6
Hormones and Synthetic Substitutes	952	47.3
Autonomic Drugs	772	38.4
Electrolytic, Caloric, and Water Balance	752	37.4
Antihistamine Drugs	591	29.4
Skin and Mucous Membrane Agents	552	27.4
Blood Formation, Coagulation, and Thrombosis Agents	548	27.3
Miscellaneous Therapeutic Agents	523	26
Eye, Ear, Nose, and Throat (EENT) Preparations	388	19.3
Antineoplastic Agents	240	11.9
Respiratory Tract Agents	198	9.8
Local Anesthetics	142	7.1
No medication use reported on at least one occasion	135	6.7
Smooth Muscle Relaxants	105	5.2
Pharmaceutical Aids	72	3.6
Serums, Toxoids, and Vaccines	35	1.7

Ancillary Lab Measurements

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
<u>Miscellaneous Hematology</u>				
Red blood cells	8320	40	873	26
Mean Corpuscular Hemoglobin (MCH)	8292	40	870	26
Mean Corpuscular Volume (MCV)	16403	61	1390	43
Mean Corpuscular Hemoglobin Concentration (MCHC)	8256	39	867	26
Blood Red cell Distribution Width (RDW)	6508	28	418	12
Blood Rapid Plasma Reagin (RPR)	1993	27	348	7
Blood Neutrophil Percent	14046	48	916	28
Blood Lymphocyte Percent	16213	60	1369	42
Blood Monocyte Percent	15903	60	1365	42
Blood Eosinophil Percent	15804	60	1346	41
Blood Basophil Percent	15542	59	1300	39
Blood Mean Platelet Volume (MPV)	4659	19	256	8
Blood CD3 Percent	3060	24	554	17
Blood CD3 Absolute	1317	14	134	4
<u>Miscellaneous Serology & virology</u>				
Blood Hepatitis B Surface Antigens	1054	21	420	6
Blood Hepatitis B Surface Antibodies	1006	21	399	6
Blood Hepatitis B Core Antibodies	946	21	400	5
Blood Hepatitis B Viral Load	120	2	15	0
Blood Hepatitis C Antibodies (HCV)	2678	45	697	12
Blood Hepatitis C Viral Load	597	11	130	1
<u>Miscellaneous Serology & virology</u>				
COVID-19 Test Results (qualitative)	317	5	13	0

Ancillary Lab Measurements cont.

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
Miscellaneous Blood Chemistries				
Glucose	15411	63	1464	44
Hemoglobin A1c	3525	29	269	7
Sodium	15089	65	1478	44
Calcium	14549	61	1394	42
Chloride	14347	60	1294	39
Potassium	14704	60	1343	41
Total Protein	12772	59	1286	39
Alkaline Phosphatase	13032	58	1324	40
AST	12892	58	1260	38
ALT	12780	57	1207	36
Total Bilirubin	14281	69	1505	45
Direct Bilirubin	3294	26	479	13
Creatinine	15371	67	1492	44
BUN	15045	65	1468	43
CO2	13951	56	1214	36
PT	4689	25	507	15
INR	4647	24	487	15
Urate	1276	11	239	6
Triglycerides	6388	45	729	20
Cholesterol	6382	45	726	20
LDL	4894	34	422	12
HDL	5413	38	495	14
Phosphorus	3602	24	469	13
LDH	1851	16	329	9
TSH	424	6	67	2
T4	44	1	9	0

Ancillary Lab Measurements cont.

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
<u>Miscellaneous CSF values</u>				
CSF-VDRL Test	758	10	151	3
<u>Miscellaneous Urine values</u>				
Urinalysis: Glucose	4736	26	544	17
Urinalysis: Protein	4782	26	548	17
Urinalysis: pH	4740	26	546	17
Urinalysis: Specific Gravity	4738	26	546	17
Urinalysis: Ketones	4734	26	545	17
Urinalysis: Bilirubin	4725	26	543	17
Urine Toxicology; Methamphetamine	5698	41	914	28
Urinalysis: Red Blood Cells	2194	19	297	8
Urinalysis: White Blood Cells	2209	20	296	8

Comorbidities

Diagnosis	# Pts before Baseline (N=1352)	# Pts at Baseline (N=2476)	# Pts Current* (N=1432)
Viral Hepatitis	608 (45%)	712 (37%)	450 (31%)
Tobacco Smoking	607 (45%)	675 (35%)	408 (28%)
Hypertension	443 (33%)	633 (32%)	609 (43%)
Hyperlipidemia	362 (27%)	482 (25%)	512 (36%)
Non AIDS Defining Cancer	172 (13%)	341 (17%)	340 (24%)
Cardiac Disease	179 (13%)	273 (14%)	288 (20%)
Diabetes	191 (14%)	269 (14%)	264 (18%)
Cerebrovascular Disease	152 (11%)	210 (11%)	202 (14%)
COPD	148 (11%)	202 (10%)	242 (17%)
Chronic Renal Disease	123 (9%)	201 (10%)	220 (15%)
Lipodystrophy	108 (8%)	183 (9%)	139 (10%)
End Stage Liver Disease	50 (4%)	88 (5%)	63 (4%)

*Includes participants where last visit is different from baseline visit.

Active Cohort Overview

Current Demographics

<u>N</u>	<u>256</u>
<u>Age</u>	
Mean	65.4
SD	8
25th Percentile	60
Median	65
75th Percentile	71
<u>ARV med use</u>	
N	200
%	78

Baseline Demographics

<u>N</u>	<u>256</u>
<u>Age</u>	
Mean	53.3
SD	11.2
25th Percentile	44.5
Median	53
75th Percentile	63

Demographics

	<u>N</u>	<u>%</u>
<u>Sex</u>		
Male	174	68
Female	82	32
<u>Ethnicity</u>		
Hispanic origin	68	27
<u>Race</u>		
White	139	54
Black	85	33
Other	32	13

Demographics cont.

	<u>N</u>	<u>%</u>
<u>Furthest Education</u>		
8th grade or less	13	5
Some High School	54	21
High School Graduate	41	16
Some College/Associate's Degree	74	29
College Graduate	39	15
Advanced Degree work	32	13

Baseline HIV Characteristics

	<u>N</u>	<u>%</u>
<u>HIV risk</u>		
IV drug use	51	20
Male to male sex	115	45
Heterosexual sex	67	26
Other	23	9
ARV med use	237	93

Current HIV Characteristics

CD4 Count (N=253)

25th Percentile	377
Median	540
75th Percentile	748

Log Plasma Viral Load* (N=244)

25th Percentile	1.30
Median	1.48
75th Percentile	1.48

Baseline HIV Characteristics

CD4 Count (N=249)

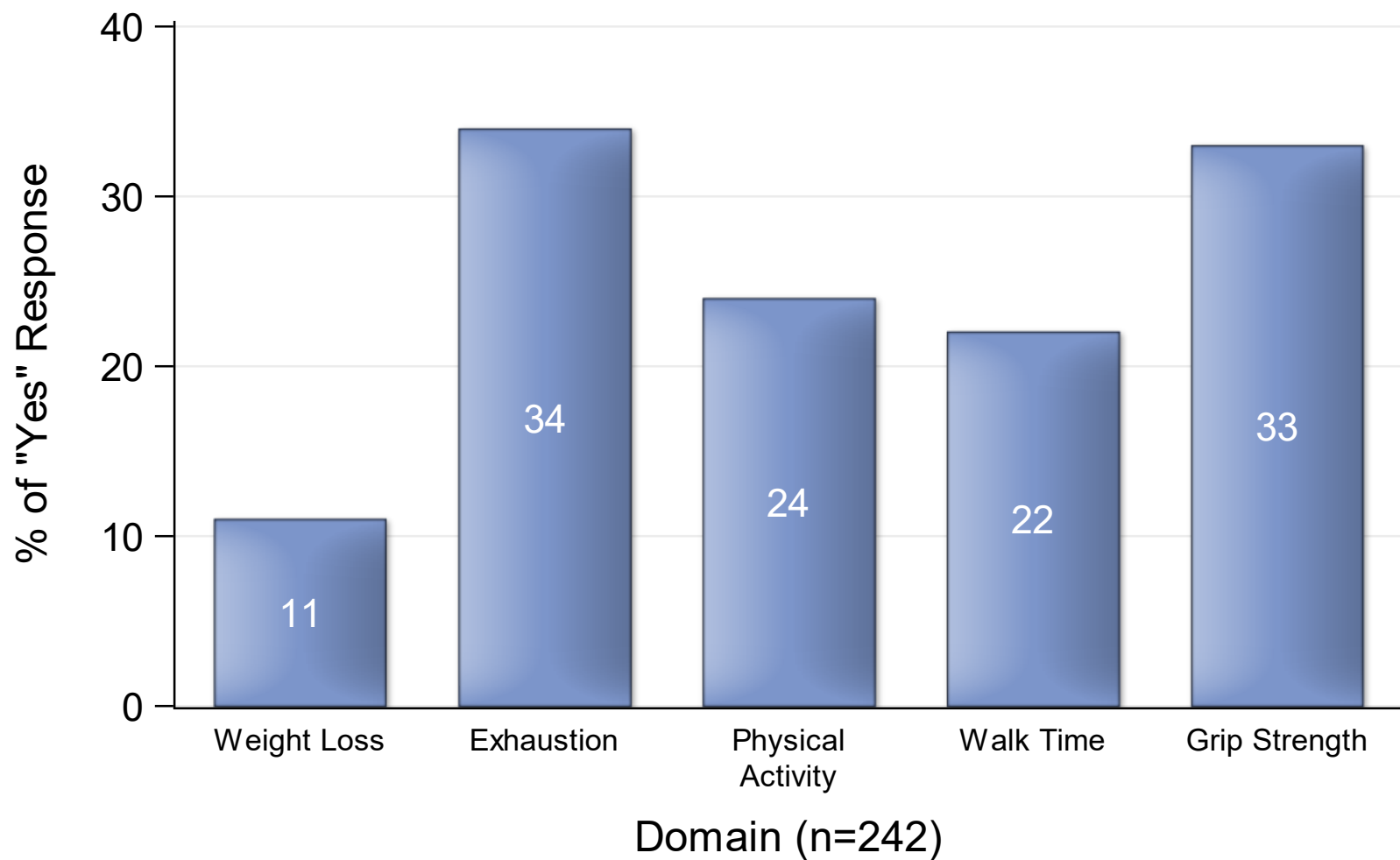
25th Percentile	243
Median	442
75th Percentile	692

Log Plasma Viral Load* (N=226)

25th Percentile	1.60
Median	1.70
75th Percentile	2.60

*Among those with known ARV medication status. 0 participants had detectable VL values of 0 where a viral log could not otherwise be calculated.

Frailty Domain Frequency



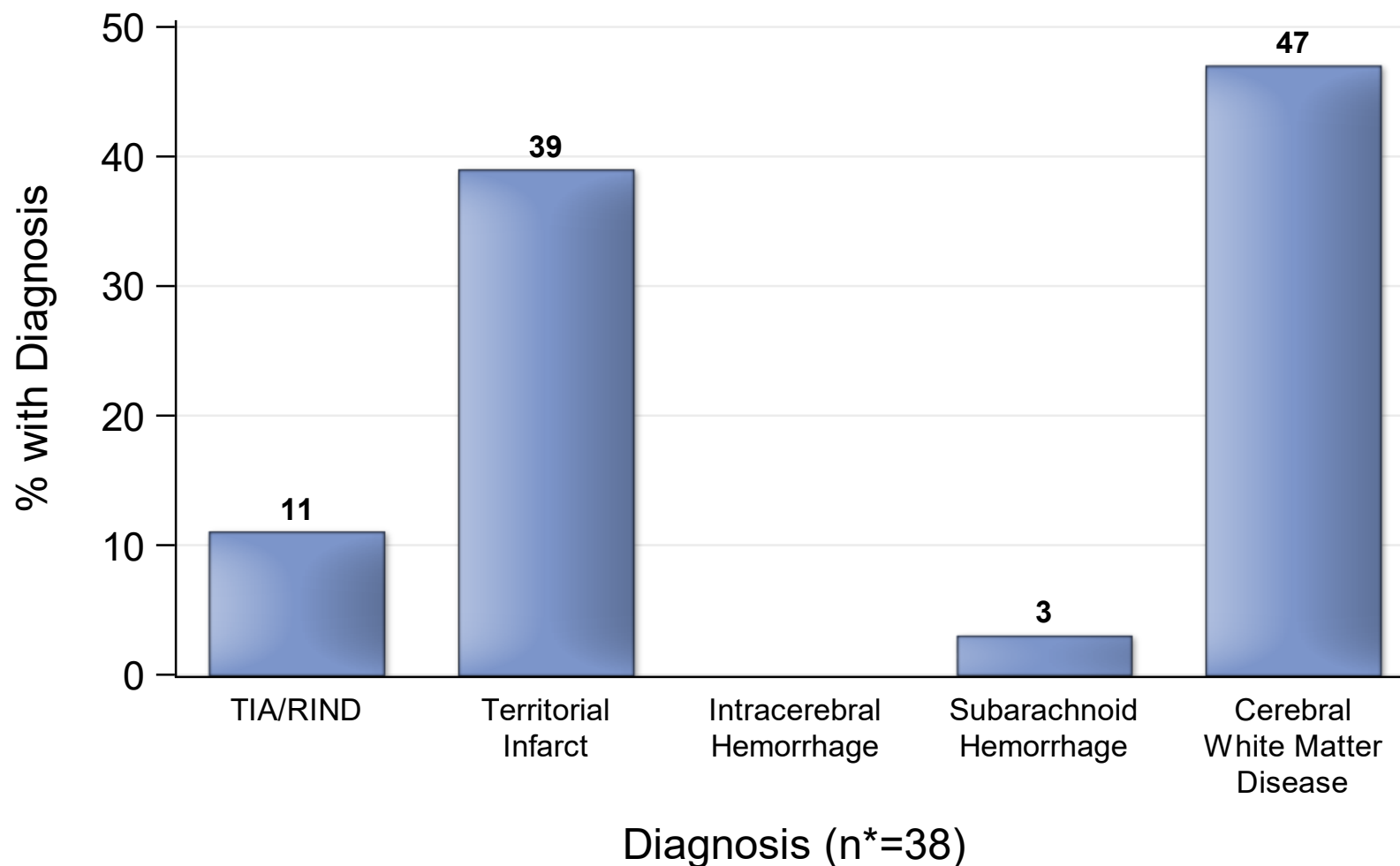
*From the first available visit. Domains with missing responses are categorized as 'no'.

