The data presented in the following reports reflect the NNTC central database as of May 01, 2024

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

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

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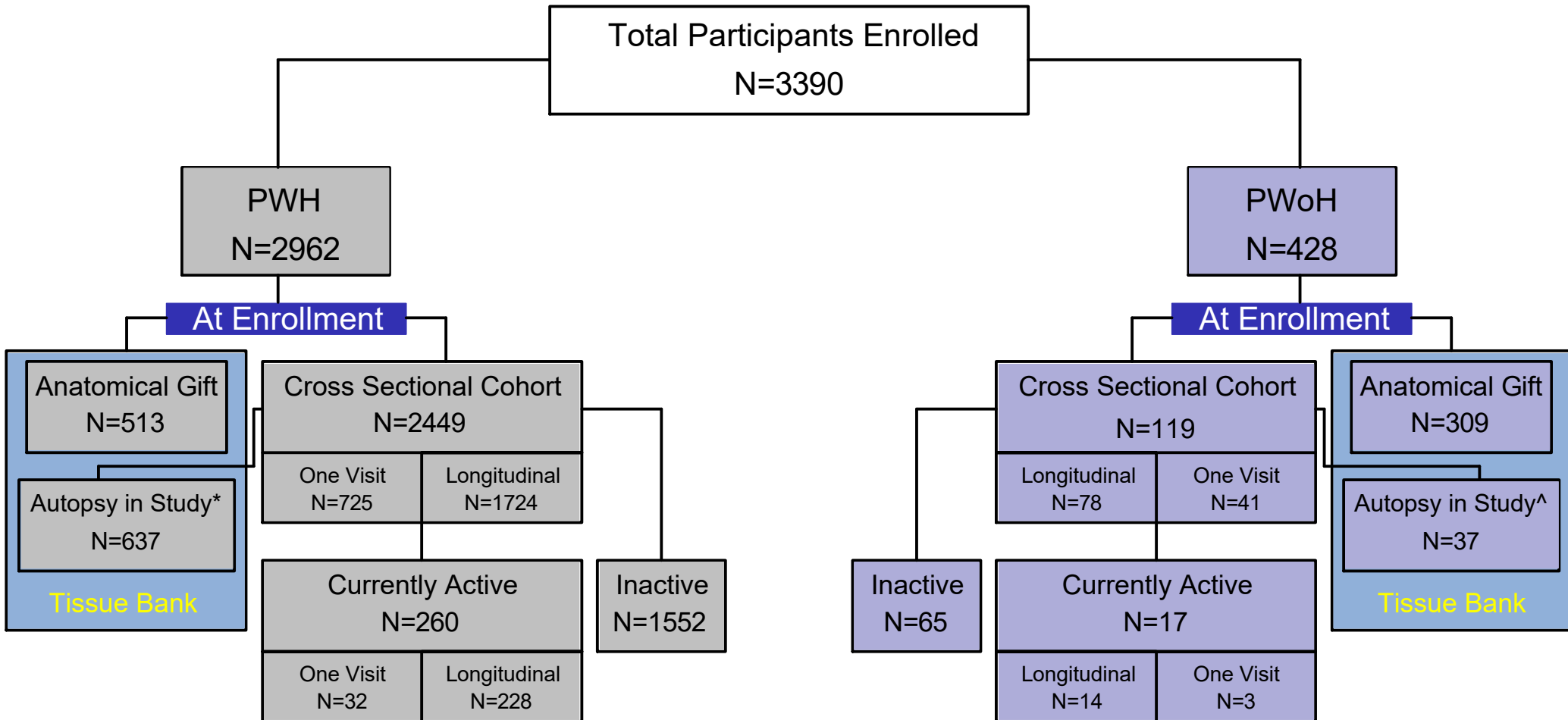Dr. David Moore, Principal Investigator

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

Cohort Status Overview

Total Participants Enrolled
N=3390

PWH
N=2962

PWoH
N=428

At Enrollment

PWH

Anatomical Gift
N=513

Autopsy in Study*
N=637

Tissue Bank

Cross Sectional Cohort
N=2449

One Visit N=725	Longitudinal N=1724

Currently Active
N=260

One Visit N=32	Longitudinal N=228

Inactive
N=1552

PWoH

Cross Sectional Cohort
N=119

Longitudinal N=78	One Visit N=41

Anatomical Gift
N=309

Autopsy in Study^
N=37

Tissue Bank

Inactive
N=65

Currently Active
N=17

Longitudinal N=14	One Visit N=3

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 252 cases categorized as unknown HIV status, unknown study status, lost to follow-up, administratively censored, withdrawn, or deceased without autopsy prior to enrollment.
PWH inactive cases are either lost to follow-up/administratively censored/withdrawn (N=1182) or deceased without autopsy (N=370).
PWoH inactive cases are either lost to follow-up/administratively censored/withdrawn (N=45) or deceased without autopsy (N=20).
* 254 autopsy cases included in Cross Sectional Cohort; 383 autopsy cases included in Longitudinal Cohort.
^ 24 autopsy cases included in Cross Sectional Cohort; 13 autopsy cases included in Longitudinal Cohort.

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NNTC Participants Co-enrolled or in a Special Cohort

| Study Name:	# Participants Enrolled
WIHS	67
CHARTER	101
Last Gift	38
NIDA Opioid	52

WIHS: The Women's Interagency HIV Study (WIHS) was established in 1993 as a multi-center, prospective, observational cohort study of cisgender 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.
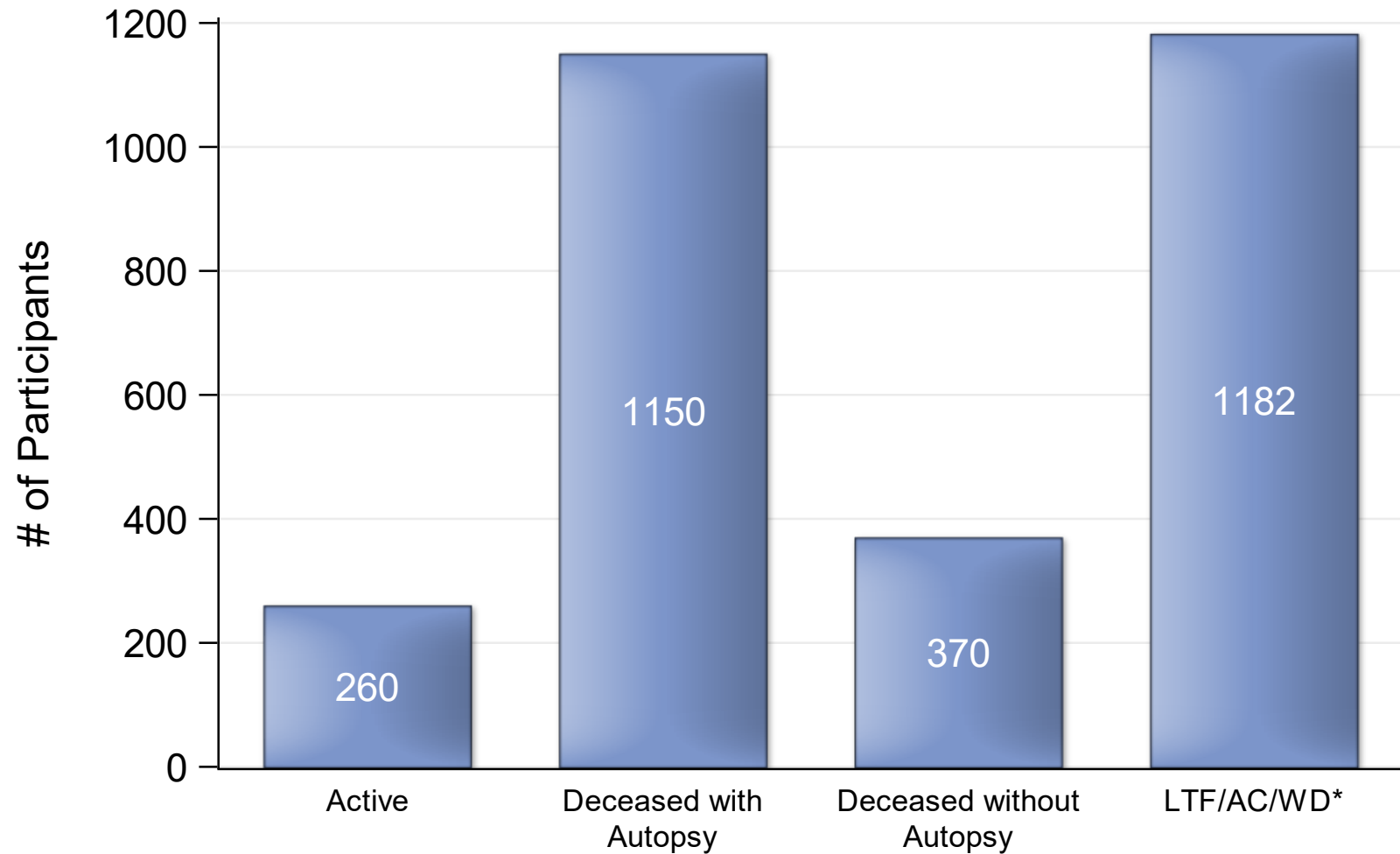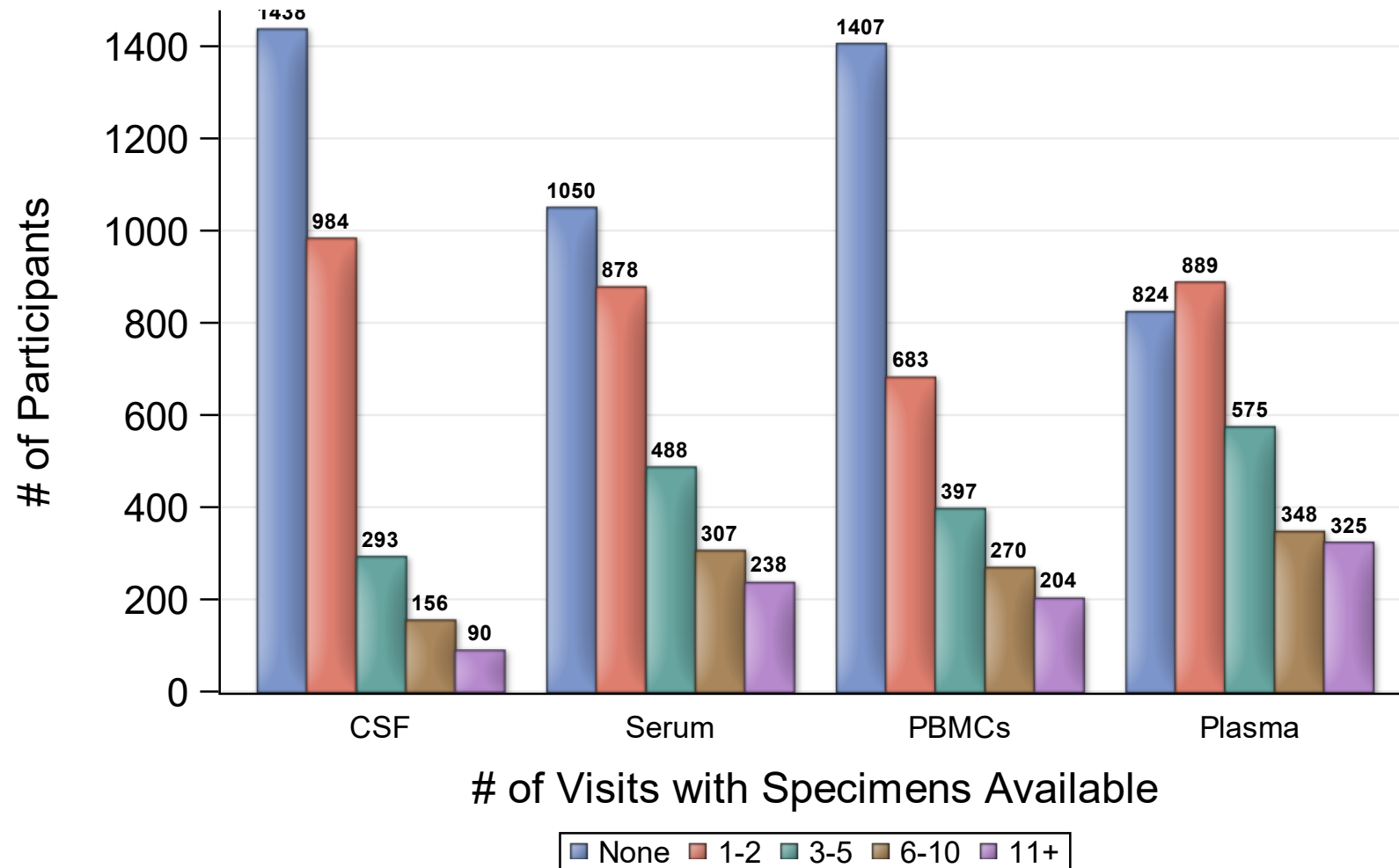
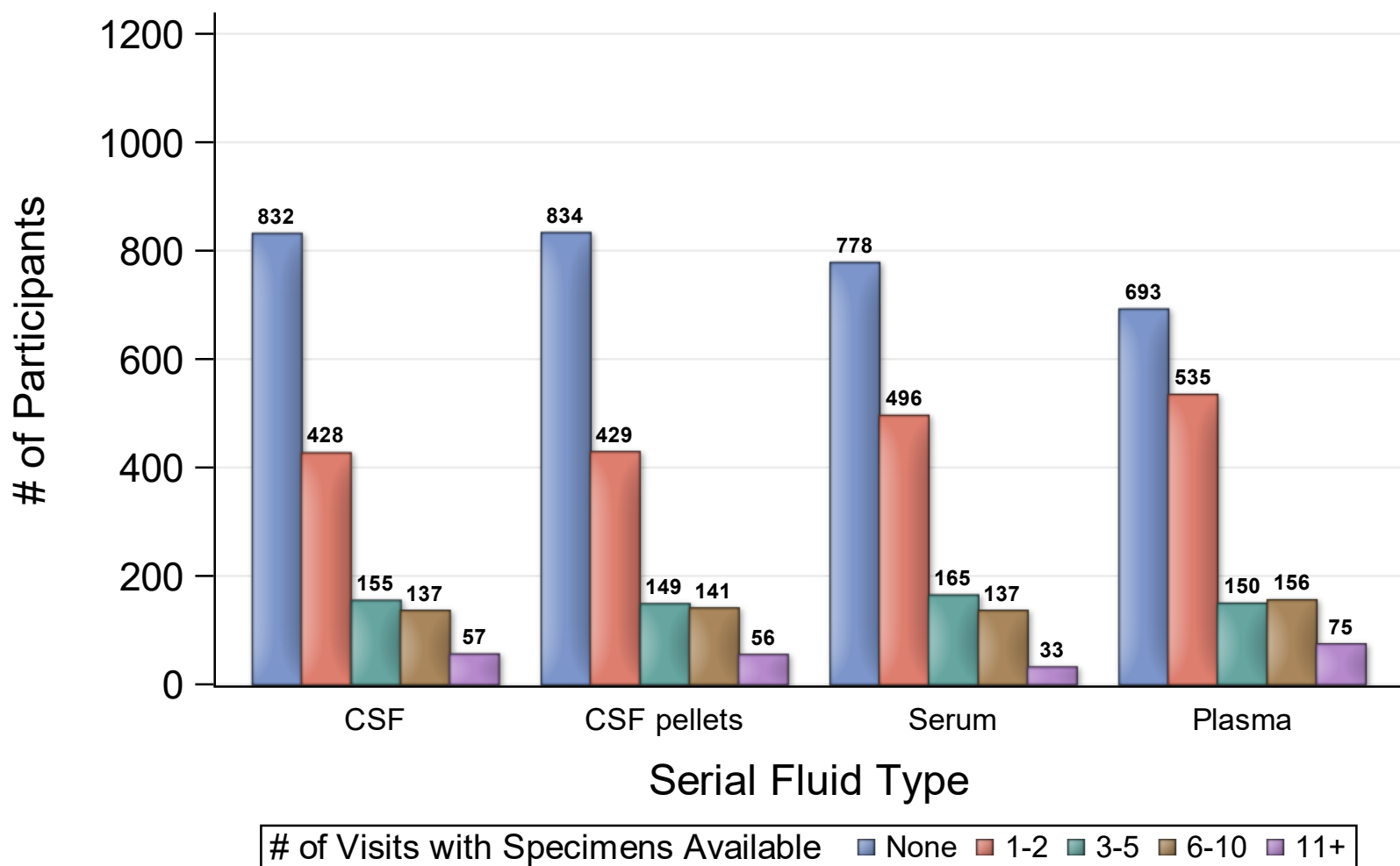*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted; Inventory totals include both ante- and post-mortem collections.