Frailty Demographics

<u>Characteristics:</u>	<u>All Frailty Stages</u>	<u>Not Frail</u>	<u>Pre-frail</u>	<u>Frail</u>
N*	242	70	138	34
<u>Age</u>				
Mean	59.3	60.0	59.2	58.5
Std	8.1	7.9	8.0	9.0
<u>Sex</u>				
Male	165 (68%)	54 (33%)	92 (56%)	19 (12%)
Female	77 (32%)	16 (21%)	46 (60%)	15 (19%)

*Frailty stage from the first available visit. Sex unknown for some recent cases.

Cerebrovascular Diagnosis Frequency



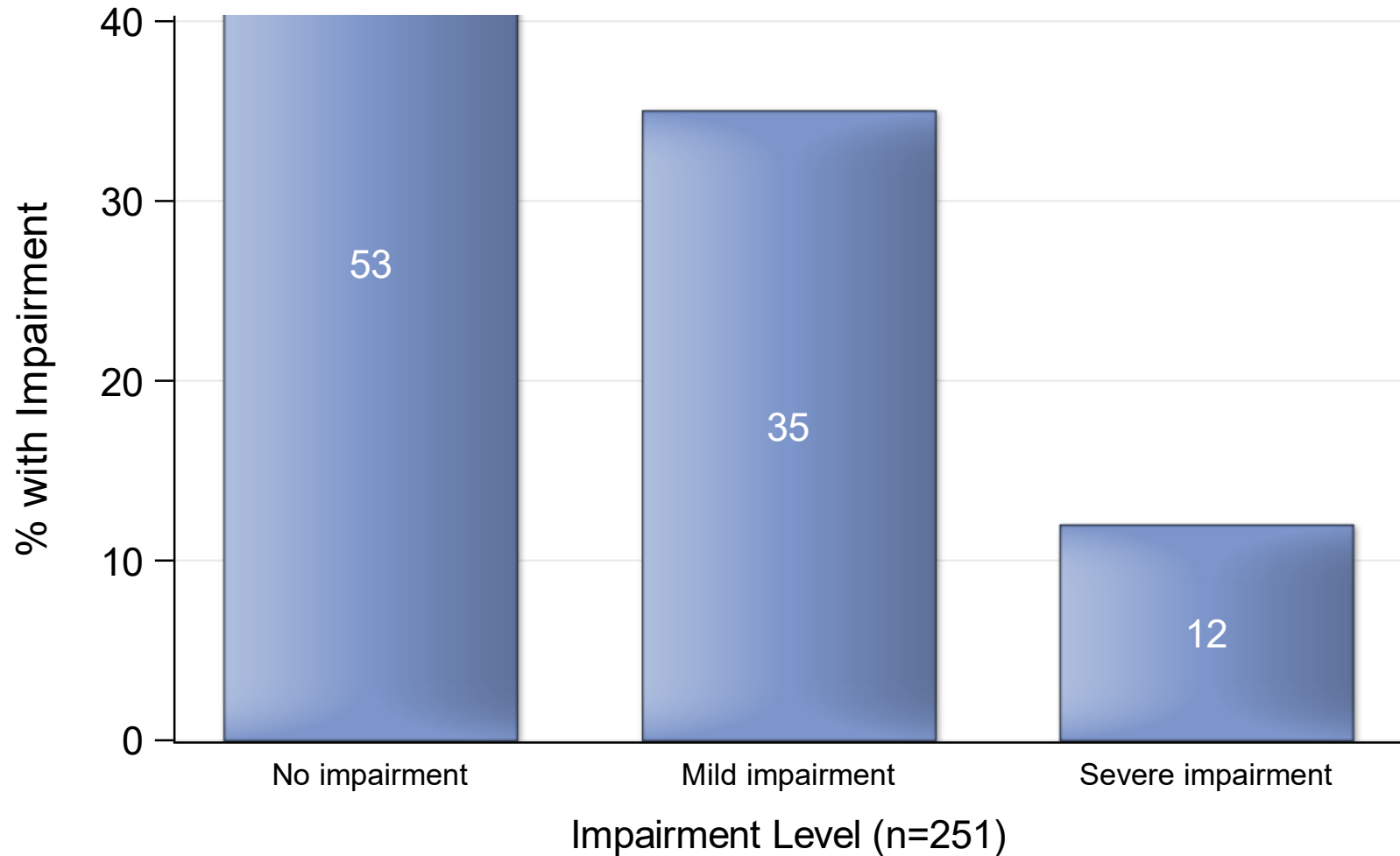
*From the first available visit. 57 participants have an assigned diagnosis at baseline.

Cerebrovascular Demographics

<u>Characteristics:</u>	<u>All Records</u>	<u>Condition not present</u>	<u>Condition present</u>	<u>Unable to definitively diagnose</u>
N*	216	170	38	8
<u>Age</u>				
Mean	57.9	57.4	60.5	56.4
Std	8.4	8.6	7.2	7.9
<u>Sex</u>				
Male	140 (65%)	113 (81%)	22 (16%)	5 (4%)
Female	76 (35%)	57 (75%)	16 (21%)	3 (4%)

*Cerebrovascular disease diagnosis from the first available visit. Sex unknown for some recent cases.

HIV Motor Scale - Impairment Rating

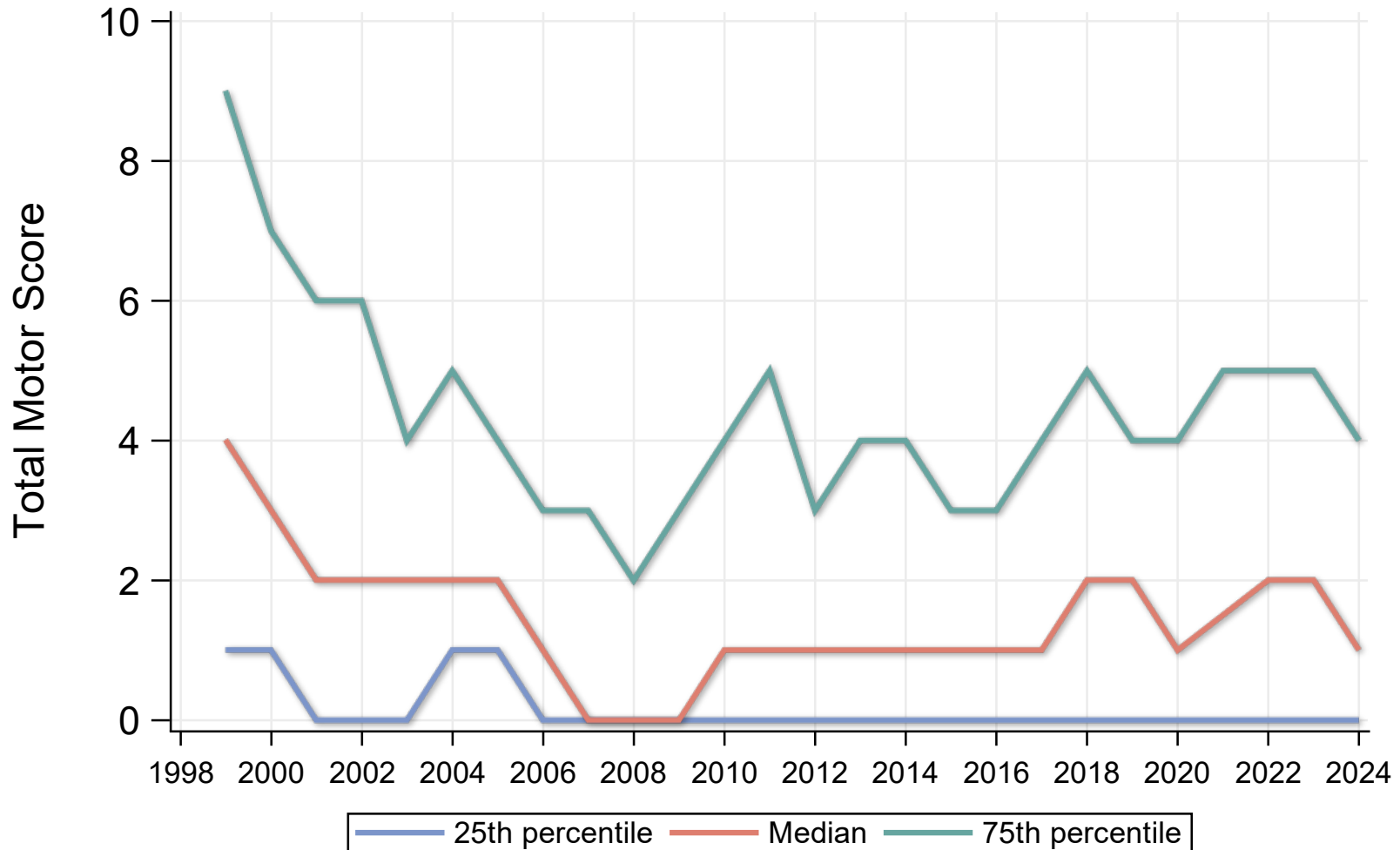


*From the first available visit.

The HIV Motor Scale measures neurological function in the following domains: strength, deep tendon reflexes, motor tone and strength, and coordination and gait.

The Total Motor Score is a continuous measure on a scale of 0-18, with a score of 0 indicating a normal assessment; 1-4 indicating mild impairment; and 5 or more indicating severe impairment.

HIV Motor Scale



The HIV Motor Scale measures neurological function in the following domains: strength, deep tendon reflexes, motor tone and strength, and coordination and gait.

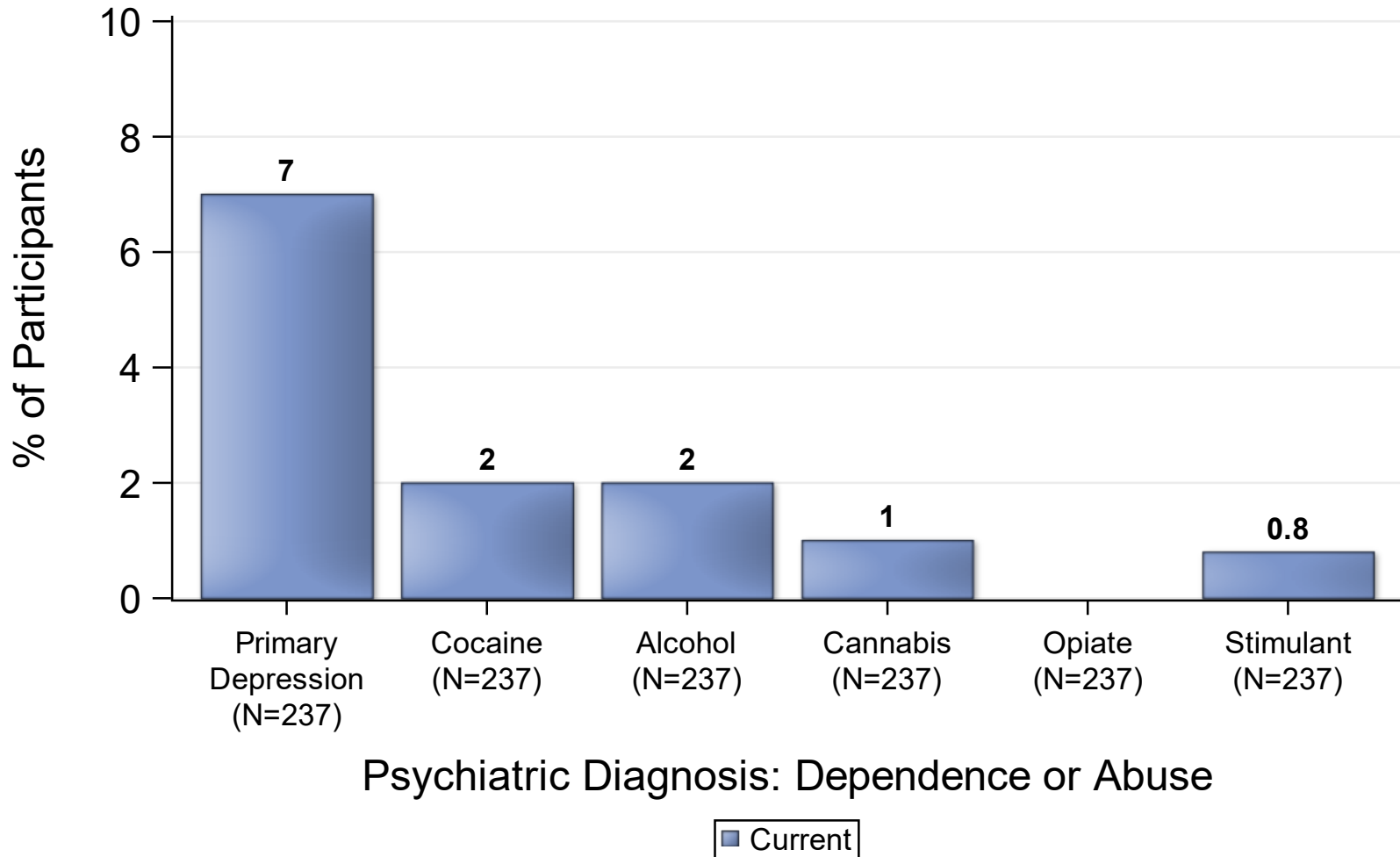
The Total Motor Score is a continuous measure on a scale of 0-18, with a score of 0 indicating a normal assessment; 1-4 indicating mild impairment; and 5 or more indicating severe impairment.