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National NeuroHIV Tissue Consortium

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.
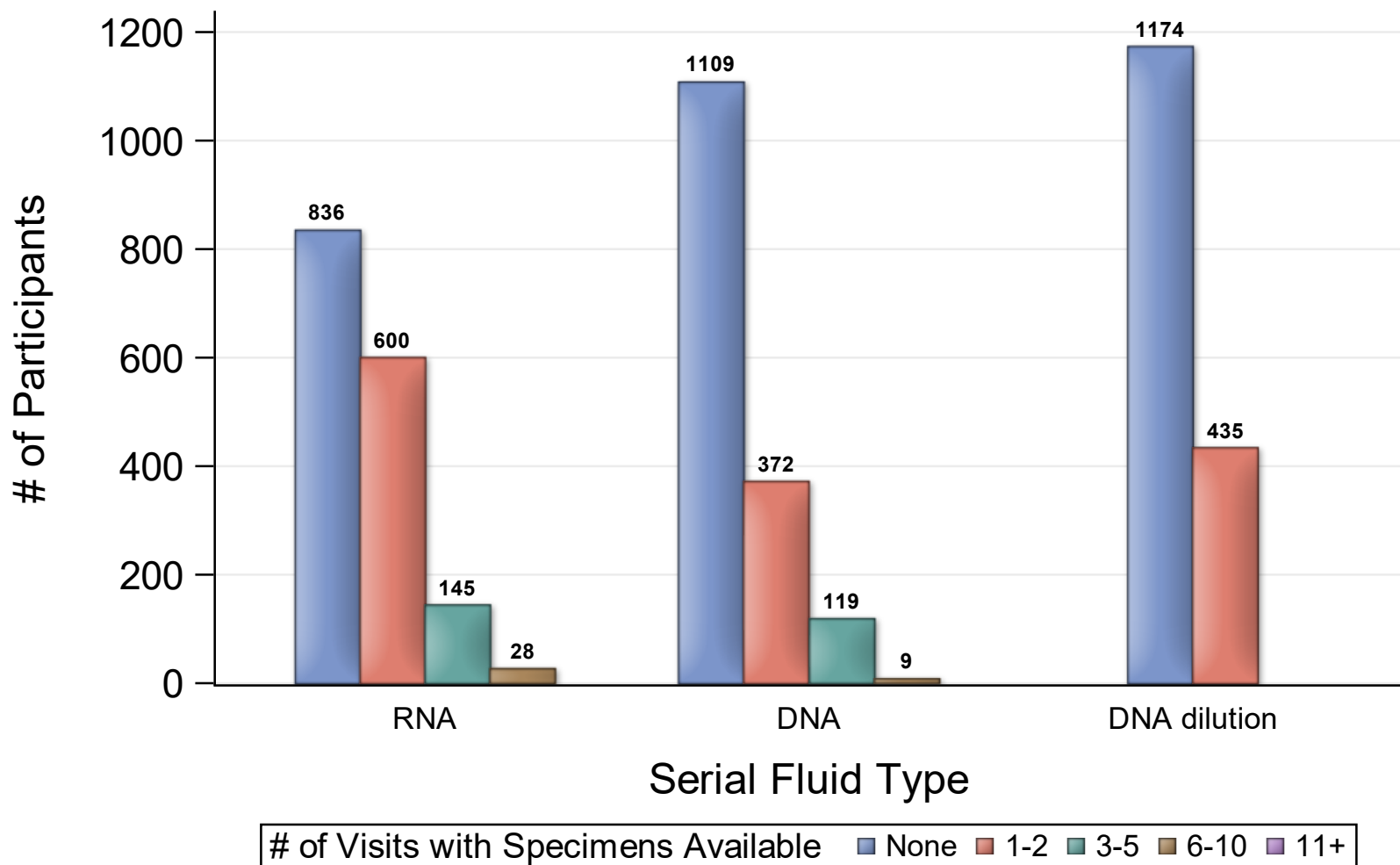
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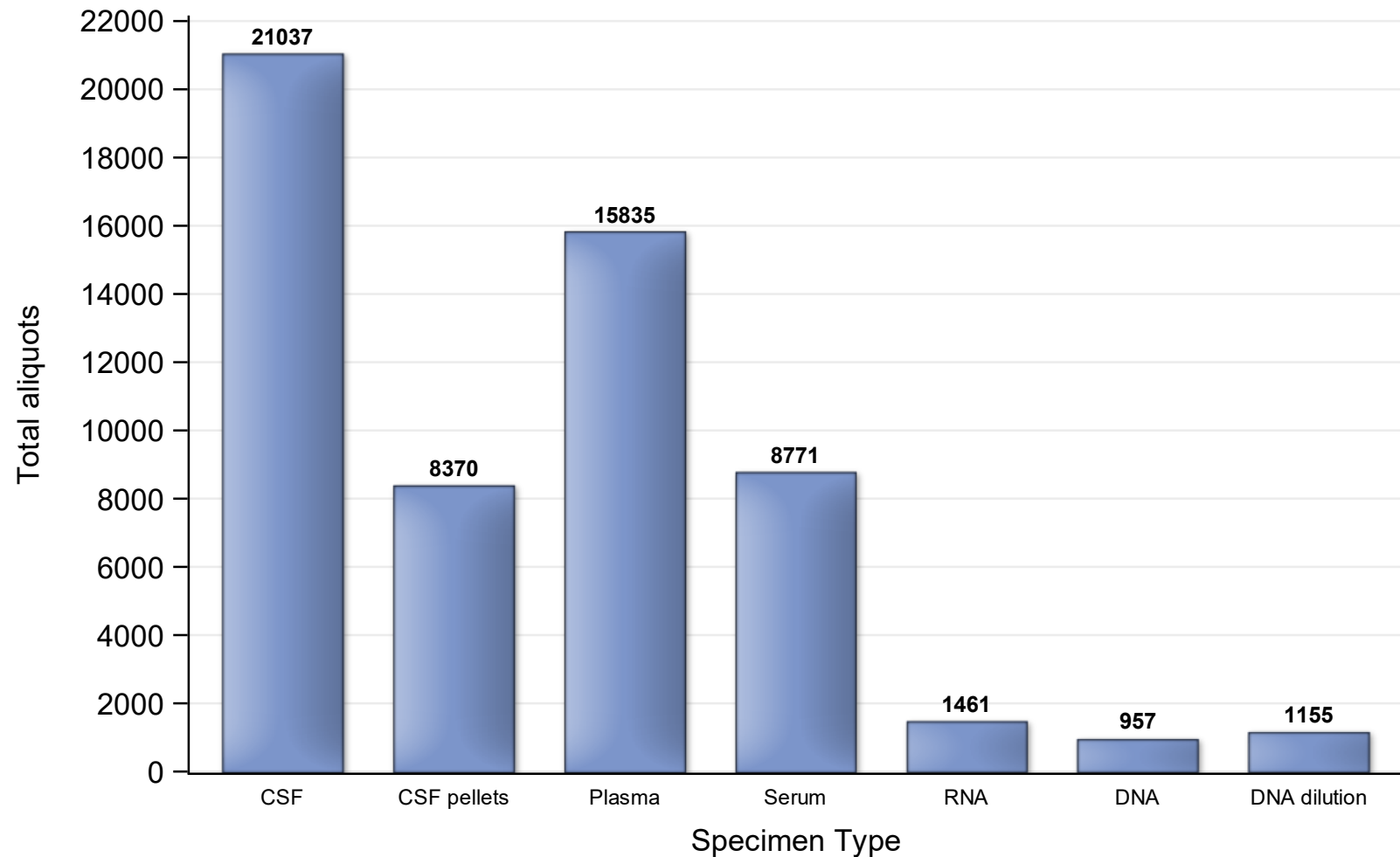
CHARTER Serial Fluid Specimen Inventory

*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.

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Total Available CHARTER Aliquots by Specimen Type

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

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Length of Study Participation

# of Participants

Active:
- <1 year: 16
- 1-3 years: 14
- 3-5 years: 11
- 5-8 years: 31
- >8 years: 188

Deceased with autopsy:
- At enrollment: 513
- <1 year: 266
- 1-3 years: 152
- 3-5 years: 68
- 5-8 years: 74
- >8 years: 77

Deceased without autopsy:
- <1 year: 88
- 1-3 years: 111
- 3-5 years: 52
- 5-8 years: 54
- >8 years: 65

LTF/AC/WD*:
- <1 year: 165
- 1-3 years: 317
- 3-5 years: 174
- 5-8 years: 215
- >8 years: 311

Legend: ■ <1 year ■ 1-3 years ■ 3-5 years ■ 5-8 years ■ >8 years ■ At enrollment

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

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National NeuroHIV Tissue Consortium

Participants Enrolled by Year

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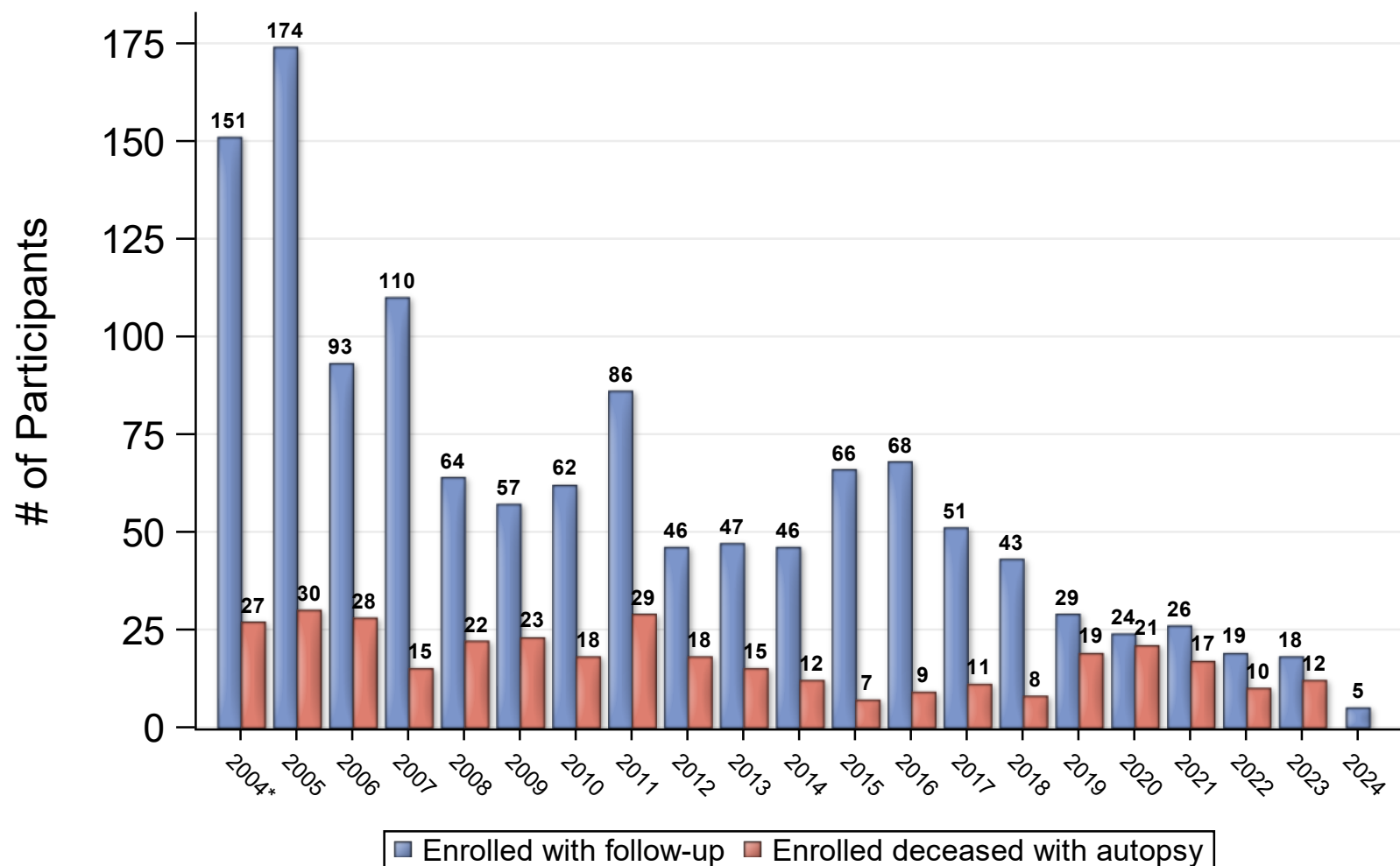
*1164 Enrolled with follow-up and 162 Enrolled deceased with autopsy prior to 2004

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Cohort Status Over Time
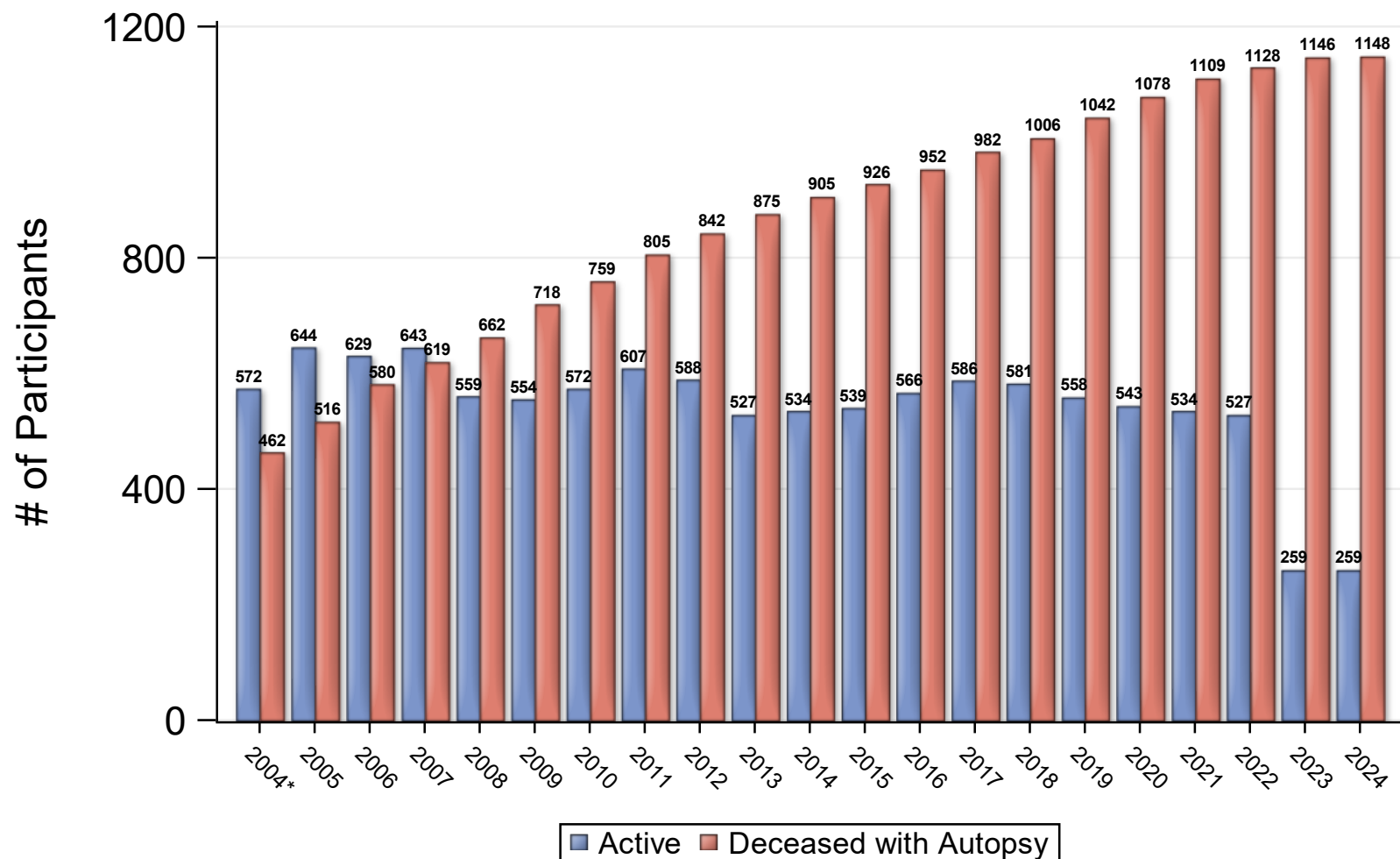
*770 Active and 397 Deceased w/ Autopsy prior to 2004