HIV Motor Scale Demographics

<u>Characteristics:</u>	<u>All Records</u>	<u>No impairment</u>	<u>Mild impairment</u>	<u>Severe impairment</u>
N*	251	132	89	30
<u>Age</u>				
Mean	53.7	52.9	56.3	49.3
Std	10.8	10.8	10.2	10.9
<u>Sex</u>				
Male	169 (67%)	93 (55%)	60 (36%)	16 (9%)
Female	82 (33%)	39 (48%)	29 (35%)	14 (17%)

*HIV Motor Scale impairment from the first available visit. Sex unknown for some recent cases.

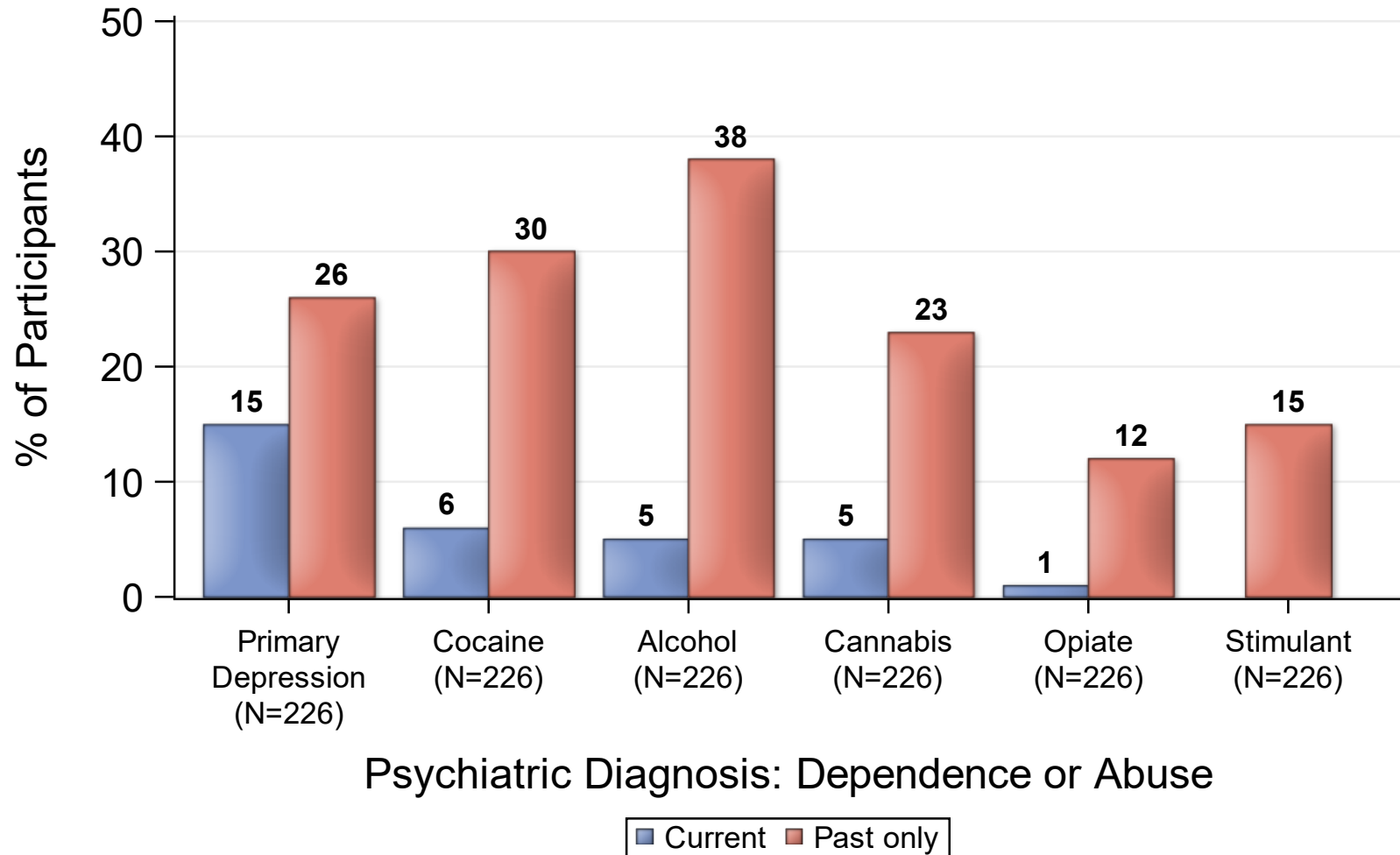
Current Psychiatric Diagnosis



72% are Normal/Test Not Administered

*Please note the totals listed above reflect only those cases in the active cohort who have undergone a PRISM/CIDI evaluation.

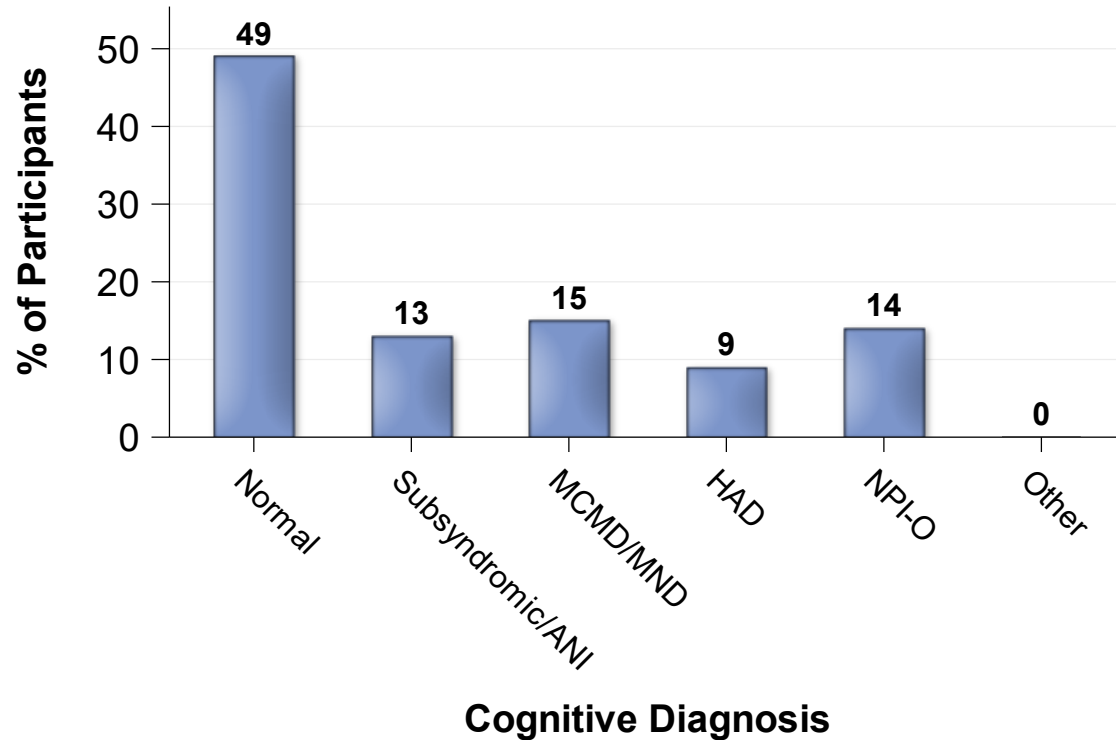
Baseline Psychiatric Diagnosis



26% are Normal/Test Not Administered

*Please note the totals listed above reflect only those cases in the active cohort who have undergone a PRISM/CIDI evaluation.

Current Cognitive Diagnosis (N=227)*



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

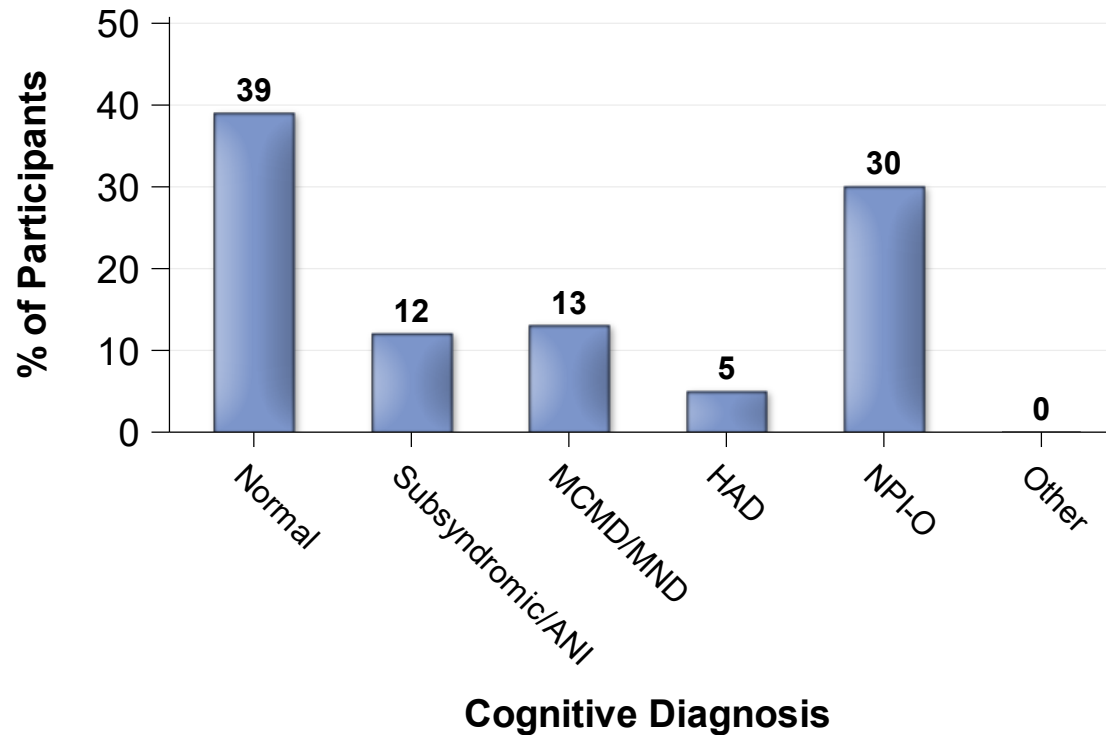
MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

NPI-O = Neuropsychological Impairment - Other cause, not HIV

*Please note the totals listed above reflect only those cases in the active cohort who have ever been assigned a cognitive diagnosis.