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Diagnostic Normality

Diagnosis at Baseline:	Active Cohort (N=260)	Overall Cohort (N=2449)
Normal Neuromedical Diagnosis	97 (37%)	582 (24%)
No abuse/dependence on PRISM/CIDI*	96 (37%)	515 (21%)
Both normal (Neuromedical & PRISM/CIDI	44 (17%)	144 (6%)

Diagnosis >=5 yrs on study:	Active Cohort (N=219)	Overall Cohort (N=1014)
Normal Neuromedical Diagnosis	80 (37%)	307 (30%)
No abuse/dependence on PRISM/CIDI*	80 (37%)	248 (24%)
Both normal (Neuromedical & PRISM/CIDI	37 (17%)	85 (8%)

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

National NeuroHIV Tissue Consortium

Requests Submitted (N=983)
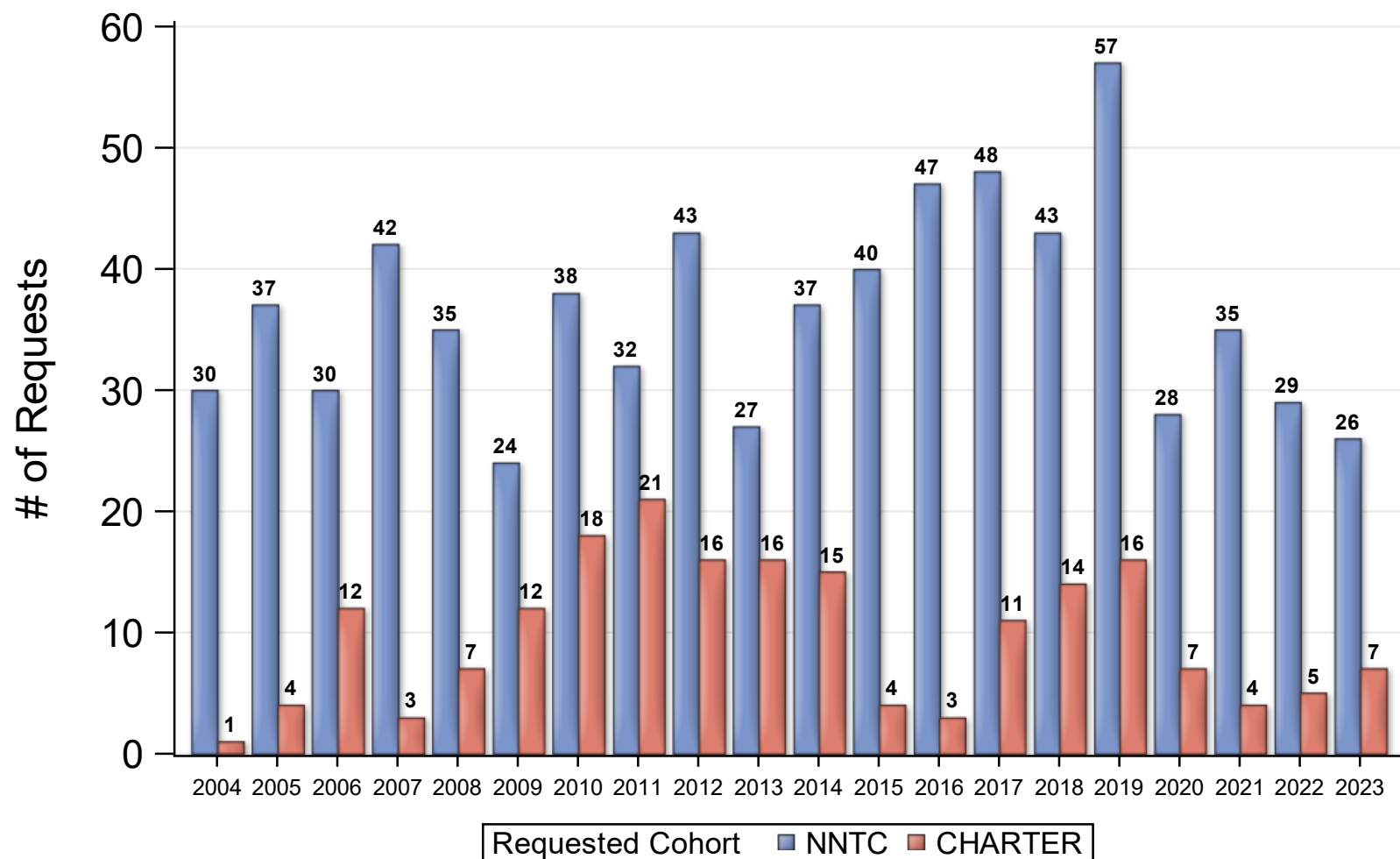
*95 requests submitted prior to 2004. Resource requests include consortium-wide requests and local requests for biospecimens, as well as requests for data and Letters of Support for grant submissions.

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

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Cases Shipped by Year*

Cases Shipped (N=27534)
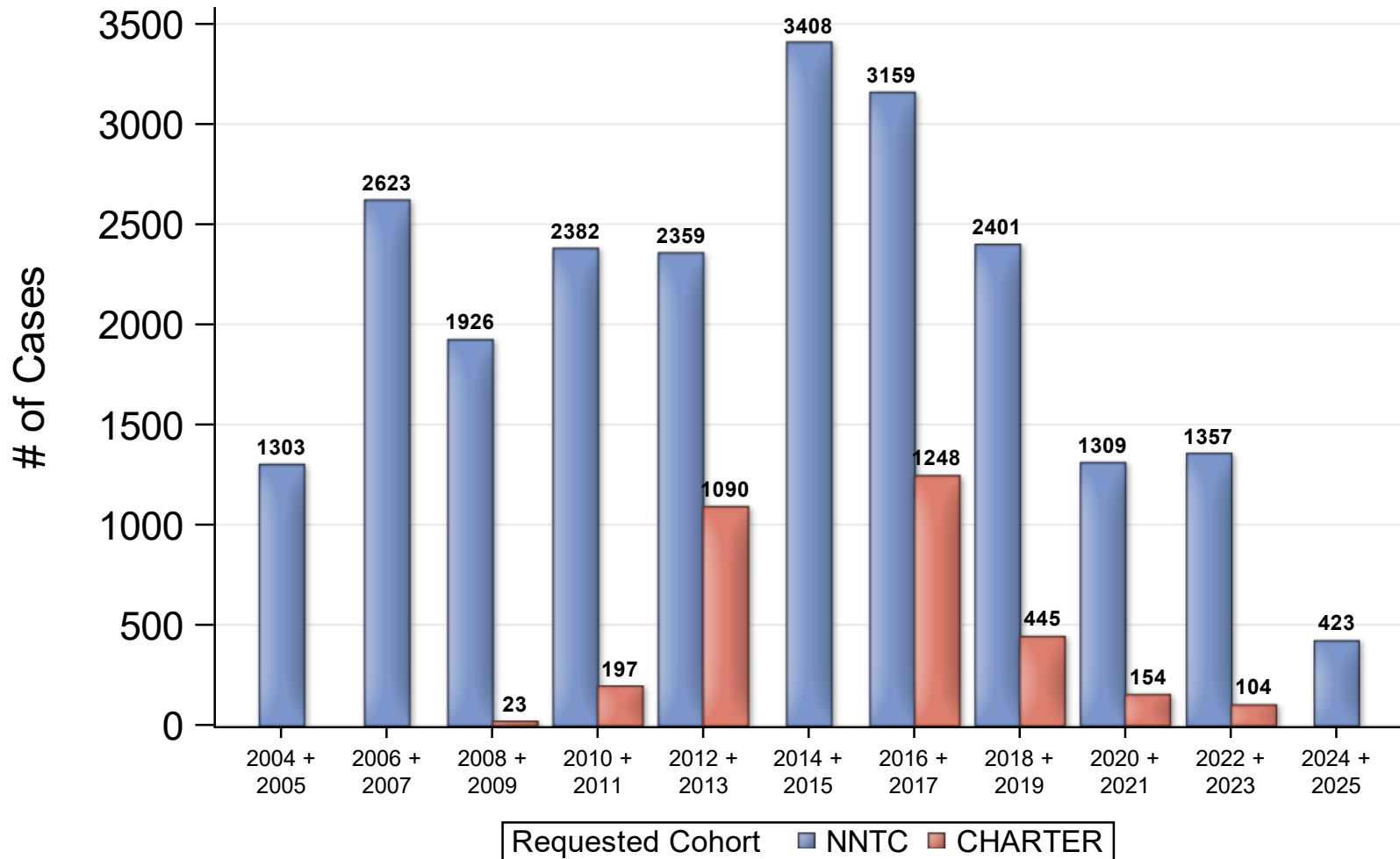
*1623 cases shipped prior to 2004. More than one specimen may be shipped per case.

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

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Specimens Shipped by Year*

Specimens Shipped (N=41886)

Chart: # of Specimens by two-year periods, Requested Cohort — NNTC (blue) and CHARTER (red)

Period	NNTC	CHARTER
2004 + 2005	2156	
2006 + 2007	4242	
2008 + 2009	2821	23
2010 + 2011	3488	347
2012 + 2013	3465	1278
2014 + 2015	5280	
2016 + 2017	5991	955
2018 + 2019	3396	700
2020 + 2021	1981	287
2022 + 2023	2021	128
2024 + 2025	880	

Requested Cohort ■ NNTC ■ CHARTER
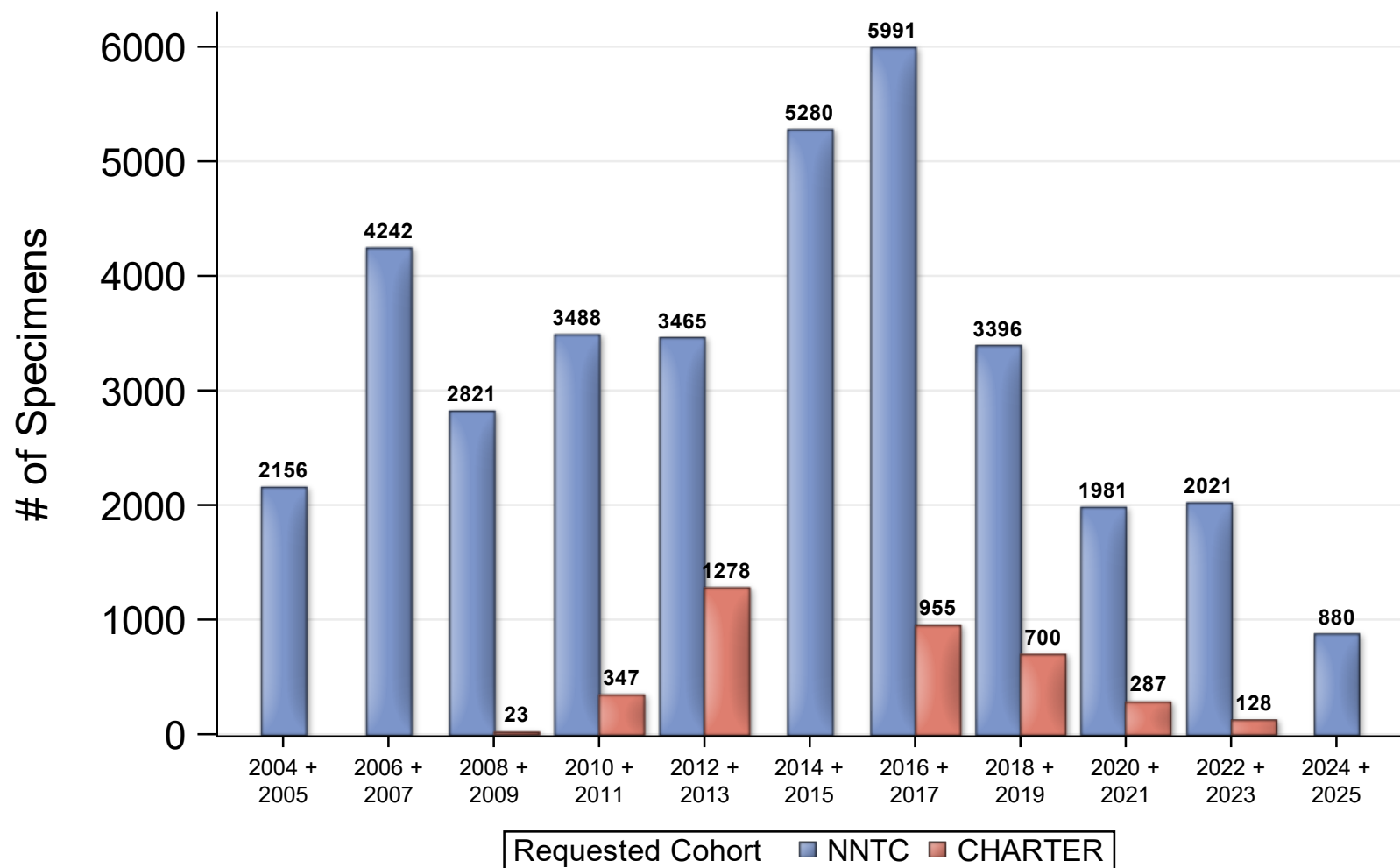
*2447 specimens shipped prior to 2004.