Baseline Cognitive Diagnosis (N=242*)



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

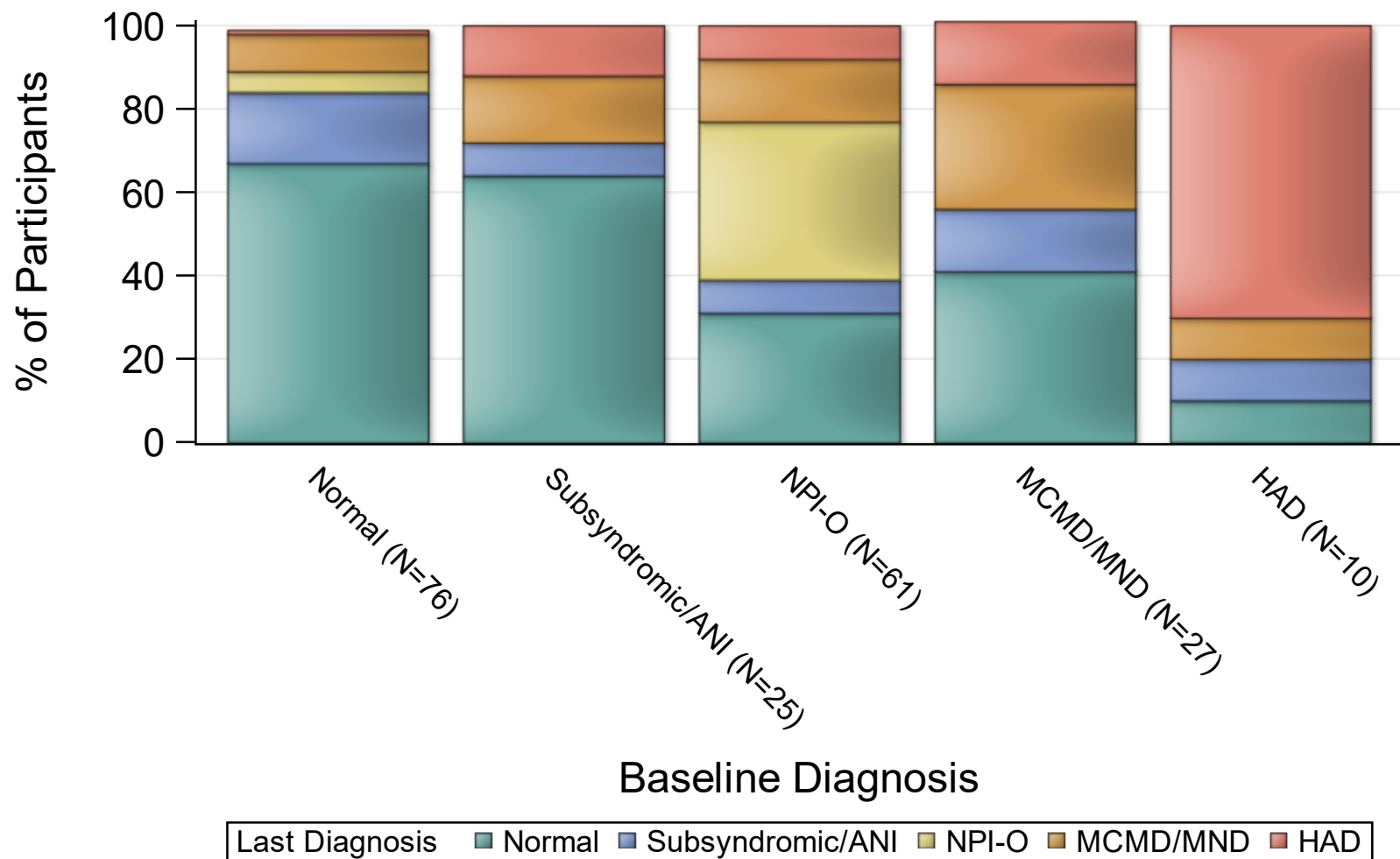
MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

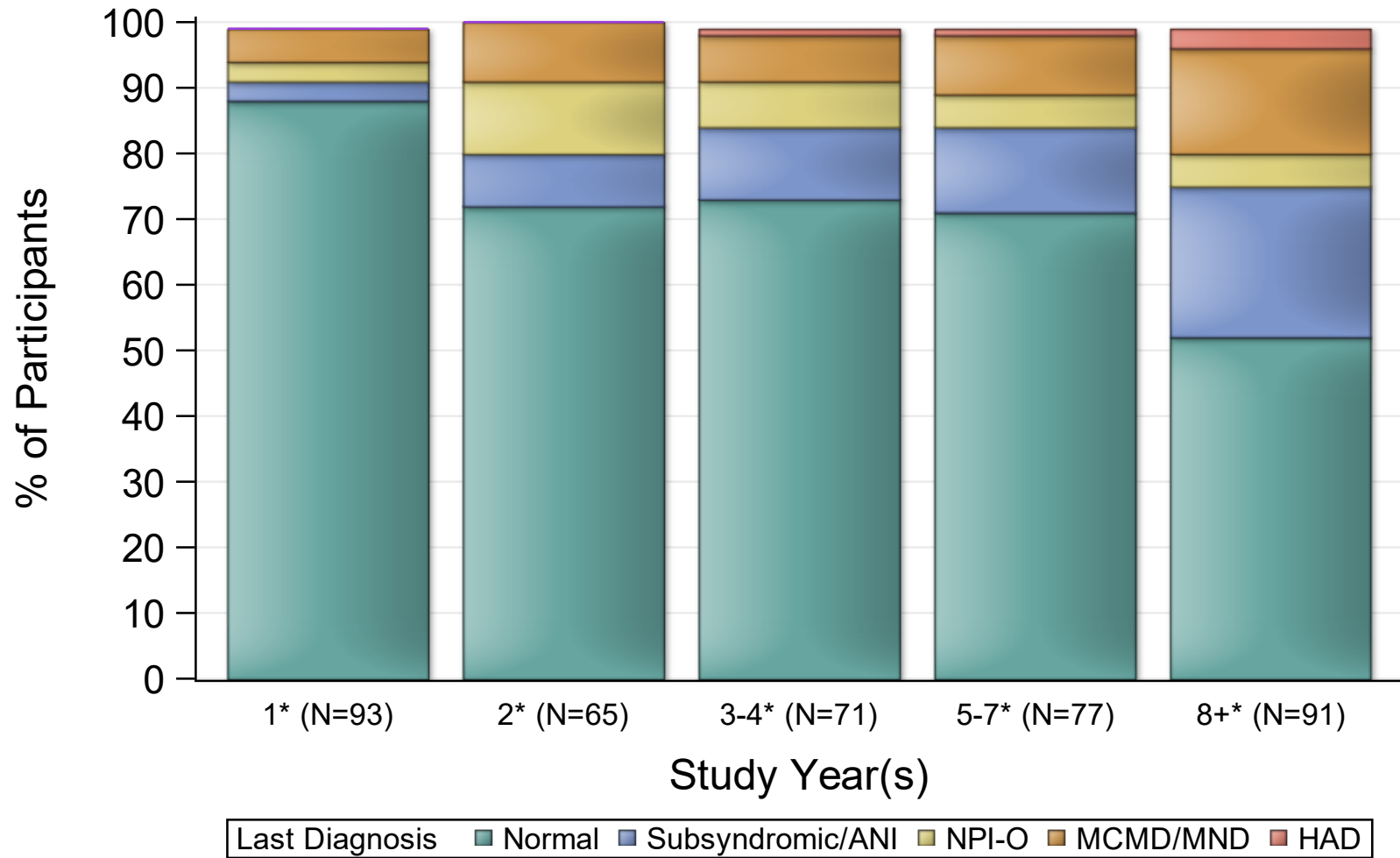
NPI-O = Neuropsychological Impairment - Other cause, not HIV

*Please note the totals listed above reflect only those cases in the active cohort who were assigned a cognitive diagnosis at baseline.

Change in Cognitive Diagnosis



Change in Cognitive Diagnosis Normal at Baseline

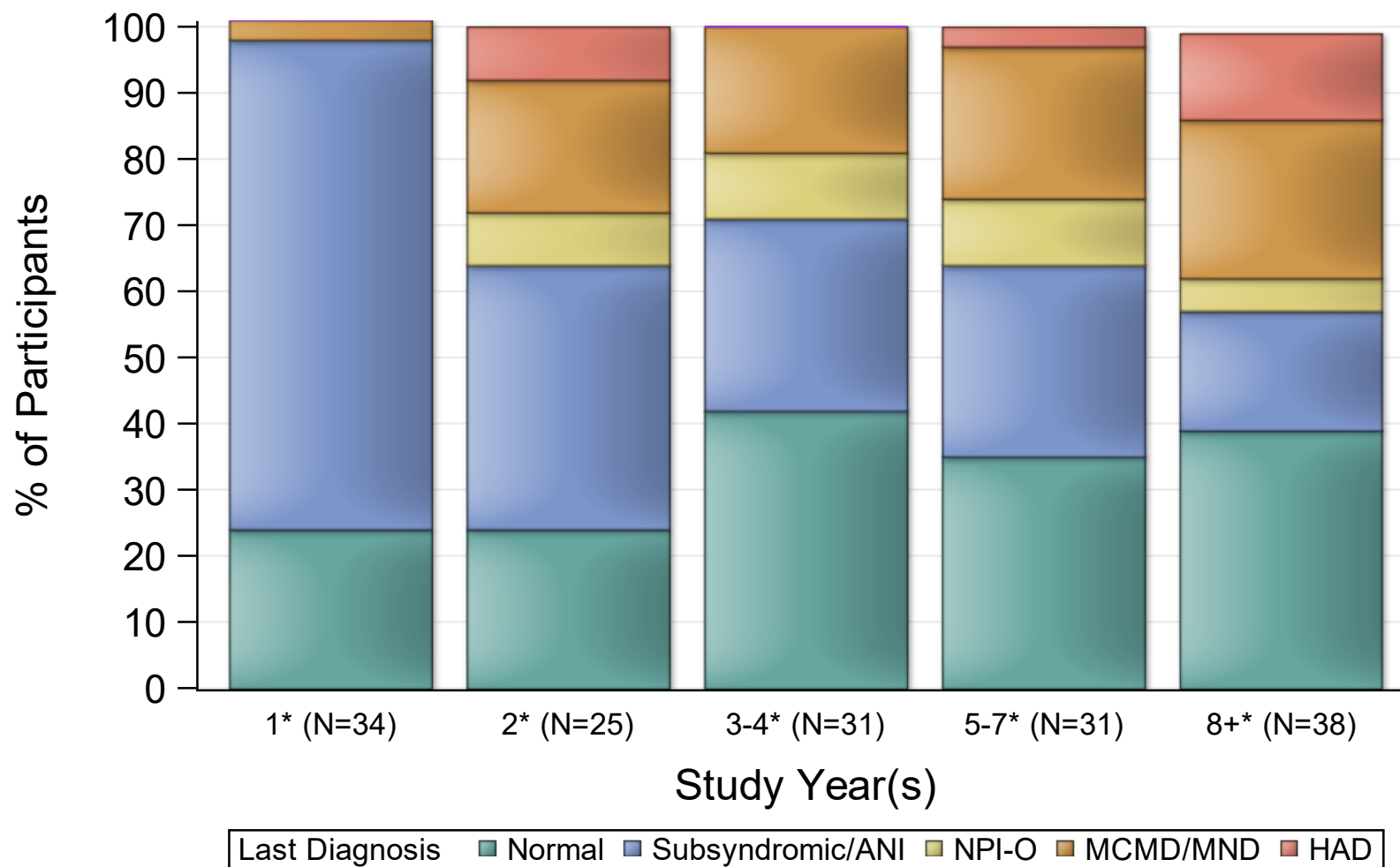


*Worst diagnosis in study year period shown.

Participants followed for two or more years contribute to all preceding groups.

Change in Cognitive Diagnosis

Subsyndromic/ANI at Baseline

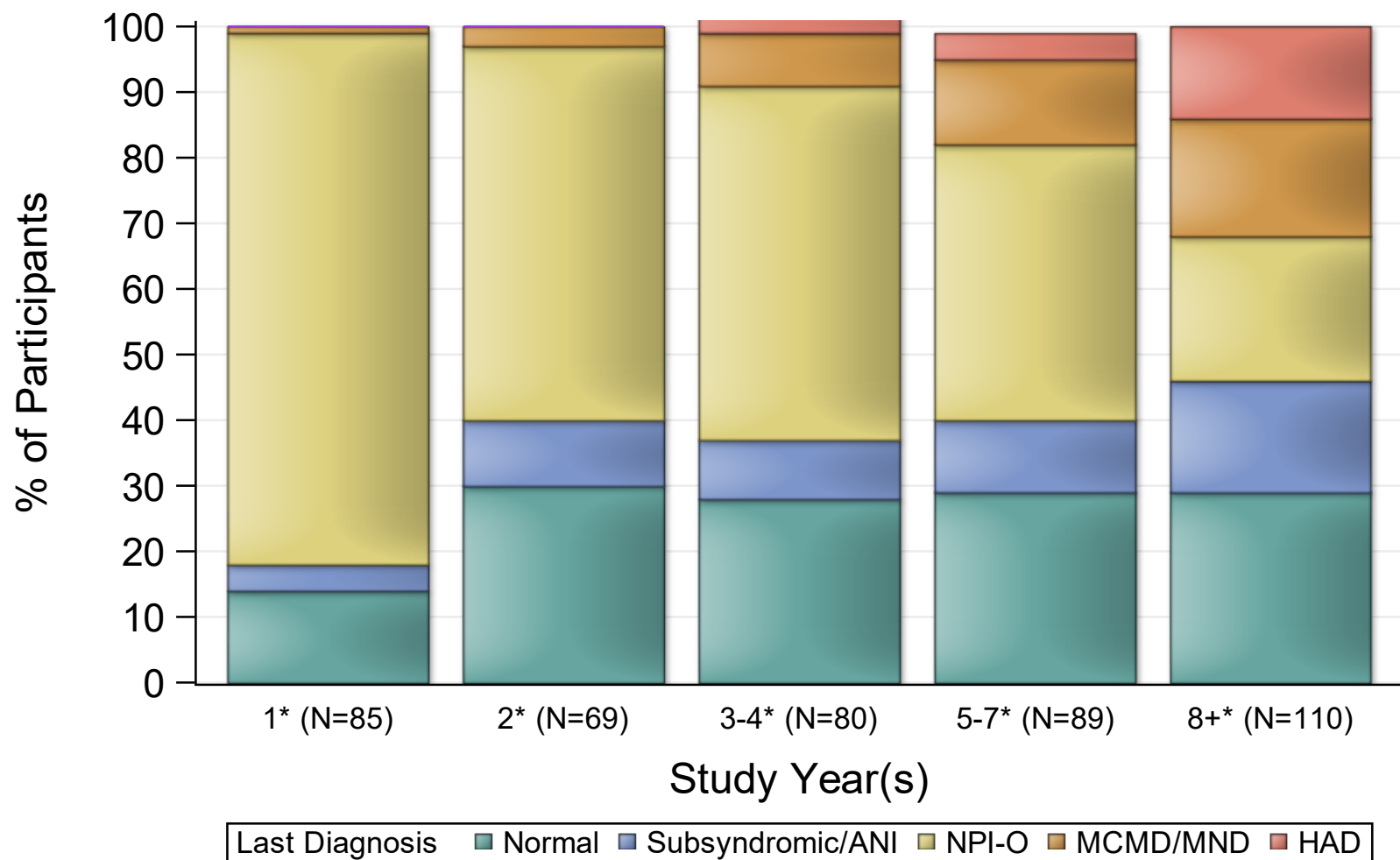


*Worst diagnosis in study year period shown.