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

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National NeuroHIV Tissue Consortium

Total Publications* (Total N=798; CHARTER N=147)

Legend: ■ First/last author NOT key personnel at site   ■ First/last author key personnel at site
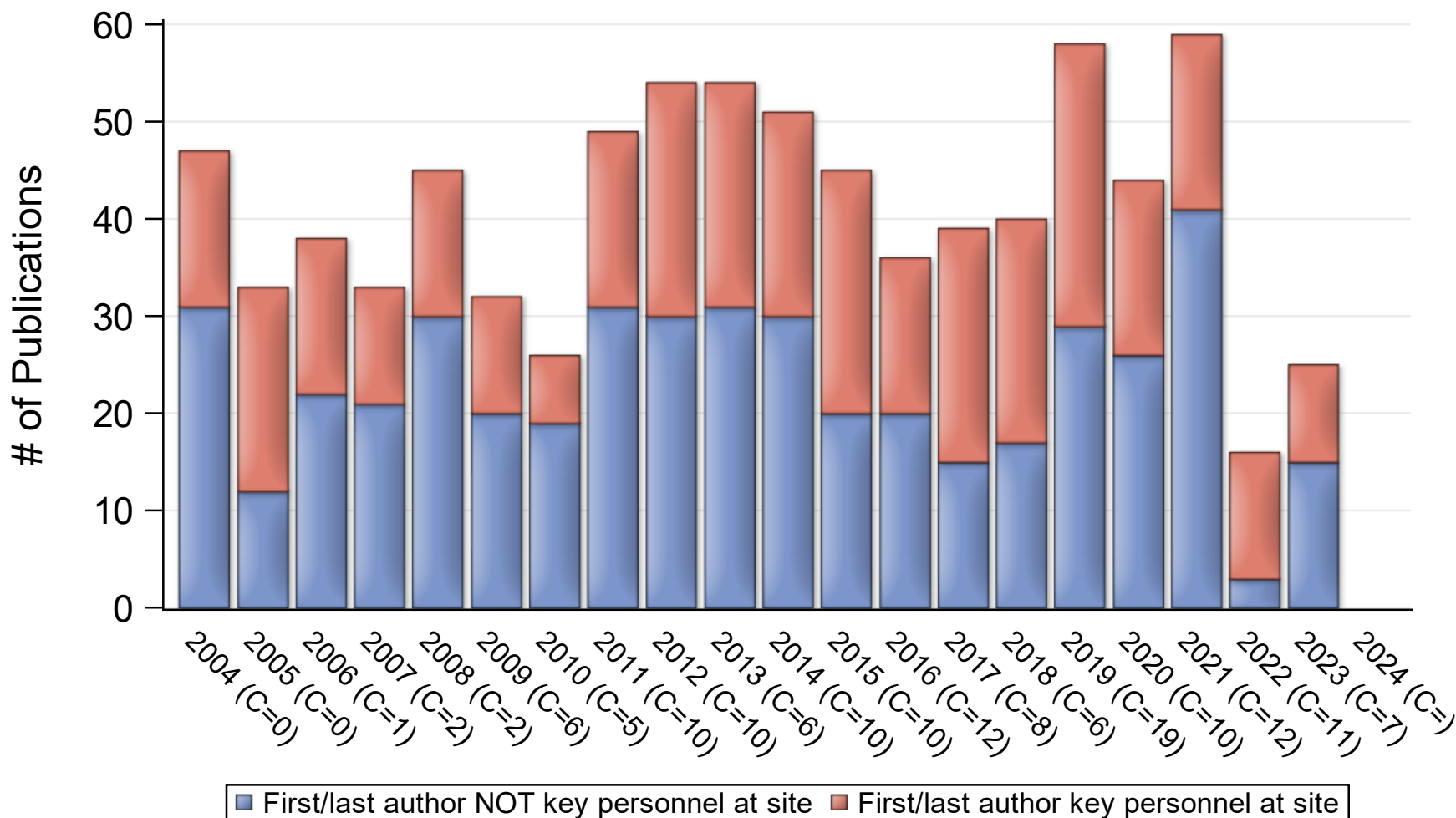
*74 publications prior to 2004.

Total N includes 147 CHARTER (C=) publications. Total does not include 12 In Prep/Submitted/In Press, 279 Meeting Presentations/Abstracts, 8 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.

COVID-19

Test Results

Result	N	%
Negative	302	86
Positive	49	14
Unique participants tested positive	40	29*
Nasopharyngeal swab	111	32
Nasopharynx	44	13
Nasal swab	32	9
Anterior Nares	31	9
Blood	8	2
Pharyngeal swab	1	0
Unknown	124	35

	N	%
CDC PCR Test (FDA Approved)	70	20
DiaSorin Molecular PCR Test (FDA Approved)	33	9
ABBOT SARS-COV-2 IGG/IGM	28	8
COVID-19 IGM/IGG RAPID TE	28	8
Roche COBAS 6800 System	25	7
Other	21	6
Agena MassARRAY	20	6
Cepheid GeneXpert	10	3
Lumria Dx	10	3
ID NOW Assay	8	2
Panther	8	2
COV-2 NAAT	4	1
SARS-COV-2 NAAT	4	1
DiaSorin IgG test	3	1
CDC COVID-19 PCR TEST (FD	3	1
COVID-19 IgM/IgG Rapid Test	1	0
DIASORIN COVID-19 IGG TES	1	0
IGM/IGG RAPID TEST	1	0
MOLECULAR COVID-19 PCR TE	1	0
NASAL SWAB	1	0
RAPID ID NOW COVID-19 ASS	1	0
RAPID TEST	1	0
SARS COV-2-RAPID ID NOW	1	0
SARS-COV-2 RAPID ID NOW	1	0
Unknown	67	19

*Of unique participants tested.

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Specimen collections

Type:	# cases*
CNS tissue	9
Systemic tissue	9
Pre-mortem fluids	37
Post-mortem fluids	5

*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

N	**2449**
Age	
Mean	46.6
SD	11.1
25th Percentile	39
Median	45
75th Percentile	53

Baseline Demographics cont.

	N	**%**
Gender		
Male	1991	81
Female	456	19
Ethnicity		
Hispanic origin	656	27
Race		
White	1371	56
Black	808	33
Other	268	11

Baseline Demographics cont.

Furthest Education	N	%
8th grade or less	238	10
Some High School	469	21
High School Gradudate	503	22
Some College/Associate's Degree	634	28
College Graduate	250	11
Advanced Degree work	174	8

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Baseline HIV Characteristics

	N	%
HIV risk		
IV drug use	594	24
Male to male sex	1157	47
Heterosexual sex	551	23
Other	145	6
ARV med use	2273	93

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Baseline HIV Characteristics cont.

CD4 Count (N=2278)

25th Percentile	51
Median	170.5
75th Percentile	401

Log Plasma Viral Load* (N=2030)

|	
25th Percentile	1.70
Median	2.60
75th Percentile	4.51

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

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Baseline Psychiatric Diagnoses

Bar chart — Y-axis: % of Participants (0 to 50). X-axis: Psychiatric Diagnosis: Dependence or Abuse.

Legend: ■ Current or Current & Past ■ Past only

Diagnosis	Current or Current & Past	Past only
Primary Depression (N=1807)	20	24
Cocaine (N=1817)	9	33
Alcohol (N=1816)	9	42
Cannabis (N=1817)	7	27
Opiate (N=1817)	2	14
Stimulant (N=1816)	2	18
Normal (N=1820)	19	
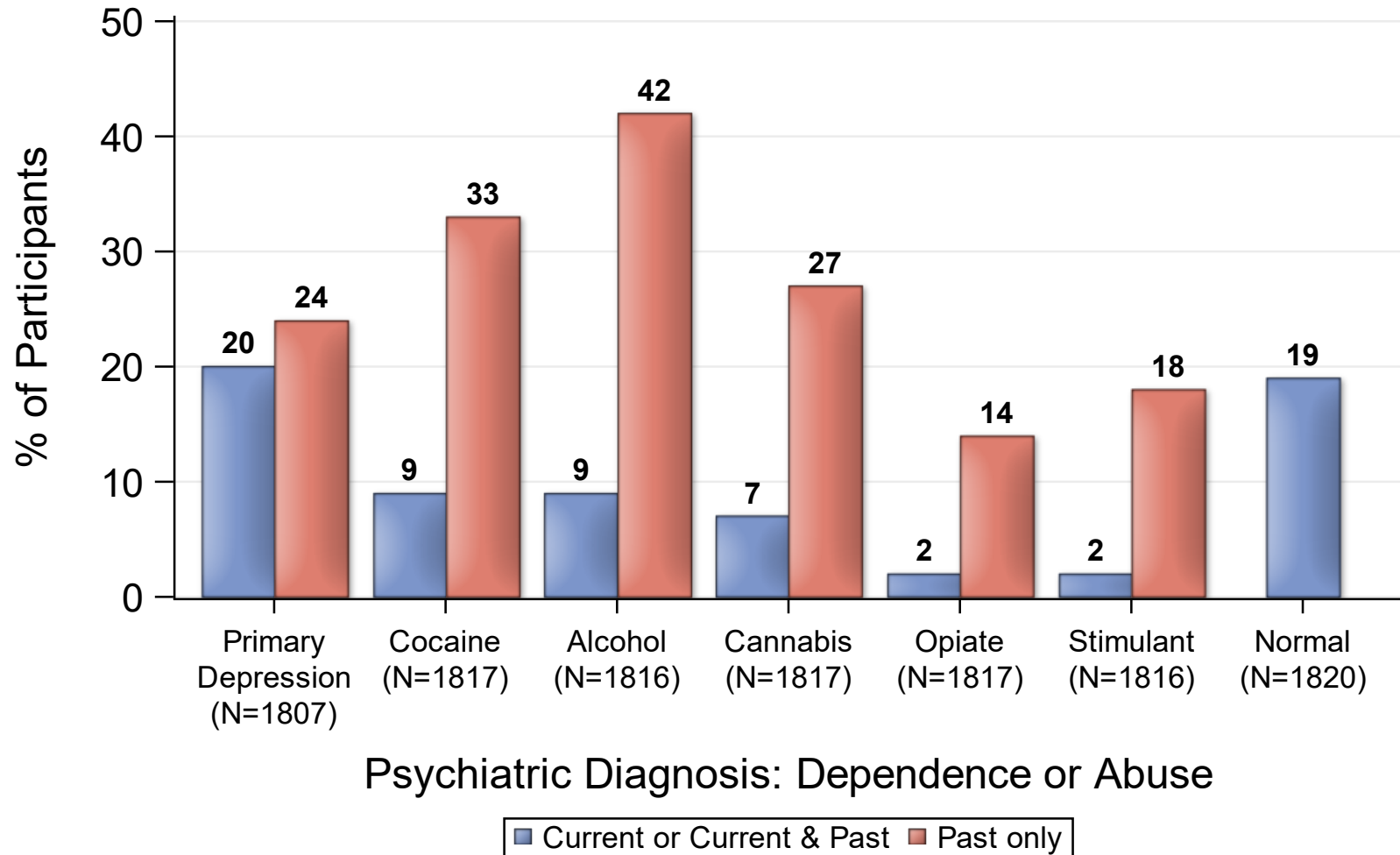
*Please note the totals listed above reflect only those cases in the cross sectional cohort who have undergone a PRISM/CIDI evaluation at baseline.

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Baseline Cognitive Diagnosis (N=2270*)
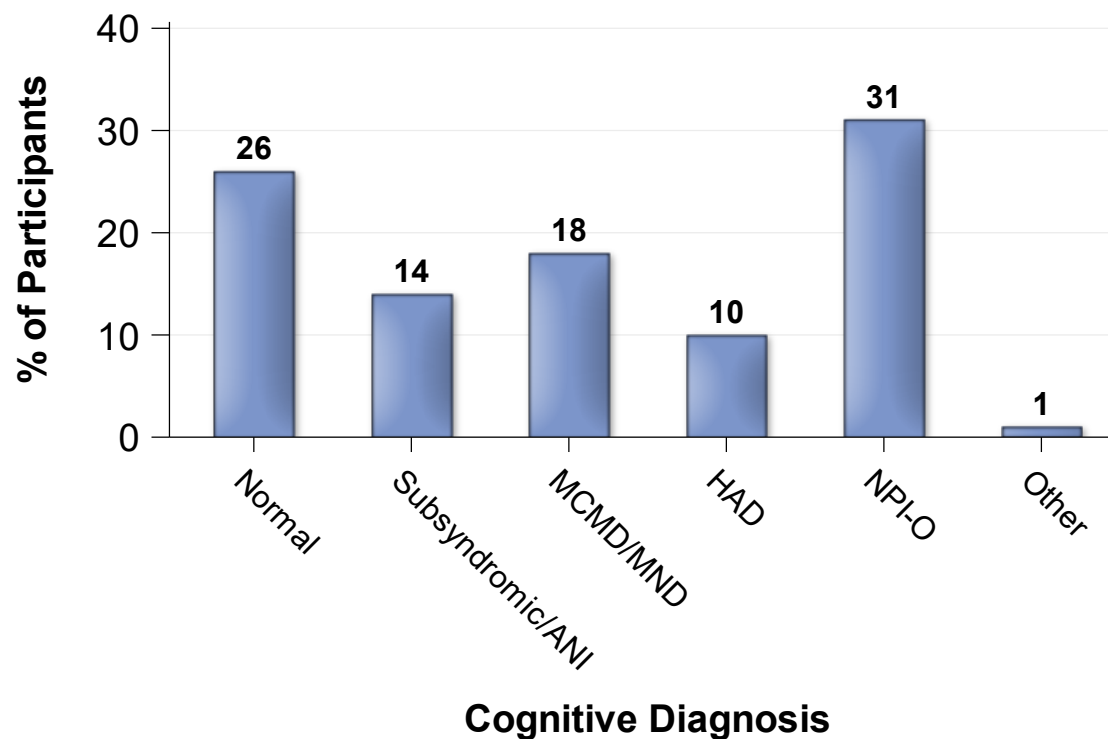
ANI = Asymptomatic Neurocognitive Impairment
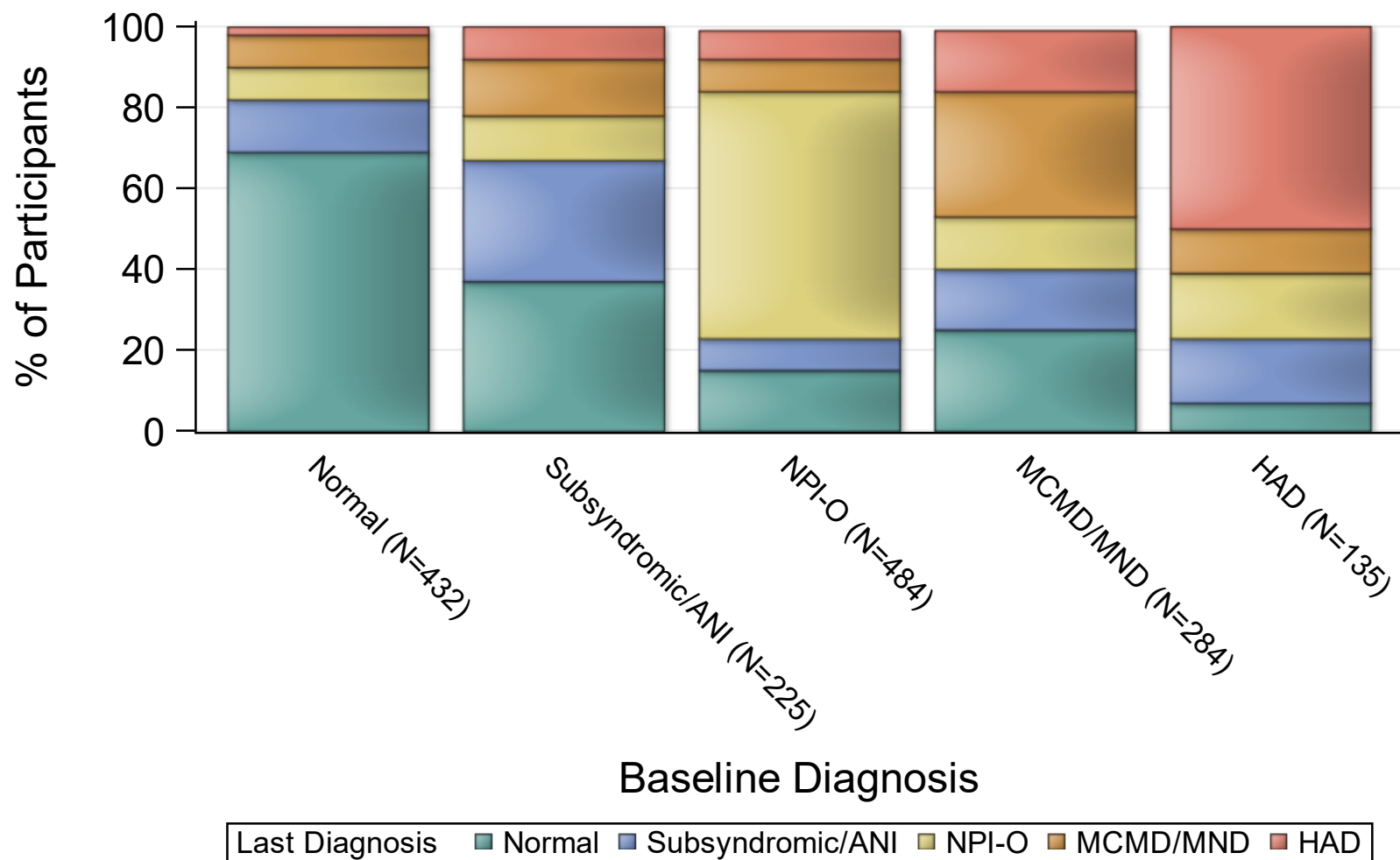
MCMD = Minor Cognitive Motor Disorder

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.

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Change in Cognitive Diagnosis

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Baseline Neurologic Diagnoses

	N	%
Clinical Myelopathy (N=2255)		
HIV associated	166	7
Other	30	1
None	2059	91
Neuropathy (N=2121)		
HIV associated DSP	708	33
Nucleoside associated	11	1
HIV/nucleoside	210	10
None	1192	56

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Number of Available Fluid Collections, By Visit

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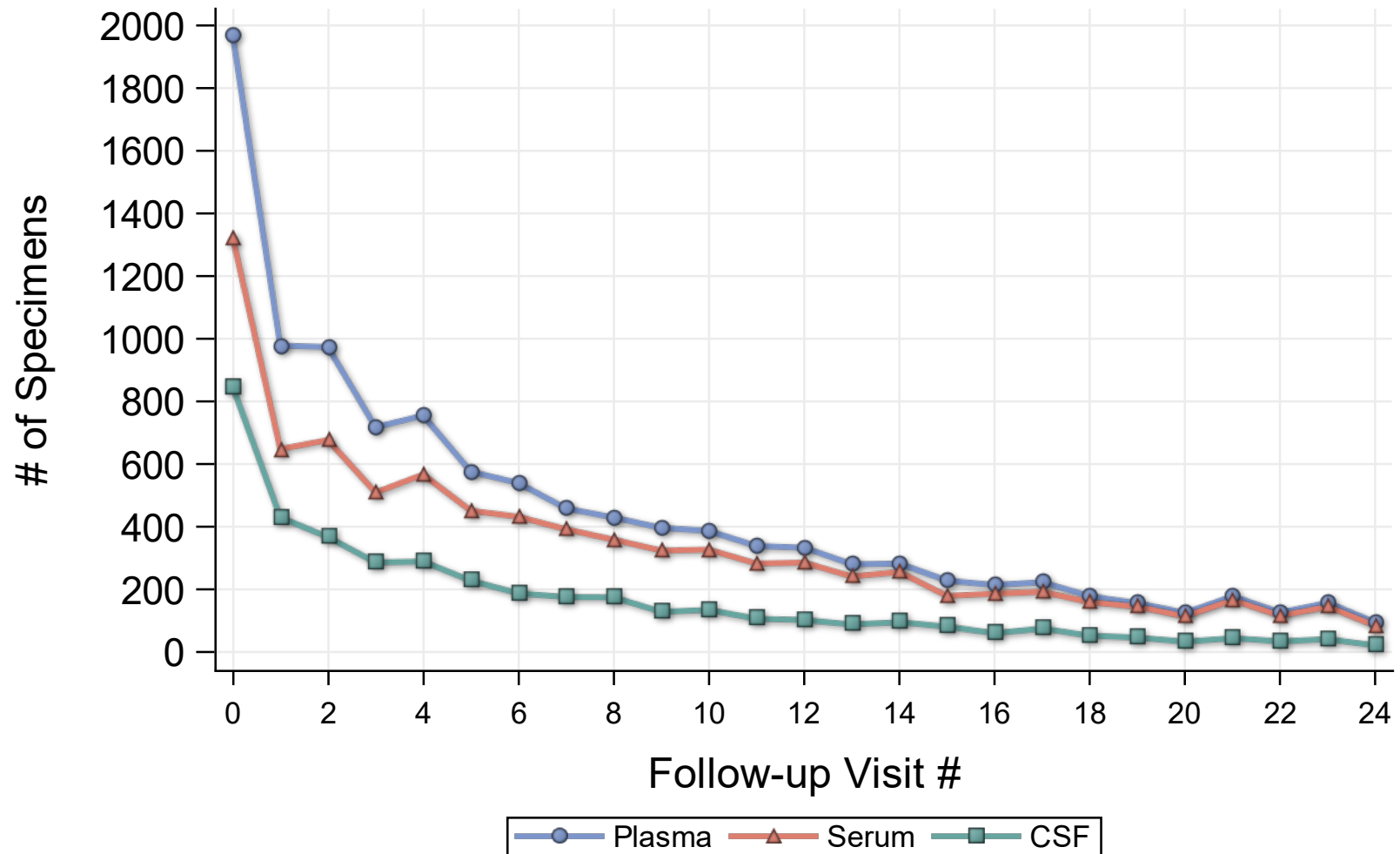
Number of Assessments Completed, By Visit
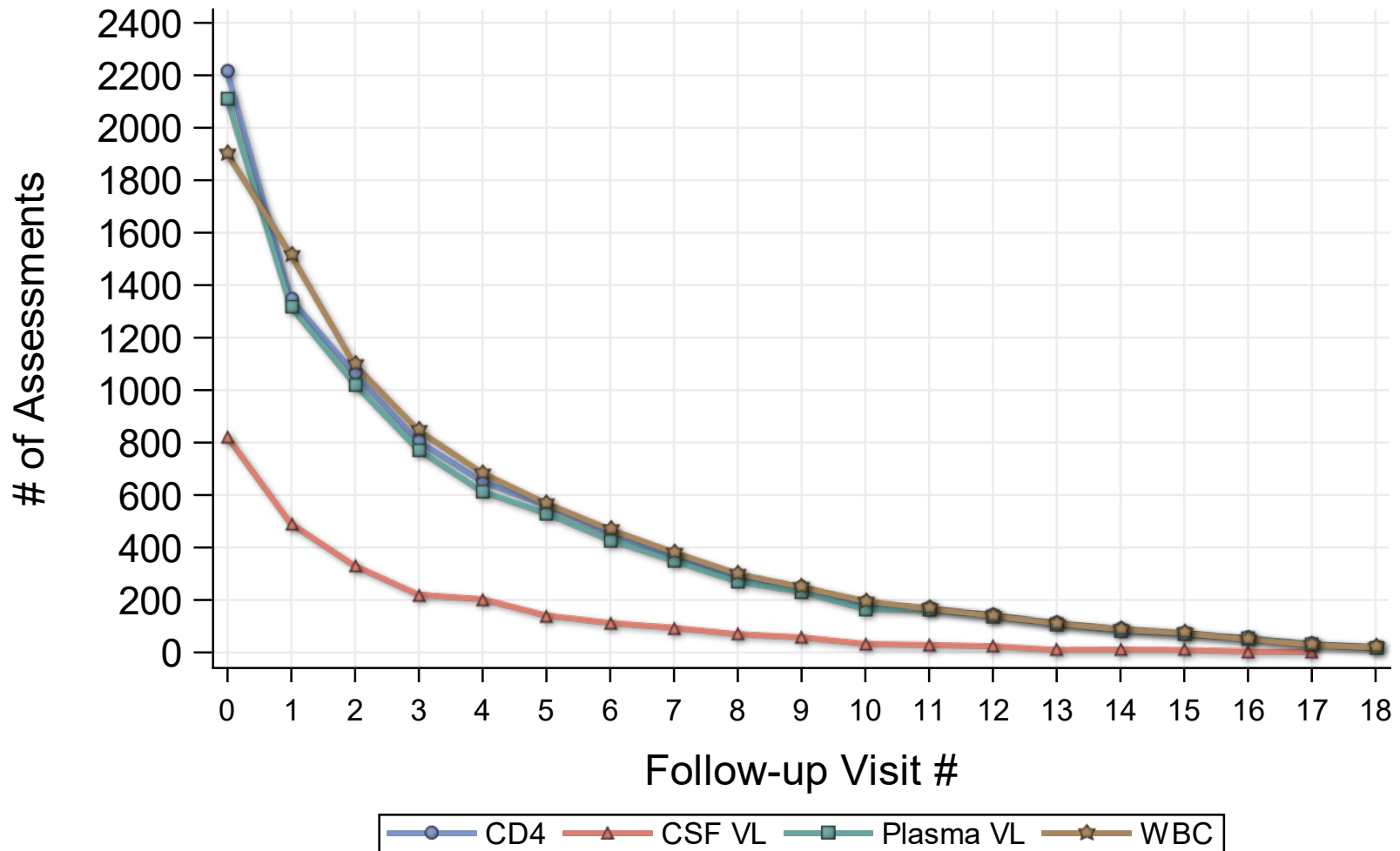
Participants Reporting Concomitant Medications

Medication	# of Pts (N=2007)	%
Central Nervous System Agents	1777	88.5
Anti-infective Agents	1563	77.9
Gastrointestinal Drugs	1232	61.4
Cardiovascular Drugs	1151	57.3
Vitamins	1118	55.7
Hormones and Synthetic Substitutes	950	47.3
Autonomic Drugs	771	38.4
Electrolytic, Caloric, and Water Balance	751	37.4
Antihistamine Drugs	590	29.4
Skin and Mucous Membrane Agents	550	27.4
Blood Formation, Coagulation, and Thrombosis Agents	546	27.2
Miscellaneous Therapeutic Agents	521	26
Eye, Ear, Nose, and Throat (EENT) Preparations	388	19.3
Antineoplastic Agents	240	12
Respiratory Tract Agents	197	9.8
Local Anesthetics	142	7.1
No medication use reported on at least one occasion	134	6.7
Smooth Muscle Relaxants	104	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
Miscellaneous Hematology				
Red blood cells	8248	40	858	26
Mean Corpuscular Hemoglobin (MCH)	8219	39	855	26
Mean Corpuscular Volume (MCV)	16311	61	1370	43
Mean Corpuscular Hemoglobin Concentration (MCHC)	8183	38	852	26
Blood Red cell Distribution Width (RDW)	6435	27	403	12
Blood Rapid Plasma Reagin (RPR)	3061	37	494	10
Blood Neutrophil Percent	13947	47	896	28
Blood Lymphocyte Percent	16107	60	1350	42
Blood Monocyte Percent	15799	60	1345	41
Blood Eosinophil Percent	15708	60	1328	41
Blood Basophil Percent	15440	59	1280	39
Blood Mean Platelet Volume (MPV)	4659	19	256	8
Blood CD3 Percent	3060	25	554	17
Blood CD3 Absolute	1317	14	134	4
Miscellaneous Serology & viralogy				
Blood Hepatitis B Surface Antigens	1196	25	471	6
Blood Hepatitis B Surface Antibodies	1012	21	398	6
Blood Hepatitis B Core Antibodies	946	21	396	5
Blood Hepatitis B Viral Load	119	2	15	0
Blood Hepatitis C Antibodies (HCV)	3516	67	1061	15
Blood Hepatitis C Viral Load	657	14	152	1
Miscellaneous Serology & viralogy				
COVID-19 Test Results (qualitative)	319	5	14	0

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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	15300	63	1445	44
Hemoglobin A1c	4056	32	314	8
Sodium	14977	65	1457	44
Calcium	14438	61	1373	42
Chloride	14240	59	1275	39
Potassium	14591	60	1322	40
Total Protein	12663	59	1267	39
Alkaline Phosphatase	12922	58	1305	40
AST	12774	57	1239	38
ALT	12668	56	1187	36
Total Bilirubin	14171	69	1484	45
Direct Bilirubin	3226	25	464	13
Creatinine	17388	75	1614	47
BUN	14932	64	1447	43
CO2	13845	56	1193	35
PT	4649	26	504	15
INR	4608	25	483	15
Urate	1276	12	239	6
Triglycerides	7277	50	809	23
Cholesterol	7309	50	816	23
LDL	5689	38	507	15
HDL	6184	42	569	16
Phosphorus	3529	23	454	13
LDH	1851	16	329	9
TSH	596	10	120	2
T4	44	1	9	0

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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 CSF values				
CSF-VDRL Test	824	12	174	4
Miscellaneous Urine values				
Urinalysis: Glucose	4690	26	540	17
Urinalysis: Protein	4738	27	544	17
Urinalysis: pH	4692	26	542	17
Urinalysis: Specific Gravity	4693	26	541	17
Urinalysis: Ketones	4685	26	541	17
Urinalysis: Bilirubin	4681	26	538	17
Urine Toxicology; Methamphetamine	5620	41	900	27
Urinalysis: Red Blood Cells	2203	20	298	8
Urinalysis: White Blood Cells	2210	20	296	8

Comorbidities

Diagnosis	# Pts before Baseline (N=1328)	# Pts at Baseline (N=2449)	# Pts Current* (N=1411)
Viral Hepatitis	593 (45%)	703 (36%)	441 (31%)
Tobacco Smoking	591 (45%)	664 (34%)	400 (28%)
Hypertension	430 (32%)	621 (32%)	599 (42%)
Hyperlipidemia	348 (26%)	467 (24%)	500 (35%)
Non AIDS Defining Cancer	164 (12%)	336 (17%)	335 (24%)
Cardiac Disease	177 (13%)	271 (14%)	282 (20%)
Diabetes	184 (14%)	262 (14%)	259 (18%)
Cerebrovascular Disease	146 (11%)	203 (11%)	197 (14%)
COPD	146 (11%)	200 (10%)	236 (17%)
Chronic Renal Disease	118 (9%)	196 (10%)	215 (15%)
Lipodystrophy	107 (8%)	182 (9%)	139 (10%)
End Stage Liver Disease	48 (4%)	86 (4%)	62 (4%)

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

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Active Cohort Overview

National NeuroHIV Tissue Consortium

Current Demographics

N	**260**
Age	
Mean	65
SD	8.1
25th Percentile	59
Median	64.5
75th Percentile	71
ARV med use	
N	180
%	69

01MAY2024

Baseline Demographics

N	**260**
Age	
Mean	52.6
SD	11.4
25th Percentile	43
Median	52
75th Percentile	62

Demographics

	N	%
Gender		
Male	172	66
Female	88	34
Ethnicity		
Hispanic origin	73	28
Race		
White	137	53
Black	90	35
Other	33	13

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Demographics cont.

Furthest Education	N	%
8th grade or less	16	6
Some High School	56	22
High School Gradudate	44	17
Some College/Associate's Degree	76	30
College Graduate	35	14
Advanced Degree work	30	12

01MAY2024

Baseline HIV Characteristics

	N	%
HIV risk		
IV drug use	51	20
Male to male sex	120	46
Heterosexual sex	79	30
Other	10	4
ARV med use	248	95

01MAY2024

Current HIV Characteristics

CD4 Count (N=259)

25th Percentile	369
Median	506
75th Percentile	733

Log Plasma Viral Load* (N=256)

25th Percentile	1.30
Median	1.48
75th Percentile	1.48

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Baseline HIV Characteristics

CD4 Count (N=254)

25th Percentile	195
Median	421
75th Percentile	669

Log Plasma Viral Load* (N=236)