Participants followed for two or more years contribute to all preceding groups.

Change in Cognitive Diagnosis

NPI-O at Baseline

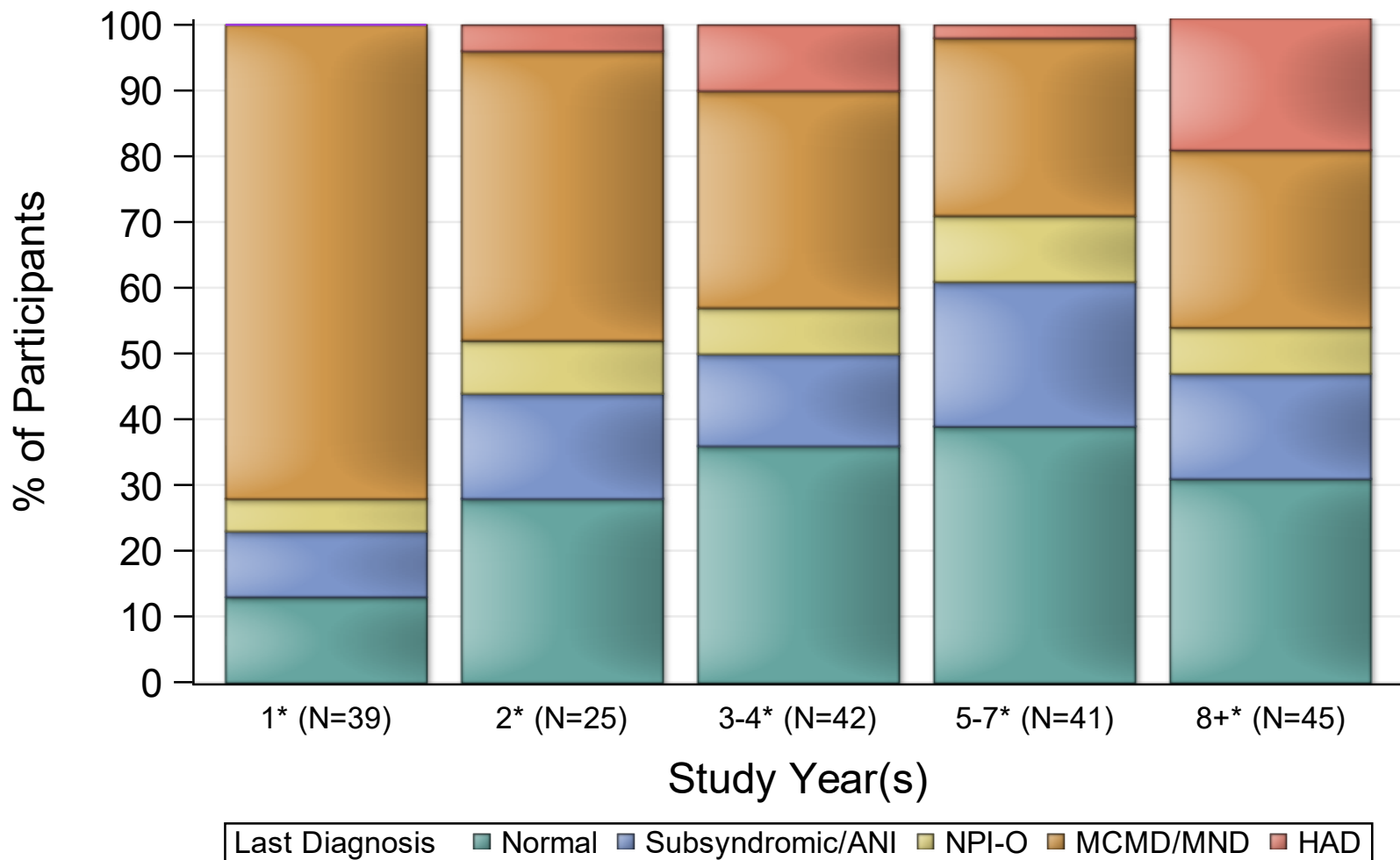


*Worst diagnosis in study year period shown.

Participants followed for two or more years contribute to all preceding groups.

Change in Cognitive Diagnosis

MCMD/MND at Baseline

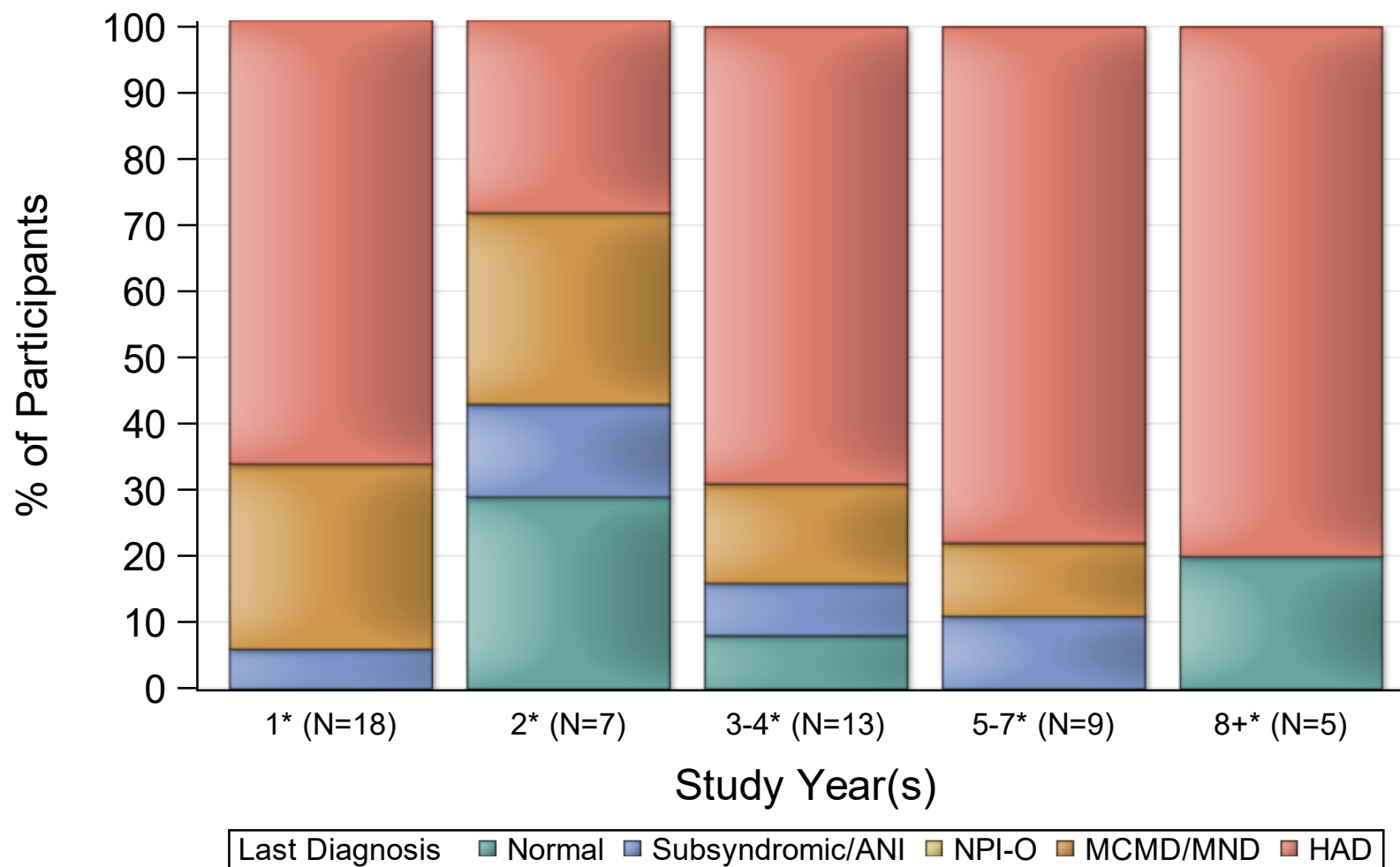


*Worst diagnosis in study year period shown.

Participants followed for two or more years contribute to all preceding groups.

Change in Cognitive Diagnosis

HAD at Baseline



*Worst diagnosis in study year period shown.

Participants followed for two or more years contribute to all preceding groups.

Current Neurologic Diagnoses

Clinical Myelopathy (N=159)

	<u>N</u>	<u>%</u>
HIV associated	4	3
Other	4	3
None	151	95

Neuropathy (N=160)

HIV associated DSP	120	75
None	40	25

Baseline Neurologic Diagnoses

	<u>N</u>	<u>%</u>
<u>Clinical Myelopathy (N=223)</u>		
HIV associated	9	4
Other	4	2
None	210	94
<u>Neuropathy (N=222)</u>		
HIV associated DSP	112	50
HIV/nucleoside	6	3
None	104	47

Participants Reporting Concomitant Medications

Medication	# of Pts (N=234)	%
Central Nervous System Agents	222	94.9
Cardiovascular Drugs	206	88
Vitamins	201	85.9
Gastrointestinal Drugs	187	79.9
Anti-infective Agents	174	74.4
Hormones and Synthetic Substitutes	146	62.4
Autonomic Drugs	145	62
Electrolytic, Caloric, and Water Balance	127	54.3
Skin and Mucous Membrane Agents	124	53
Miscellaneous Therapeutic Agents	119	50.9
Antihistamine Drugs	111	47.4
Eye, Ear, Nose, and Throat (EENT) Preparations	107	45.7
Blood Formation, Coagulation, and Thrombosis Agents	82	35
No medication use reported on at least one occasion	52	22.2
Respiratory Tract Agents	43	18.4
Local Anesthetics	37	15.8
Smooth Muscle Relaxants	35	15
Antineoplastic Agents	30	12.8
Pharmaceutical Aids	18	7.7
Enzymes	9	3.8

Ancillary Lab Measurements

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
Miscellaneous Hematology				
Red blood cells	896	40	102	34
Mean Corpuscular Hemoglobin (MCH)	896	40	102	34
Mean Corpuscular Volume (MCV)	7133	98	248	85
Mean Corpuscular Hemoglobin Concentration (MCHC)	896	40	102	34
Blood Red cell Distribution Width (RDW)	766	40	82	26
Blood Rapid Plasma Reagin (RPR)	1127	66	106	23
Blood Neutrophil Percent	6843	98	227	77
Blood Lymphocyte Percent	7006	98	249	86
Blood Monocyte Percent	6985	98	249	86
Blood Eosinophil Percent	6978	98	247	85
Blood Basophil Percent	6920	98	245	84
Blood Mean Platelet Volume (MPV)	204	15	18	6
Blood CD3 Percent	392	17	43	15
Blood CD3 Absolute	254	16	23	7
Miscellaneous Serology & virology				
Blood Hepatitis B Surface Antigens	572	58	132	17
Blood Hepatitis B Surface Antibodies	573	57	129	19
Blood Hepatitis B Core Antibodies	519	58	131	15
Blood Hepatitis B Viral Load	63	7	5	1
Blood Hepatitis C Antibodies (HCV)	1307	92	189	42
Blood Hepatitis C Viral Load	403	21	28	5
Miscellaneous Serology & virology				
COVID-19 Test Results (qualitative)	111	11	2	0

Ancillary Lab Measurements cont.

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
Miscellaneous Blood Chemistries				
Glucose	6484	98	243	83
Hemoglobin A1c	3023	96	120	36
Sodium	6348	98	244	84
Calcium	6340	98	244	84
Chloride	6261	97	233	80
Potassium	6297	98	244	84
Total Protein	6124	98	243	83
Alkaline Phosphatase	6257	98	243	83
AST	6243	98	242	83
ALT	6241	98	240	82
Total Bilirubin	6242	98	244	84
Direct Bilirubin	702	40	85	26
Creatinine	6393	98	244	84
BUN	6417	98	243	83
CO2	6270	98	240	82
PT	3530	58	142	50
INR	3553	58	143	51
Urate	136	7	18	5
Triglycerides	3864	98	194	64
Cholesterol	3880	98	193	63
LDL	3489	89	152	51
HDL	3737	98	179	58
Phosphorus	714	40	85	27
LDH	241	13	27	9

Ancillary Lab Measurements cont.

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
<u>Miscellaneous CSF values</u>				
CSF-VDRL Test	11	3	4	1
<u>Miscellaneous Urine values</u>				
Urinalysis: Glucose	3737	58	147	52
Urinalysis: Protein	3718	58	147	52
Urinalysis: pH	3717	58	147	52
Urinalysis: Specific Gravity	3693	58	146	52
Urinalysis: Ketones	3720	58	146	52
Urinalysis: Bilirubin	3697	58	145	51
Urine Toxicology; Methamphetamine	889	38	92	31
Urinalysis: Red Blood Cells	1003	37	51	17
Urinalysis: White Blood Cells	1008	38	51	17

Tissue Bank Cohort Overview

CNS Specimens Available

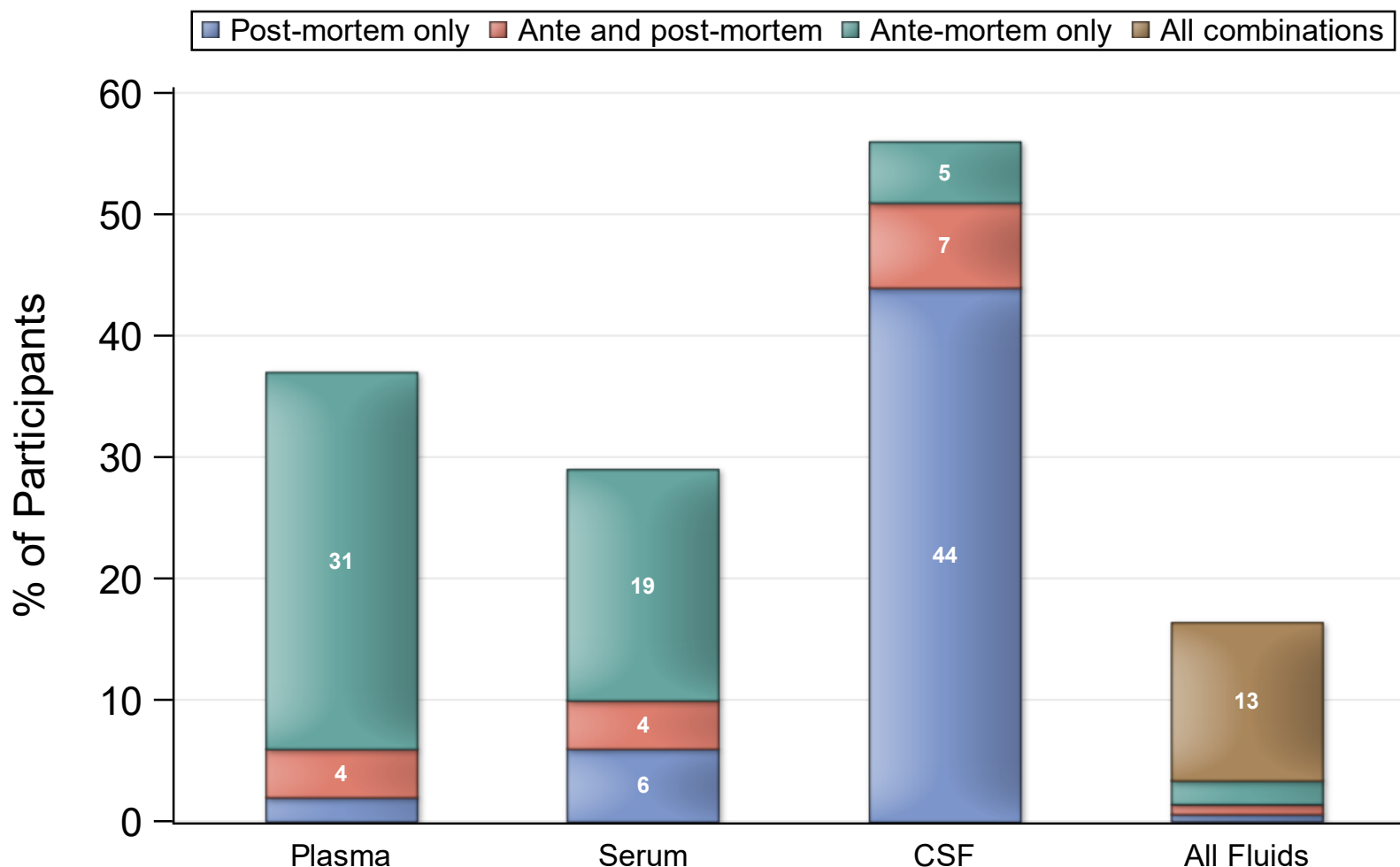
Type:	PWH	PWOH
Frozen Brain	1021	341
Spinal Cord	994	265
Fixed Brain	910	326
Dorsal Root Ganglia	812	220
Cerebellum	594	139
Brain Stem	578	139
Trigeminal Ganglia	537	75
Frontal Lobe	349	121
Parietal Lobe	345	120
Occipital Lobe	345	120
Temporal Lobe	343	120
Basal Ganglia	318	106
Thalamus	305	116
Hippocampus	282	92
Occipital Pole	18	20

*Several of the smaller brain categories listed were approved by the Steering Committee on 27JUN2017 to be reported centrally, and thus are currently underreported in the central inventory as sites work towards retrospectively updating specimen records. It is expected that the central inventory, including availability of these specimens, will continue to be updated prospectively.

Peripheral Organ Specimens Available

Type:	PWH	PWOH
Liver	970	261
Spleen	946	251
Peripheral Nerve	858	231
Adipose Tissue	810	208
Heart	780	195
Muscle	751	209
Lymph Node	742	187
Bone Marrow	740	189
Pituitary Gland	690	119
Kidney	615	192
Lung	574	186
Bowel	346	105
Testes	187	75
Hair	149	10
Eye	38	2
Thymus	30	5

Available Fluids



*All combinations (e.g., one specimen might be available ante-mortem while the other two might be ante- and post-mortem or any of the other 23 combinations where all 3 specimen availabilities are not the same).

Please note the totals listed above reflect only those cases who have a fixed brain specimen available and fluids collected within 1 year of death. Percentage labels not shown are 2% or less.

Demographics*

<u>N</u>	<u>916</u>
<u>Age</u>	
Mean	50.8
SD	12.4
25th Percentile	41
Median	50
75th Percentile	59

*Cases with a fixed brain specimen available with a measurement at baseline and within 1 year of death.

Demographics cont.*

	<u>N</u>	<u>%</u>
<u>Sex</u>		
Male	719	79
Female	195	21
<u>Ethnicity</u>		
Hispanic origin	244	27
<u>Race</u>		
White	490	54
Black	303	33
Other	122	13

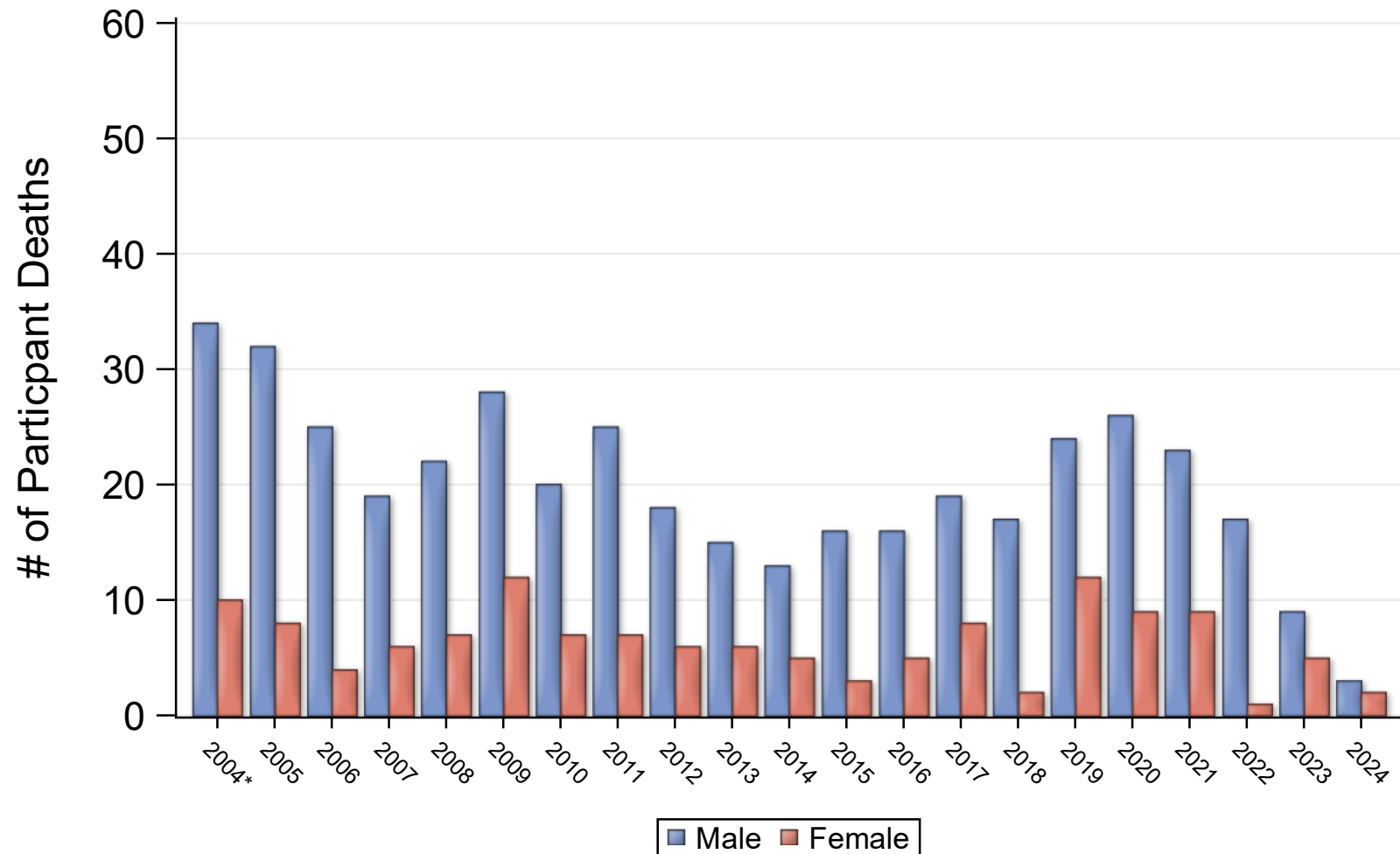
*Cases with a fixed brain specimen available.

Demographics cont.*

	<u>N</u>	<u>%</u>
<u>Furthest Education</u>		
8th grade or less	34	8
Some High School	90	20
High School Graduate	126	28
Some College/Associate's Degree	124	27
College Graduate	39	9
Advanced Degree work	39	9

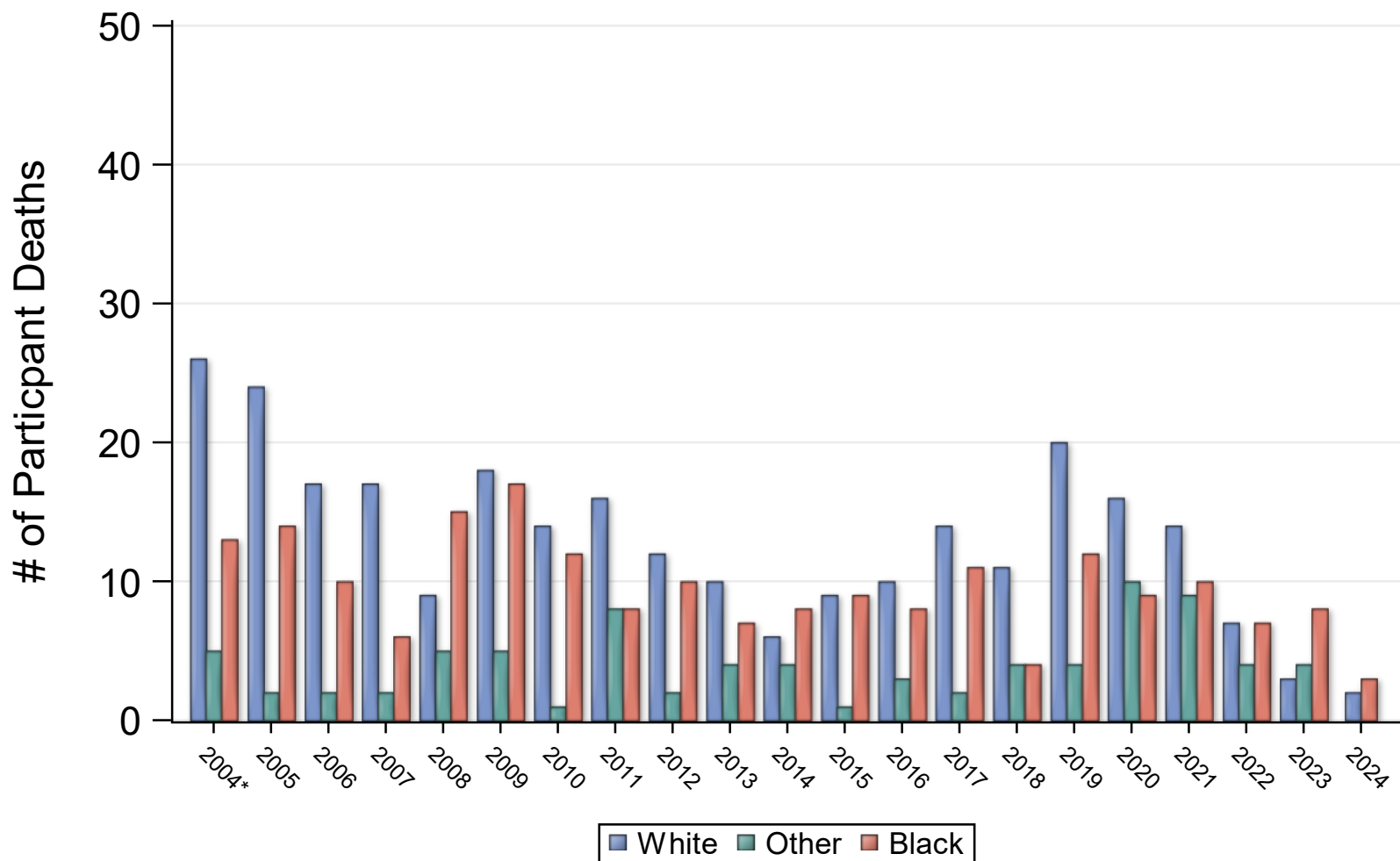
*Cases with a fixed brain specimen available.

cART Era Demographics - Sex



*279 males and 58 females prior to 2004. The NNTC did not collect data before 1998.

cART Era Demographics - Race



*209 White, 87 Black, and 41 Other prior to 2004. The NNTC did not collect data before 1998.