25th Percentile	1.48
Median	1.70
75th Percentile	2.70

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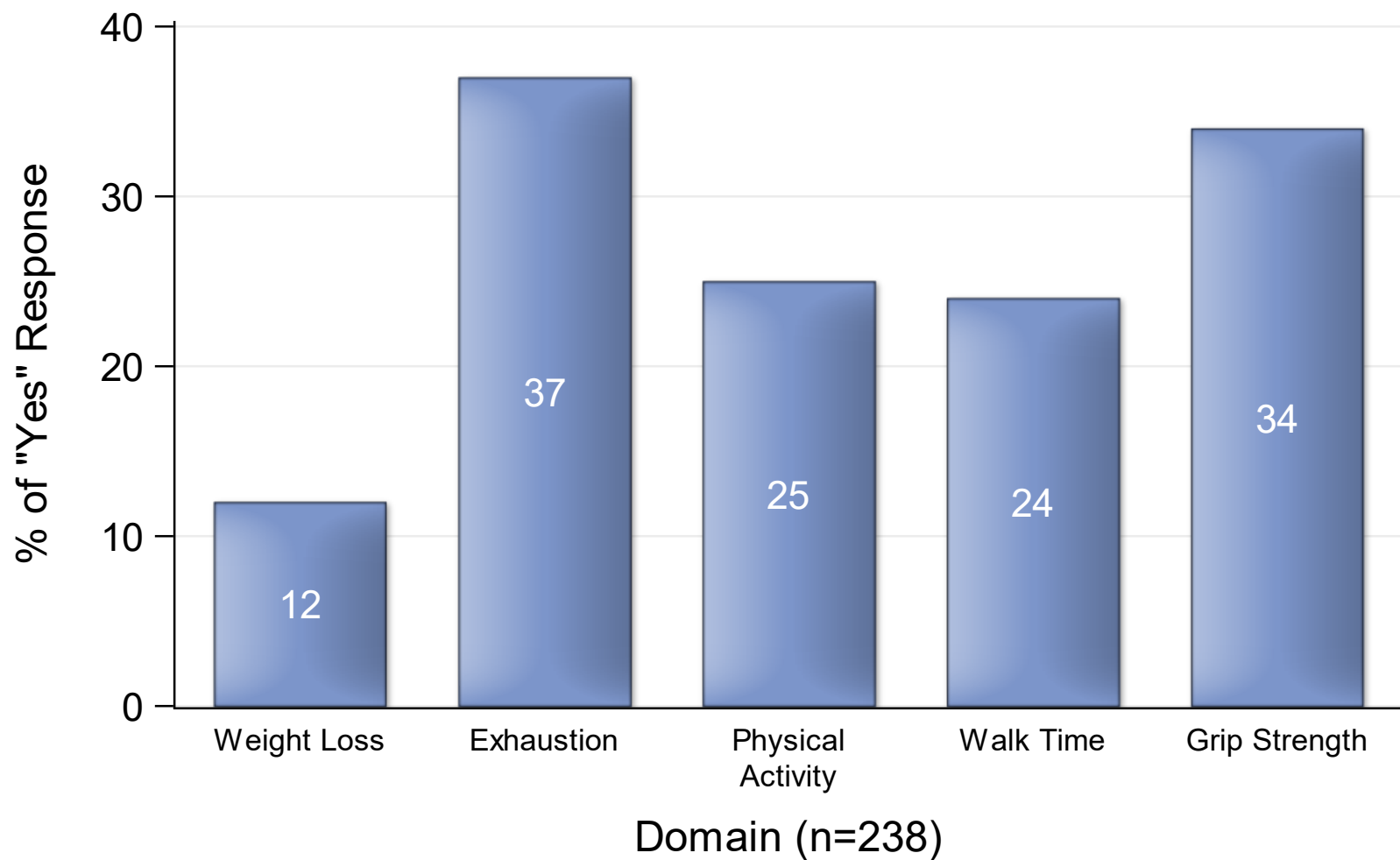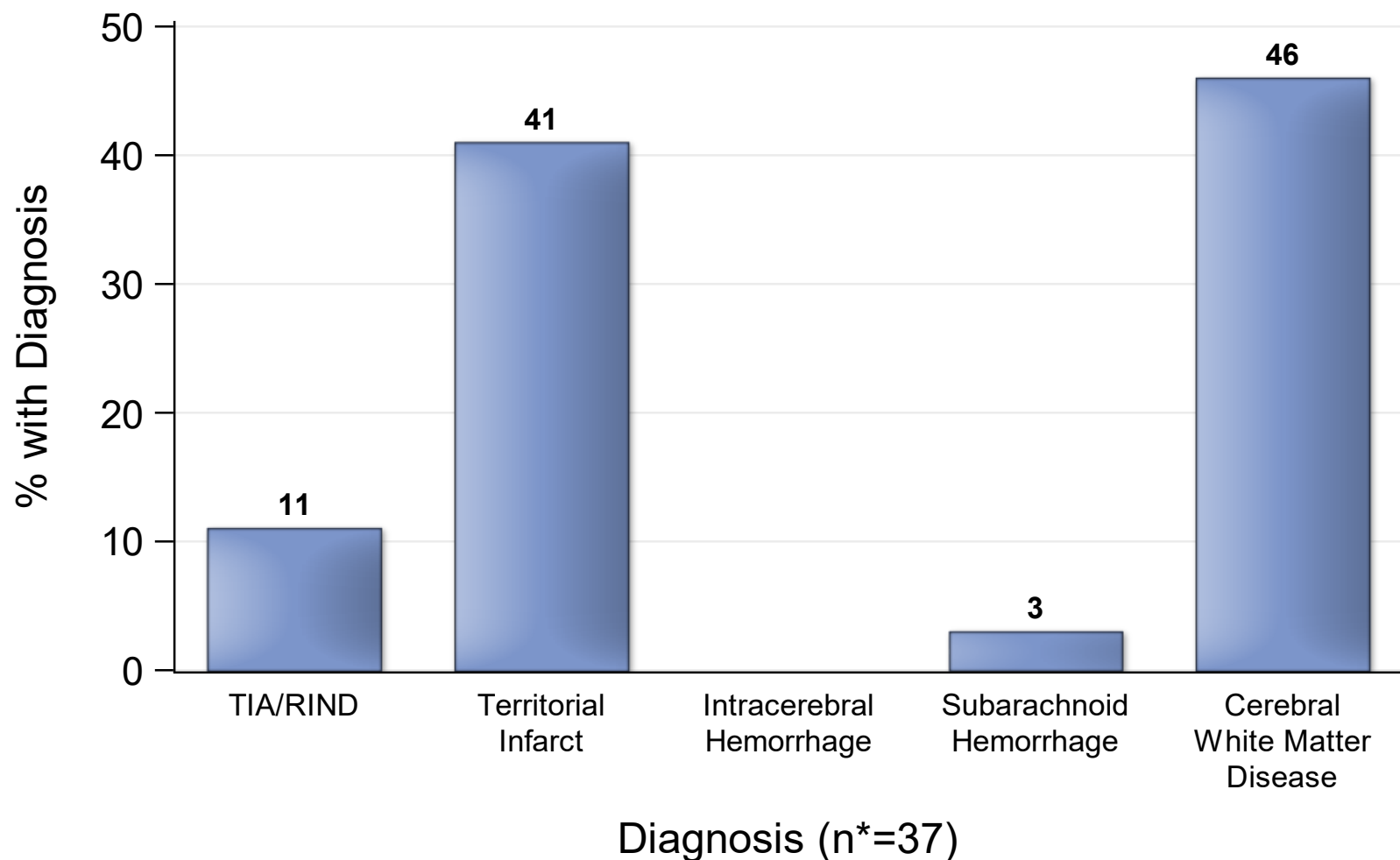
Frailty Demographics

Characteristics:	All Frailty Stages	Not Frail	Pre-frail	Frail
N*	238	61	140	37
Age				
Mean	58.8	58.7	59.0	58.4
Std	8.2	8.2	8.1	8.8
Gender				
Male	157 (66%)	45 (29%)	90 (57%)	22 (14%)
Female	81 (34%)	16 (20%)	50 (62%)	15 (19%)

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

Cerebrovascular Diagnosis Frequency

*From the first available visit. 54 participants have an assigned diagnosis at baseline.

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Cerebrovascular Demographics

Characteristics:	All Records	Condition not present	Condition present	Unable to definitively diagnose
N*	229	181	37	11
Age				
Mean	58.0	57.5	60.9	56.5
Std	8.7	8.8	7.4	8.7
Gender				
Male	147 (64%)	119 (81%)	21 (14%)	7 (5%)
Female	82 (36%)	62 (76%)	16 (20%)	4 (5%)

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

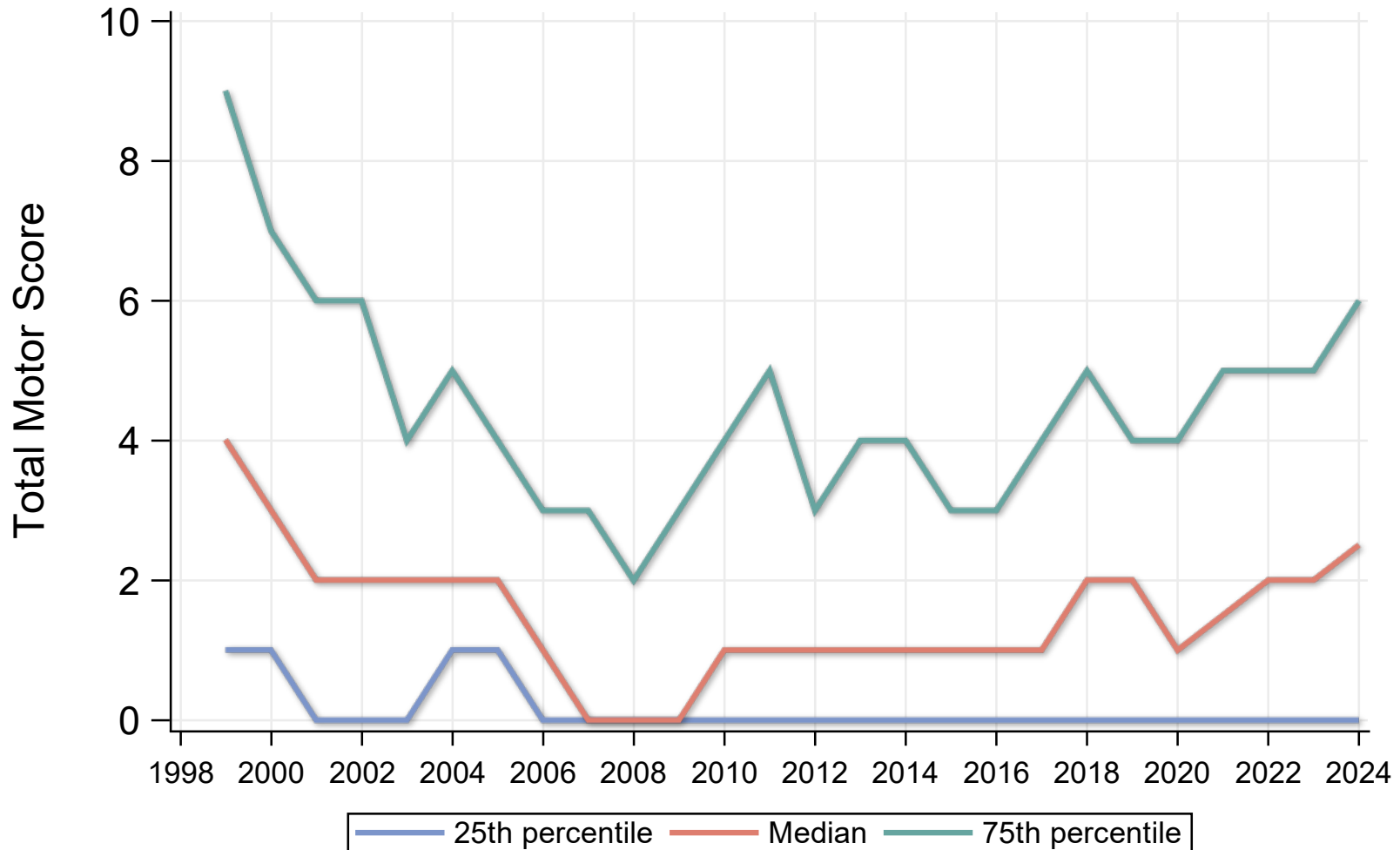## HIV Motor Scale - Impairment Rating
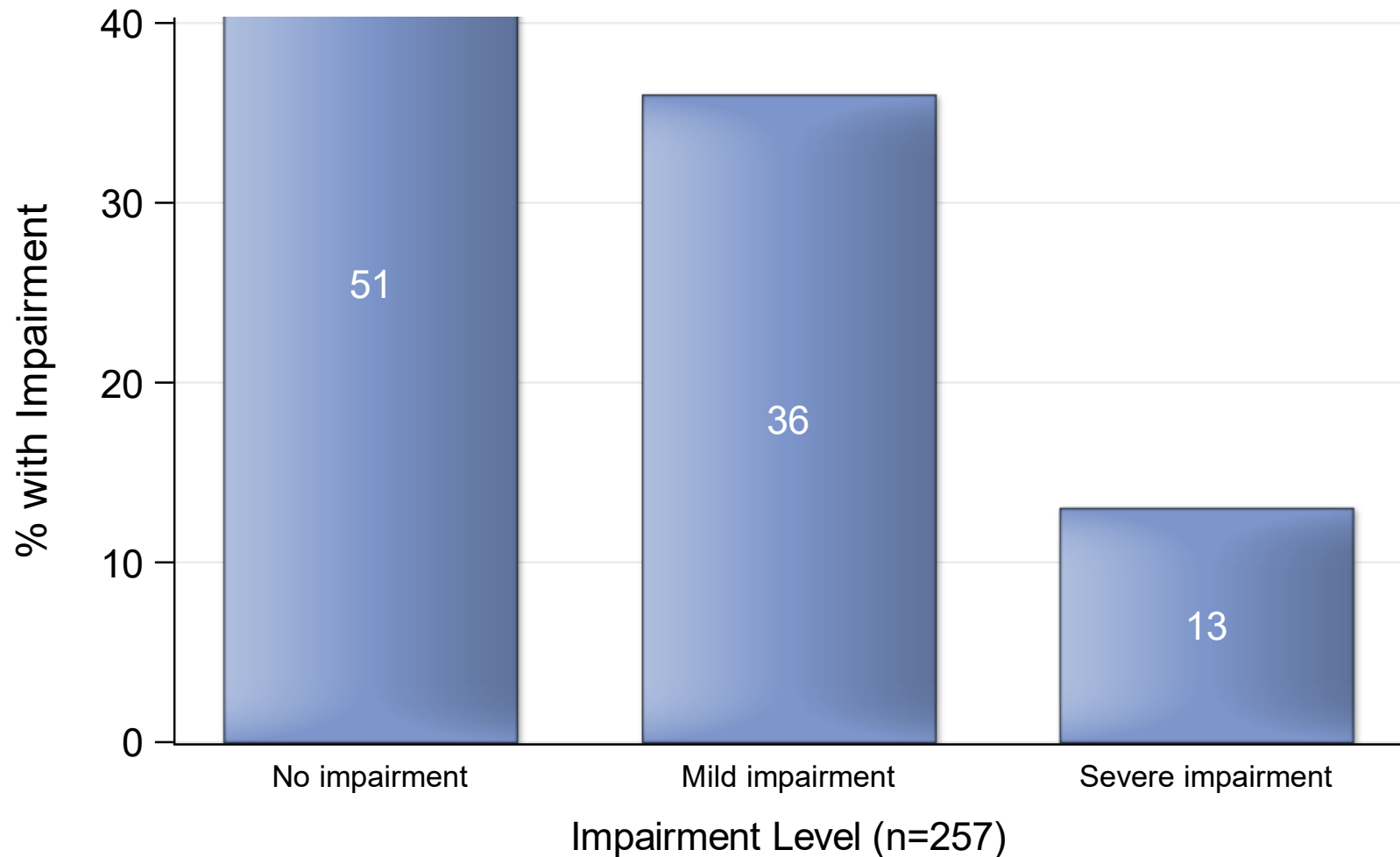
*From the first available visit.

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.