HIV Characteristics of autopsy cases*

	<u>N</u>	<u>%</u>
<u>Baseline HIV risk</u>		
IV drug use	271	30
Male to male sex	330	36
Heterosexual sex	194	21
Other	121	13
<u>On ART</u>		
at baseline	715	78
at last visit	727	79

*Cases with a fixed brain specimen available.

HIV Characteristics at time of death*

CD4 Count (N=668)

25th Percentile	21
Median	105
75th Percentile	274

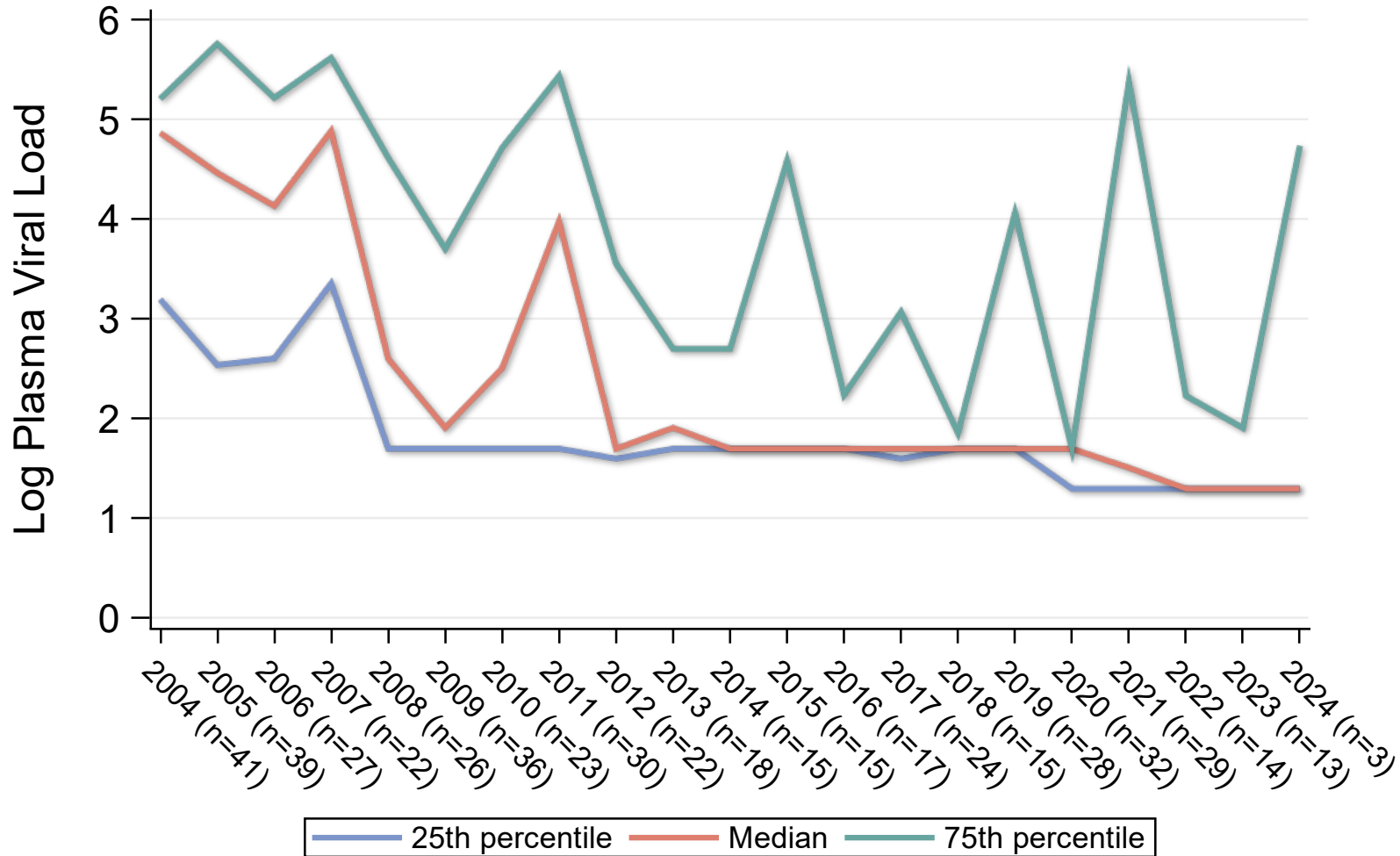
Log Plasma Viral Load** (N=608)

25th Percentile	1.70
Median	3.43
75th Percentile	5.11

*Cases with a fixed brain specimen available with a measurement at baseline and within 1 year of death.

**Among those with known ARV medication status. 7 participants had detectable VL values of 0 where a viral log could not otherwise be calculated.

cART Era Viral Load

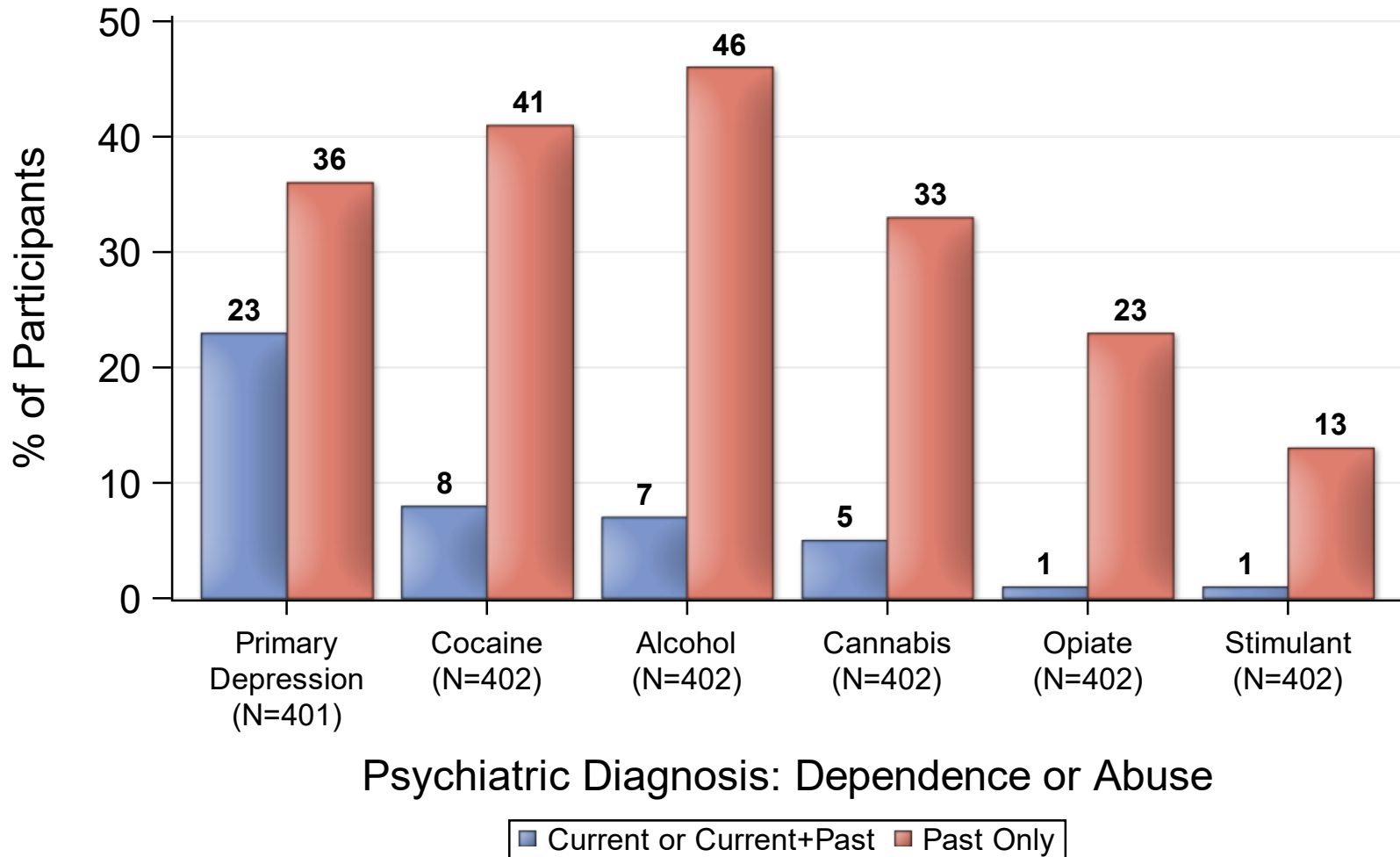


*Among those who have died during the cART era.

Pathological Conditions: Year of Autopsy

Type:	Year of Autopsy			Total Cases
	1998-2004	2005-2011	2012-present	
<i>Total Fixed Specimens</i>	396	219	295	910
Normal/minor neuropath changes	102 (26%)	71 (32%)	38 (13%)	211 (23%)
Other non-infectious pathology	75 (19%)	70 (32%)	104 (35%)	249 (27%)
Alzheimer's type 2 gliosis	71 (18%)	24 (11%)	30 (10%)	125 (14%)
Focal infarct	50 (13%)	38 (17%)	67 (23%)	155 (17%)
HIV encephalitis	58 (15%)	16 (7%)	4 (1%)	78 (9%)
Hypoxic/ischemic damage	32 (8%)	40 (18%)	60 (20%)	132 (15%)
Aseptic Leptomeningitis	28 (7%)	16 (7%)	31 (11%)	75 (8%)
Microglial nodule encephalitis	34 (9%)	6 (3%)	8 (3%)	48 (5%)
Hemorrhage-parenchymal	17 (4%)	10 (5%)	25 (9%)	52 (6%)
Progressive Multifocal Leukoencephalopathy	22 (6%)	12 (5%)	5 (2%)	39 (4%)
Cryptococcus	14 (4%)	8 (4%)	2 (1%)	24 (3%)
Primary CNS lymphoma	23 (6%)	5 (2%)	8 (3%)	36 (4%)
Other infections	17 (4%)	7 (3%)	19 (6%)	43 (5%)
Cytomegalovirus encephalitis	20 (5%)	3 (1%)	2 (1%)	25 (3%)

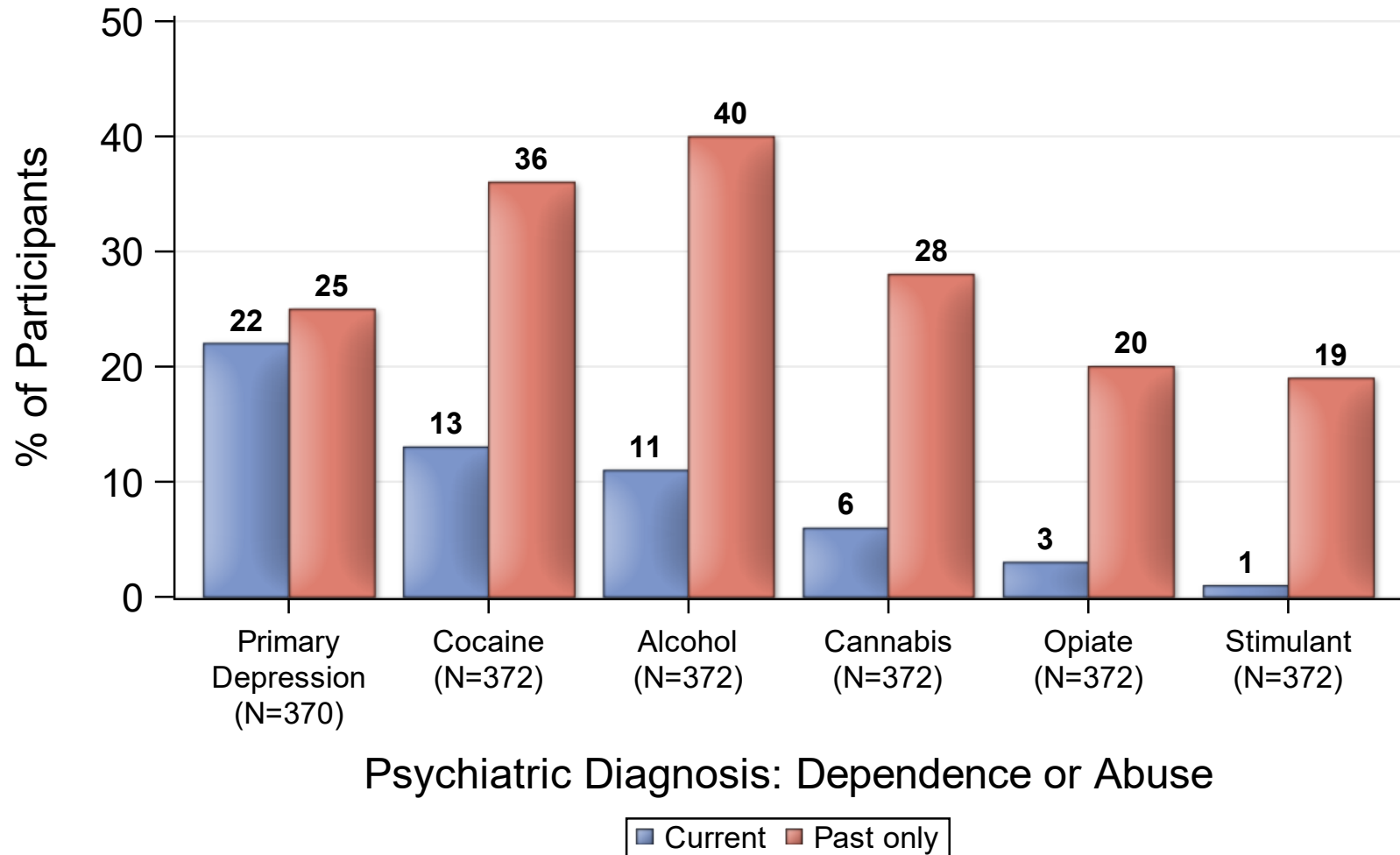
Last Psychiatric Diagnosis



46% are Normal/Test Not Administered

*Please note the totals listed above reflect only those cases who have a fixed brain specimen available and data from the PRISM/CIDI evaluation before death.

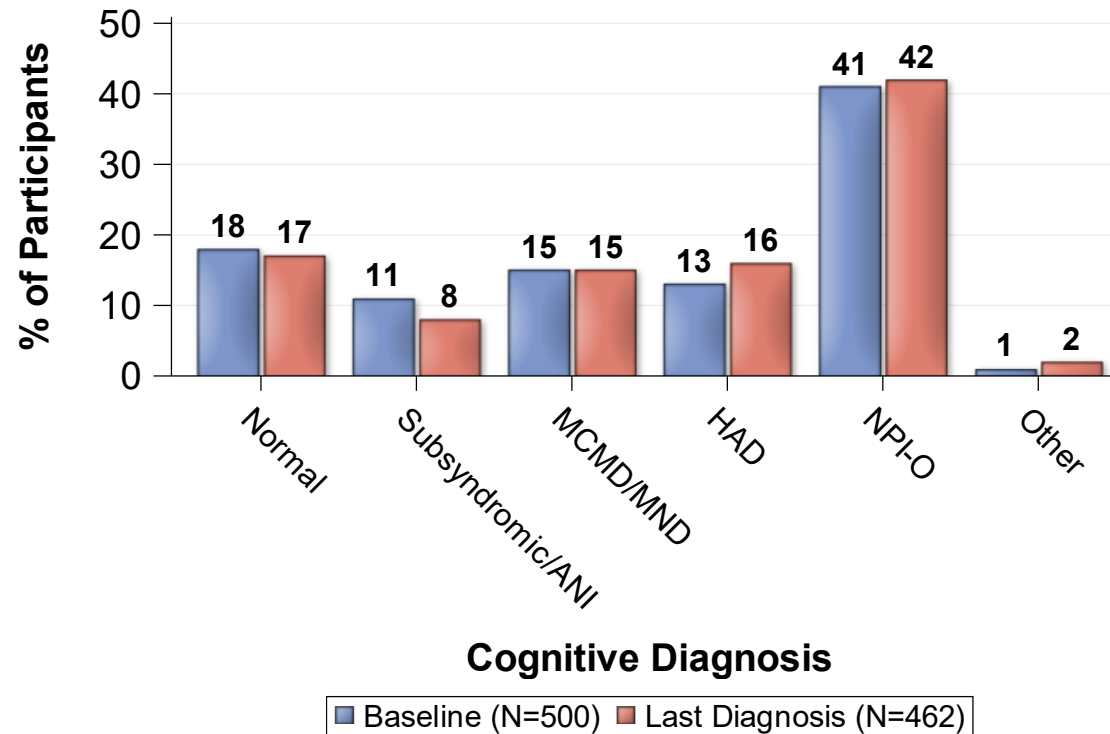
Baseline Psychiatric Diagnosis



16% are Normal/Test Not Administered

*Please note the totals listed above reflect only those cases who have a fixed brain specimen available and data from the PRISM/CIDI evaluation closest to baseline.

Cognitive Diagnosis



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

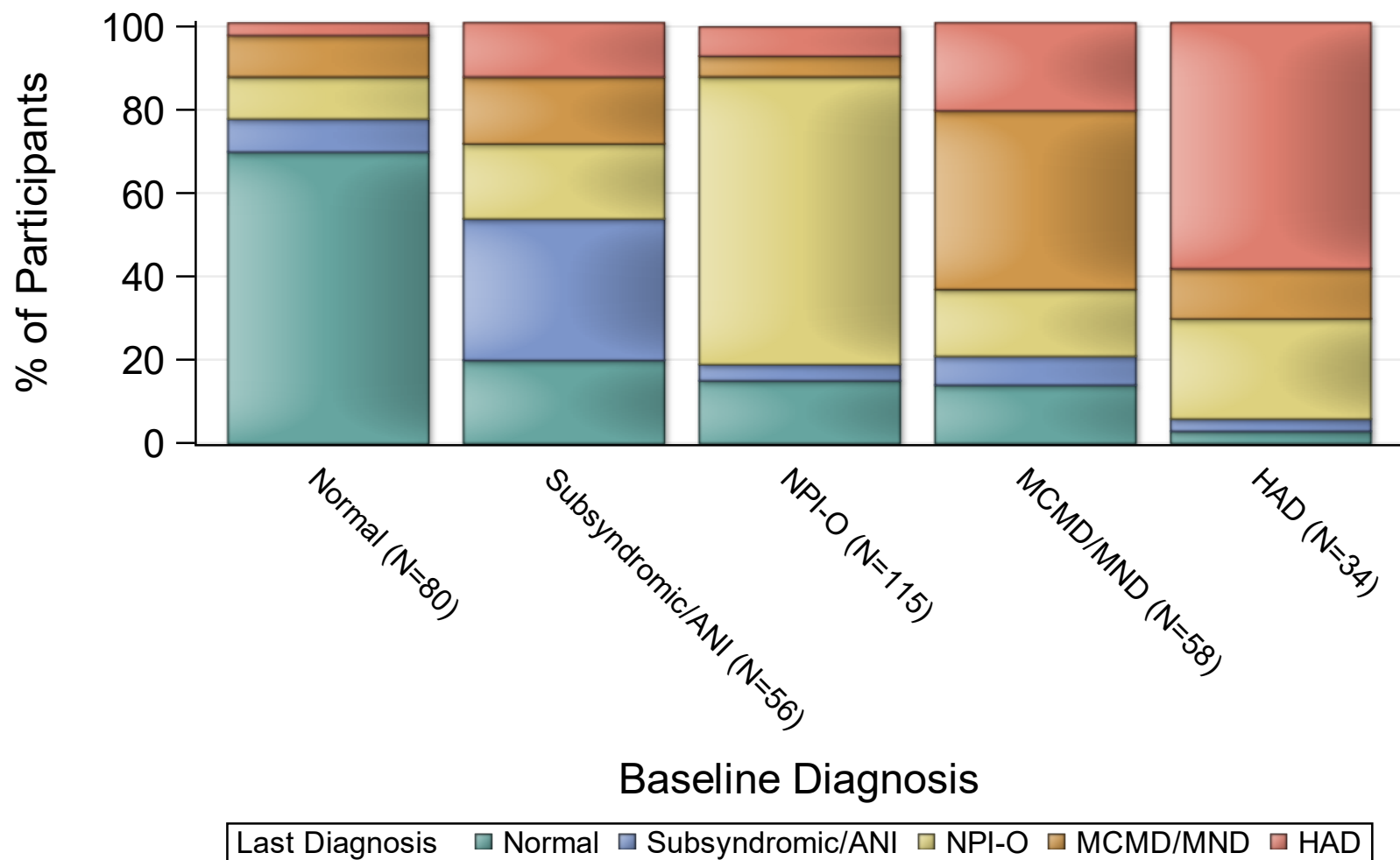
MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

NPI-O = Neuropsychological Impairment - Other cause, not HIV

*Please note the totals listed above reflect only those cases who have a fixed brain specimen available.

Change in Cognitive Diagnosis



Neurologic Diagnoses*

	<u>Last Dx</u>		<u>Baseline</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>Clinical Myelopathy</u>	<u>(N=441)</u>		<u>(N=501)</u>	
HIV associated	50	11	57	11
Other	9	2	12	2
None	382	87	432	86
<u>Neuropathy</u>	<u>(N=375)</u>		<u>(N=431)</u>	
HIV associated DSP	173	46	168	39
Nucleoside associated	4	1	3	1
HIV/nucleoside	46	12	61	14
None	152	41	199	46

*Cases with a fixed brain specimen available.

Participants Reporting Concomitant Medications

Medication	# of Pts (N=672)	%
Central Nervous System Agents	583	86.8
Anti-infective Agents	519	77.2
Gastrointestinal Drugs	456	67.9
Cardiovascular Drugs	351	52.2
Vitamins	329	49
Hormones and Synthetic Substitutes	323	48.1
Electrolytic, Caloric, and Water Balance	285	42.4
Autonomic Drugs	264	39.3
Blood Formation, Coagulation, and Thrombosis Agents	223	33.2
Skin and Mucous Membrane Agents	150	22.3
Antihistamine Drugs	145	21.6
Miscellaneous Therapeutic Agents	138	20.5
Antineoplastic Agents	117	17.4
Eye, Ear, Nose, and Throat (EENT) Preparations	93	13.8
Respiratory Tract Agents	67	10
Local Anesthetics	42	6.3
Pharmaceutical Aids	27	4
Smooth Muscle Relaxants	25	3.7
No medication use reported on at least one occasion	19	2.8
Blood Derivatives	18	2.7

Ancillary Lab Measurements

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
<u>Miscellaneous Hematology</u>				
Red blood cells	2163	20	156	8
Mean Corpuscular Hemoglobin (MCH)	2155	20	157	8
Mean Corpuscular Volume (MCV)	4818	58	501	23
Mean Corpuscular Hemoglobin Concentration (MCHC)	2150	19	157	8
Blood Red cell Distribution Width (RDW)	2048	13	94	6
Blood Rapid Plasma Reagin (RPR)	422	22	150	3
Blood Neutrophil Percent	4458	50	424	20
Blood Lymphocyte Percent	4695	56	484	22
Blood Monocyte Percent	4567	56	483	22
Blood Eosinophil Percent	4536	56	481	21
Blood Basophil Percent	4527	55	477	21
Blood Mean Platelet Volume (MPV)	1582	10	72	5
Blood CD3 Percent	168	9	73	3
Blood CD3 Absolute	55	2	9	0
<u>Miscellaneous Serology & virology</u>				
Blood Hepatitis B Surface Antigens	529	35	278	5
Blood Hepatitis B Surface Antibodies	498	33	258	5
Blood Hepatitis B Core Antibodies	446	31	240	4
Blood Hepatitis B Viral Load	56	4	20	0
Blood Hepatitis C Antibodies (HCV)	691	45	314	7
Blood Hepatitis C Viral Load	284	19	105	2
<u>Miscellaneous Serology & virology</u>				
COVID-19 Test Results (qualitative)	66	2	3	0

Ancillary Lab Measurements cont.

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
Miscellaneous Blood Chemistries				
Glucose	4679	59	507	22
Hemoglobin A1c	454	15	63	2
Sodium	4250	61	512	23
Calcium	4029	58	492	21
Chloride	4068	57	477	20
Potassium	4162	58	478	20
Total Protein	2987	55	445	19
Alkaline Phosphatase	3096	56	474	20
AST	3021	54	446	19
ALT	3102	55	457	19
Total Bilirubin	3284	60	504	22
Direct Bilirubin	492	14	94	3
Creatinine	4297	61	520	23
BUN	4235	61	515	22
CO2	4213	56	470	20
PT	1576	37	284	13
INR	1560	36	268	12
Urate	127	8	56	1
Triglycerides	938	29	188	7
Cholesterol	934	29	184	7
LDL	772	21	114	5
HDL	814	22	123	5
Phosphorus	1033	15	113	4
LDH	307	11	83	3
TSH	168	7	34	1
T4	24	2	6	0

Ancillary Lab Measurements cont.

Ancillary Lab	Total # records overall	% cohort with at least 1 measure	Total # cases with baseline measure	% cohort with baseline & one other measure
<u>Miscellaneous CSF values</u>				
CSF-VDRL Test	193	6	37	2
<u>Miscellaneous Urine values</u>				
Urinalysis: Glucose	1383	36	300	14
Urinalysis: Protein	1408	37	304	13
Urinalysis: pH	1391	37	303	13
Urinalysis: Specific Gravity	1388	37	304	14
Urinalysis: Ketones	1381	37	301	13
Urinalysis: Bilirubin	1381	37	300	13
Urine Toxicology; Methamphetamine	544	14	106	7
Urinalysis: Red Blood Cells	926	30	219	8
Urinalysis: White Blood Cells	917	30	216	8