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HIV Motor Scale

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

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HIV Motor Scale Demographics

Characteristics:	All Records	No impairment	Mild impairment	Severe impairment
N*	257	131	93	33
Age				
Mean	53.0	51.2	56.5	50.6
Std	10.9	10.6	10.3	11.8
Gender				
Male	169 (66%)	89 (53%)	63 (37%)	17 (10%)
Female	88 (34%)	42 (48%)	30 (34%)	16 (18%)

*HIV Motor Scale impairment from the first available visit. Gender unknown for some recent cases.
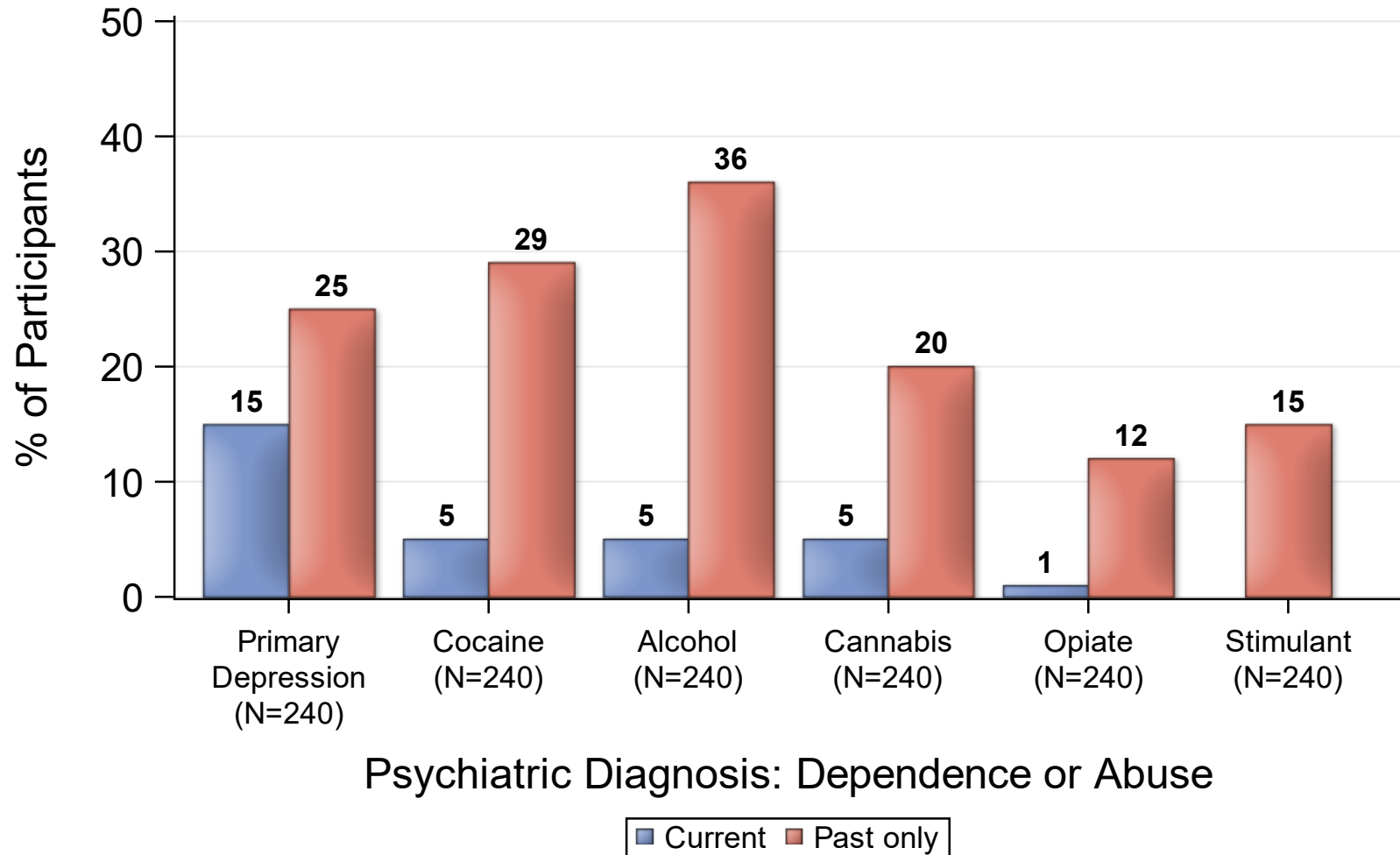
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Current Psychiatric Diagnosis
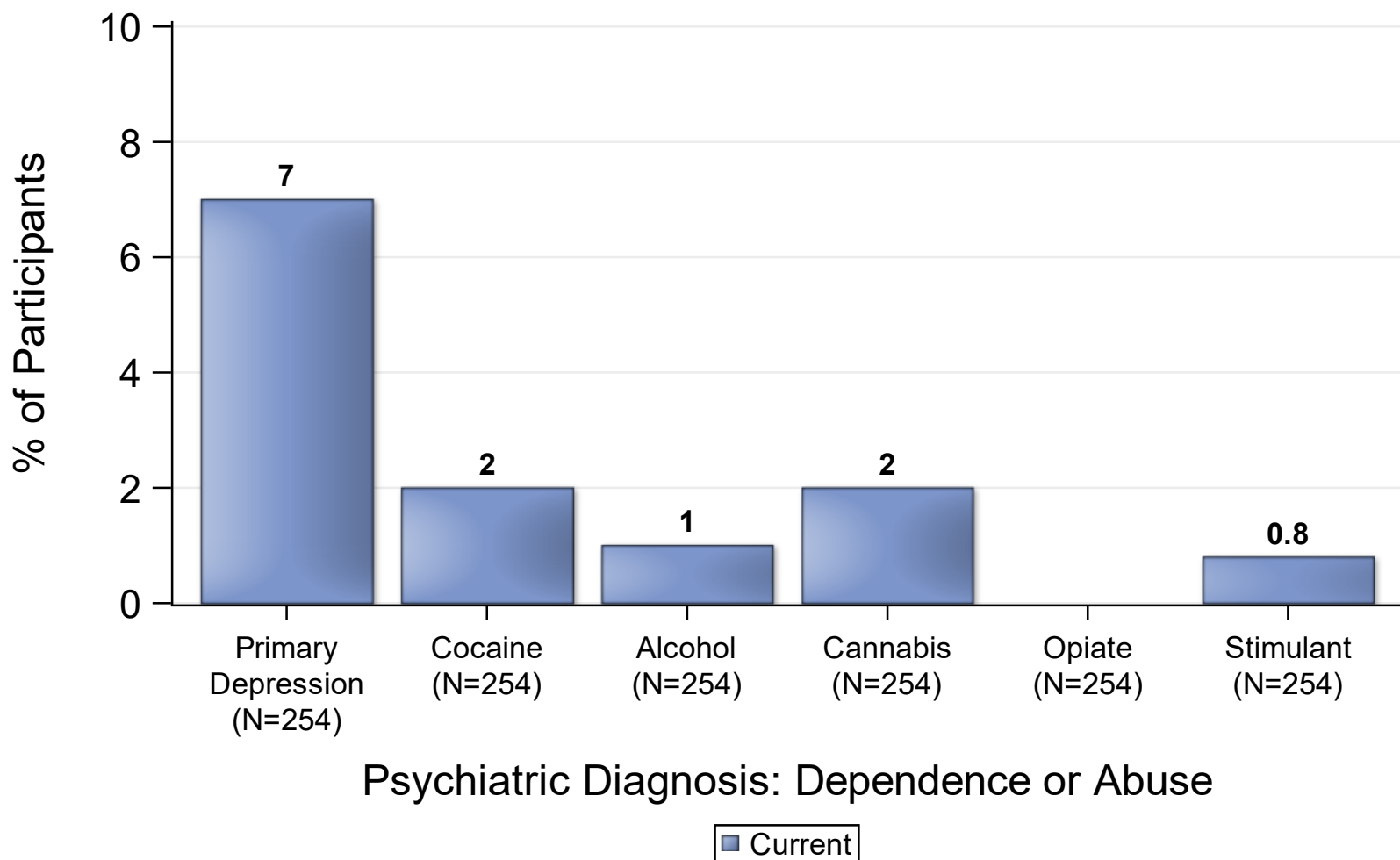
73% are Normal/Test Not Administered

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

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Baseline Psychiatric Diagnosis

Chart: % of Participants vs. Psychiatric Diagnosis: Dependence or Abuse

Diagnosis	Current	Past only
Primary Depression (N=240)	15	25
Cocaine (N=240)	5	29
Alcohol (N=240)	5	36
Cannabis (N=240)	5	20
Opiate (N=240)	1	12
Stimulant (N=240)		15

Legend: ■ Current ■ Past only

28% 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.
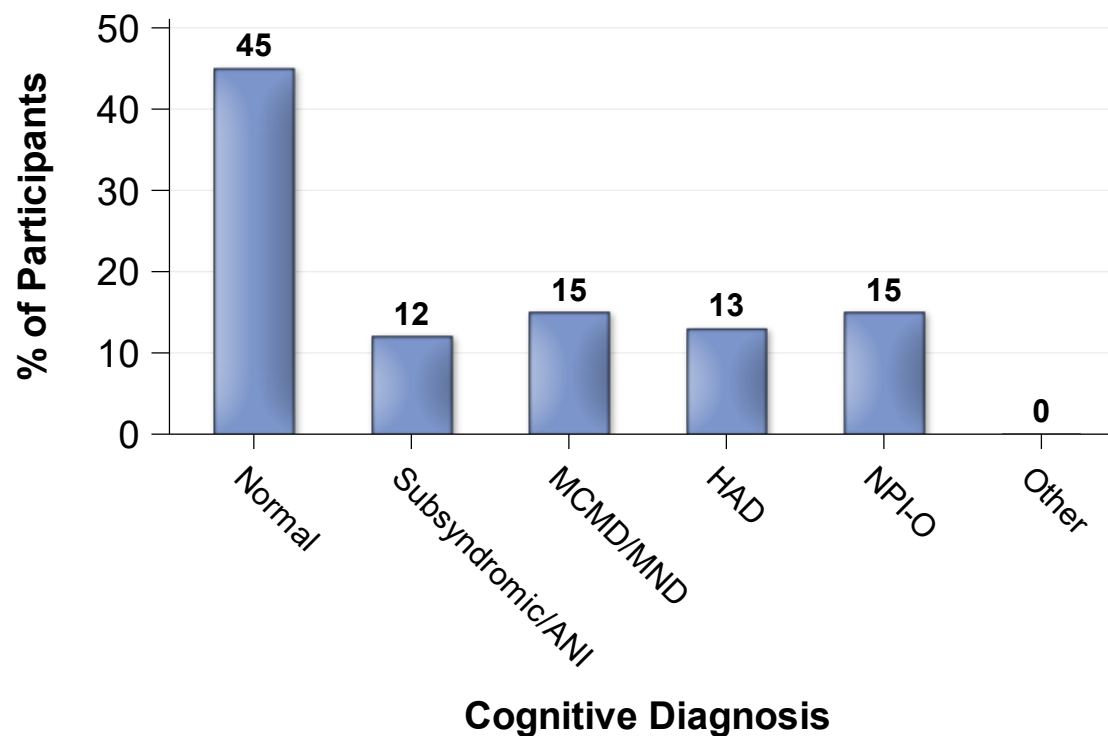
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Current Cognitive Diagnosis (N=253*)

ANI = Asymptomatic Neurocognitive Impairment
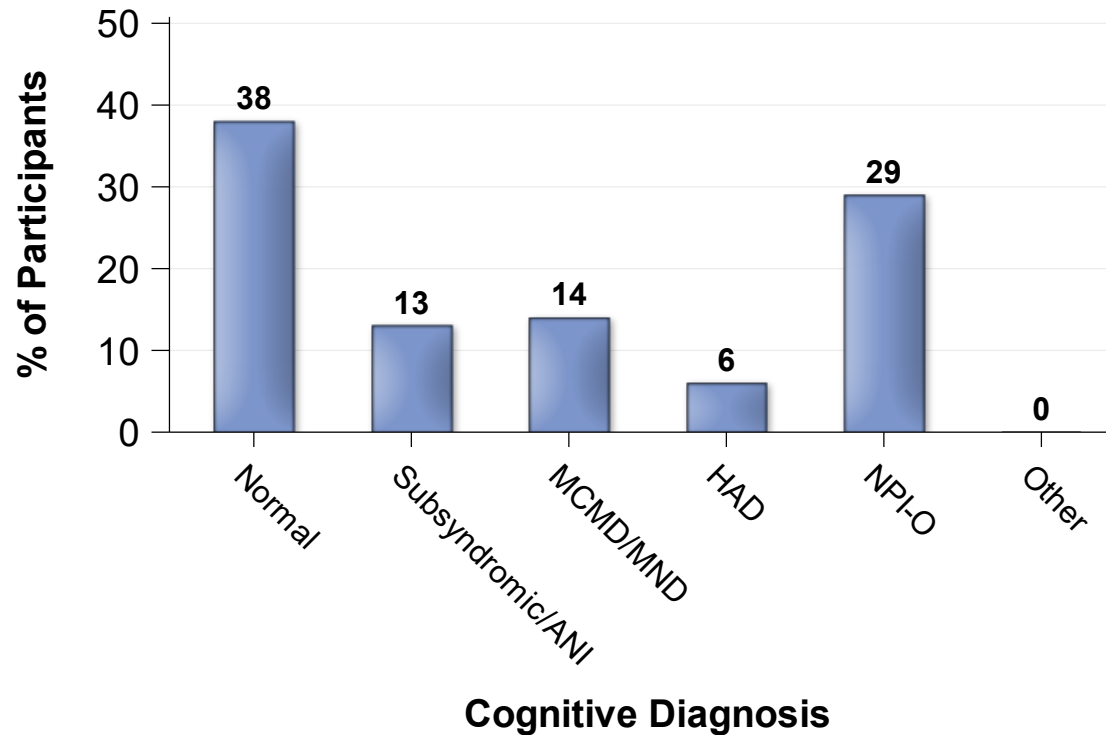
MCMD = Minor Cognitive Motor Disorder

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.

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Baseline Cognitive Diagnosis (N=256*)

ANI = Asymptomatic Neurocognitive Impairment

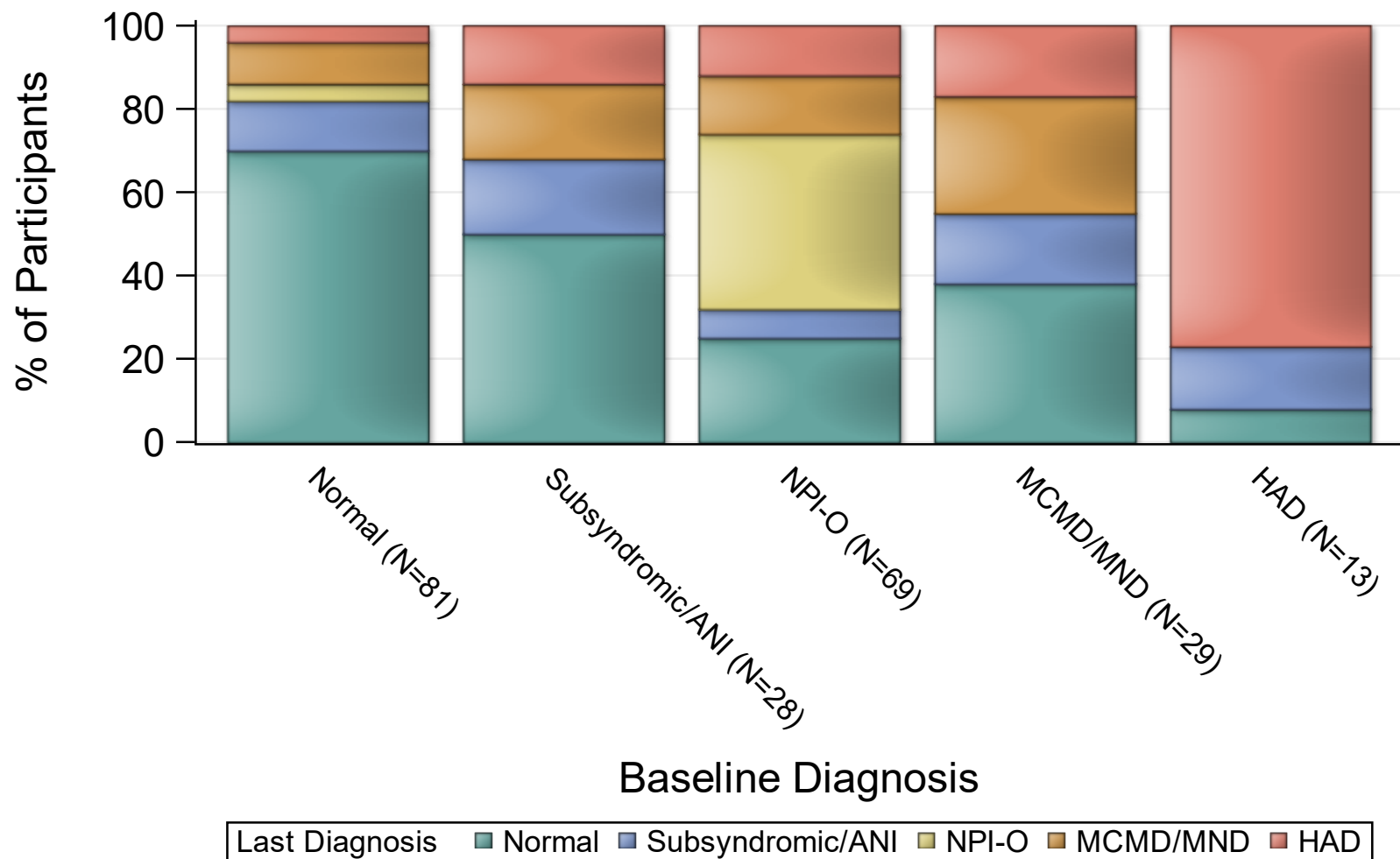MCMD = Minor Cognitive Motor Disorder

MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

NPI-O = Neuropsychological Impairment - Other cause, not HIV
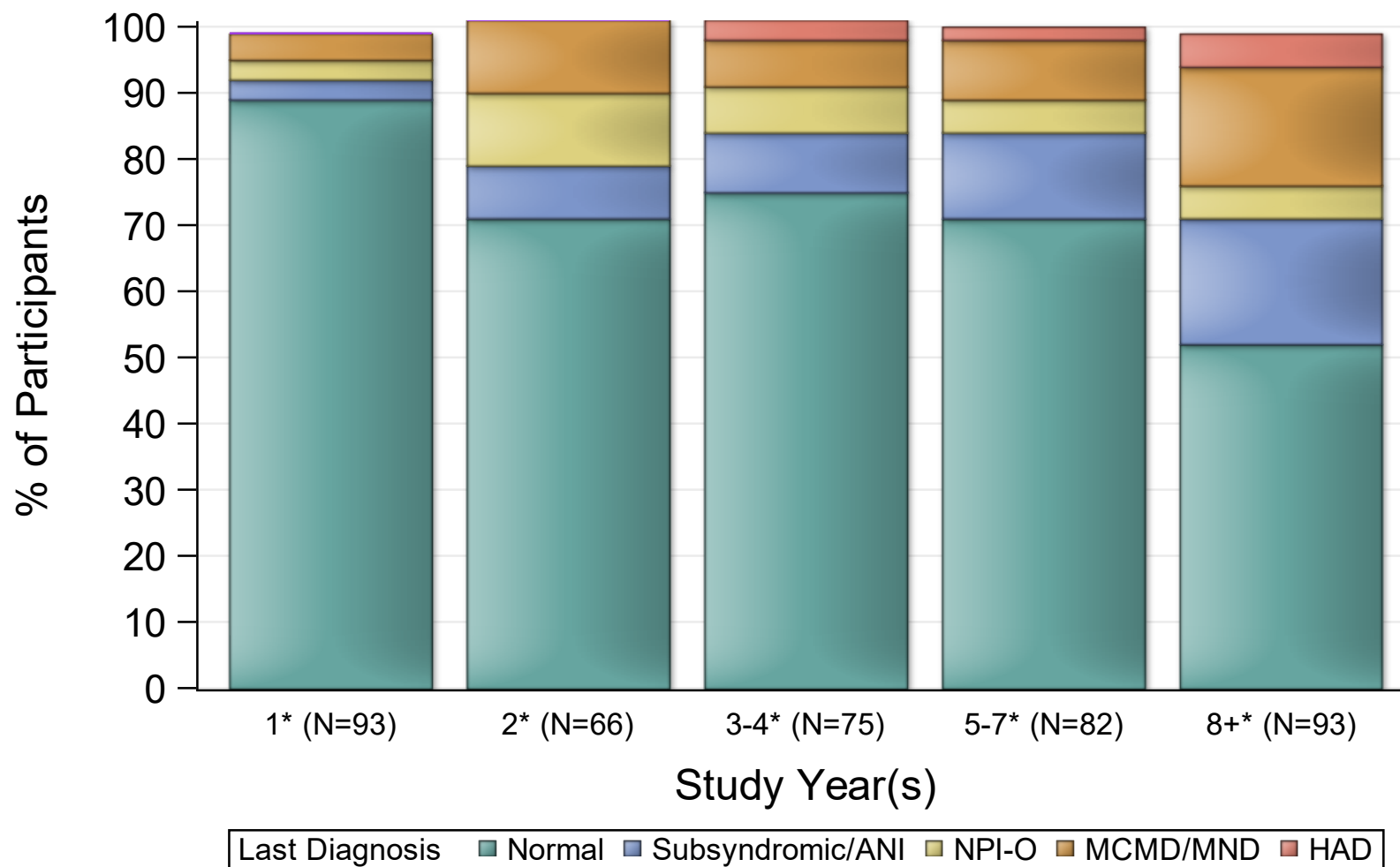
*Please note the totals listed above reflect only those cases in the active cohort who were assigned a cognitive diagnosis at baseline.

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Change in Cognitive Diagnosis

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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.

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Active Cohort: PWH

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.
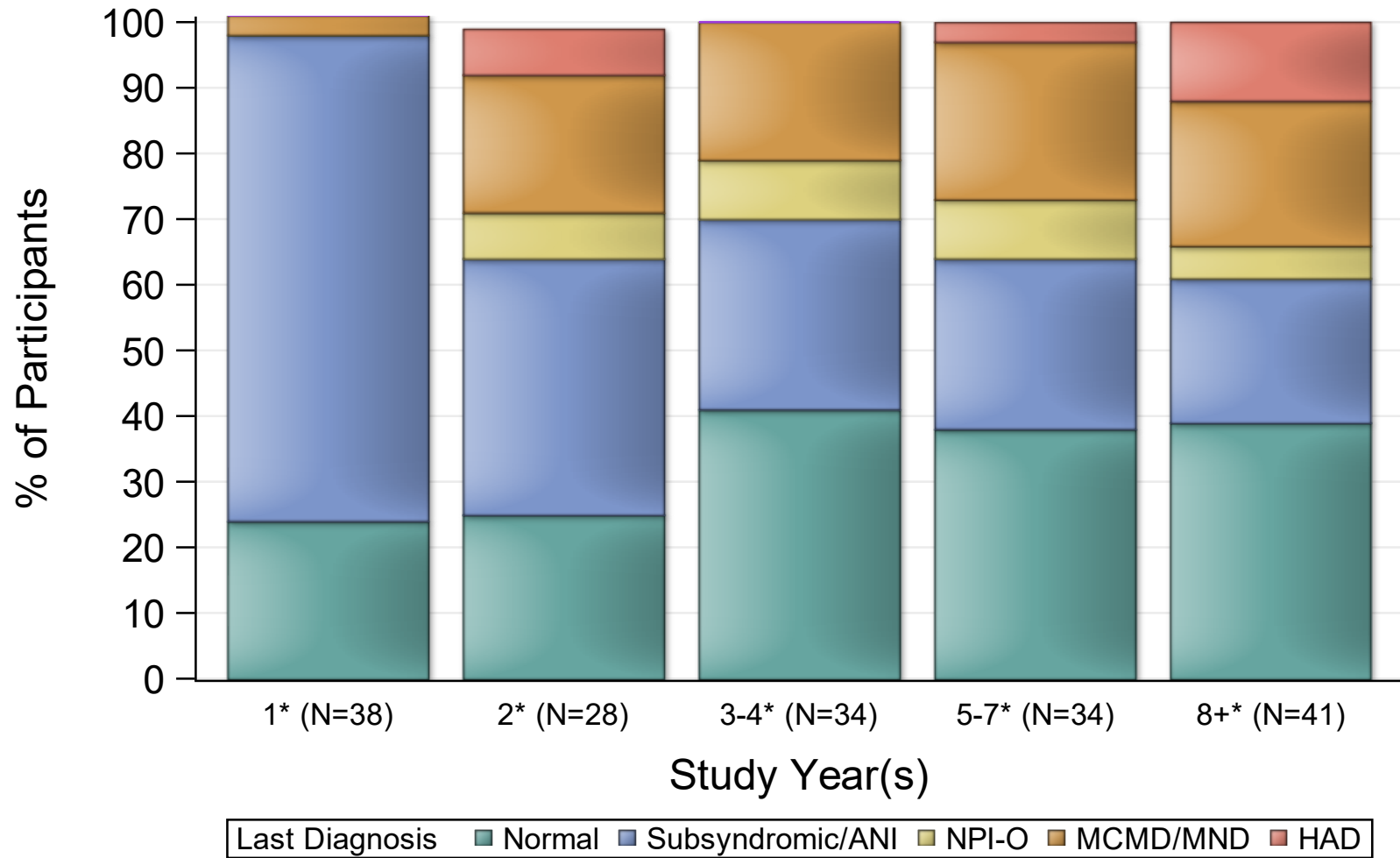
01MAY2024

Active Cohort: PWH
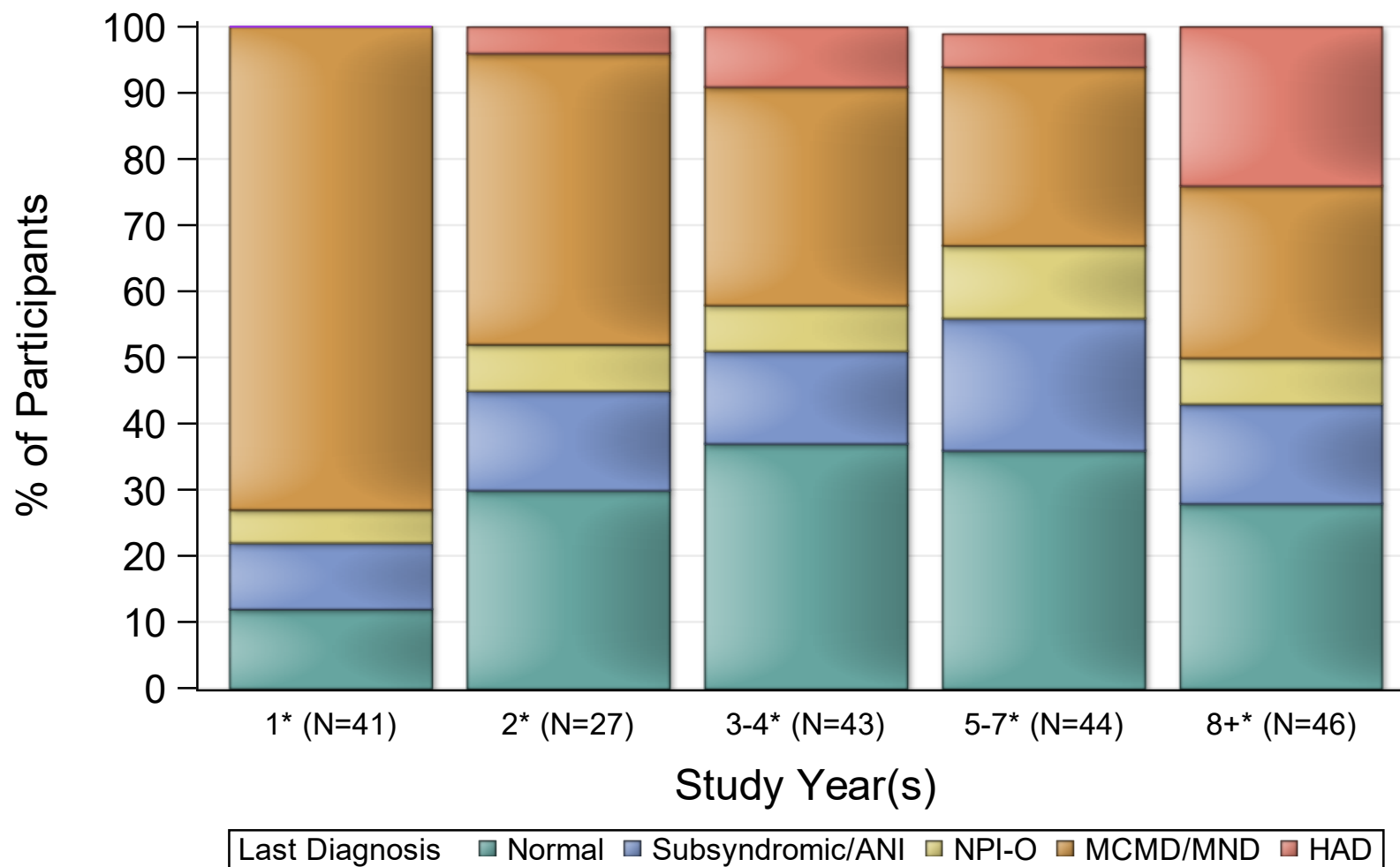
Change in Cognitive Diagnosis

HAD at Baseline

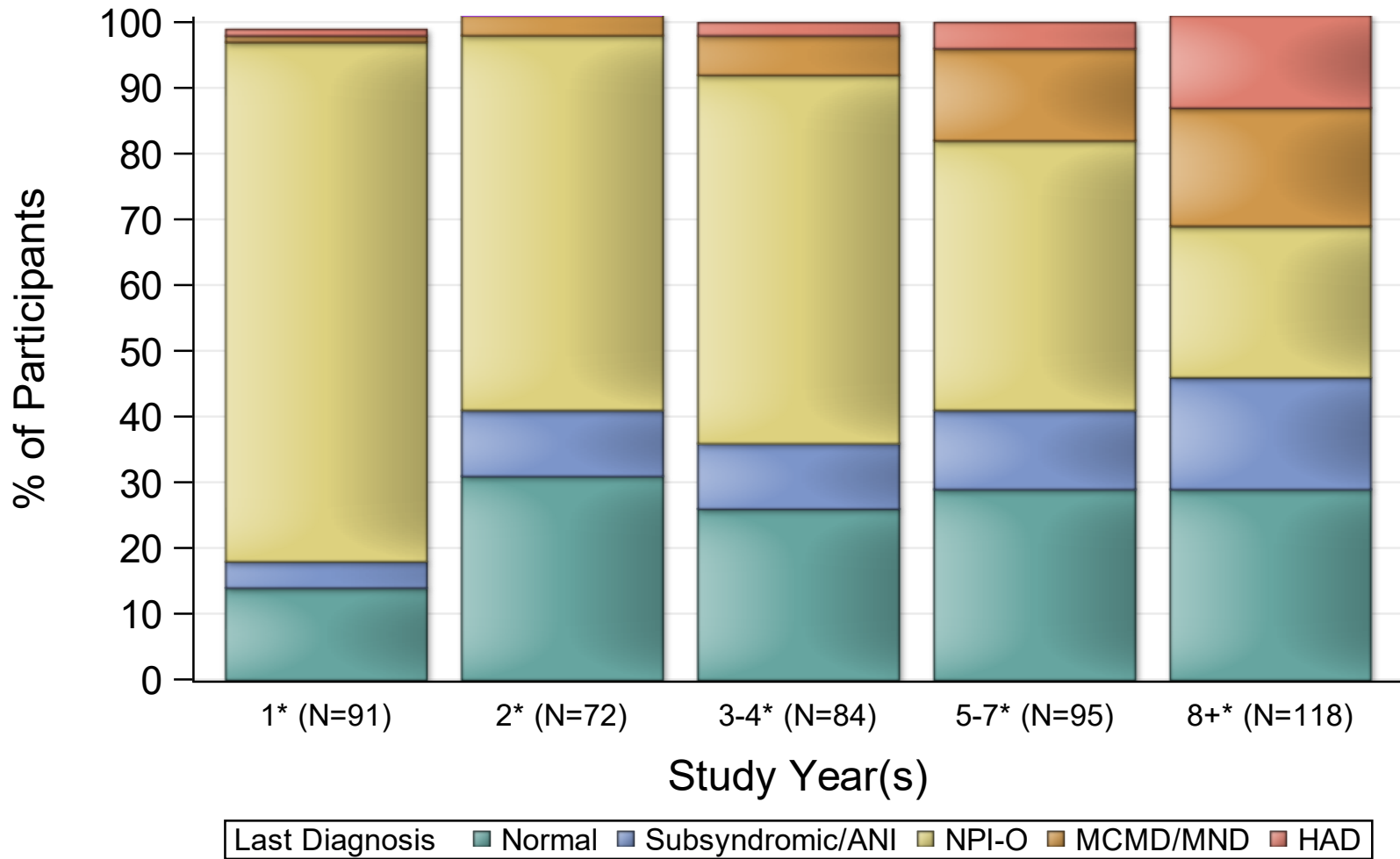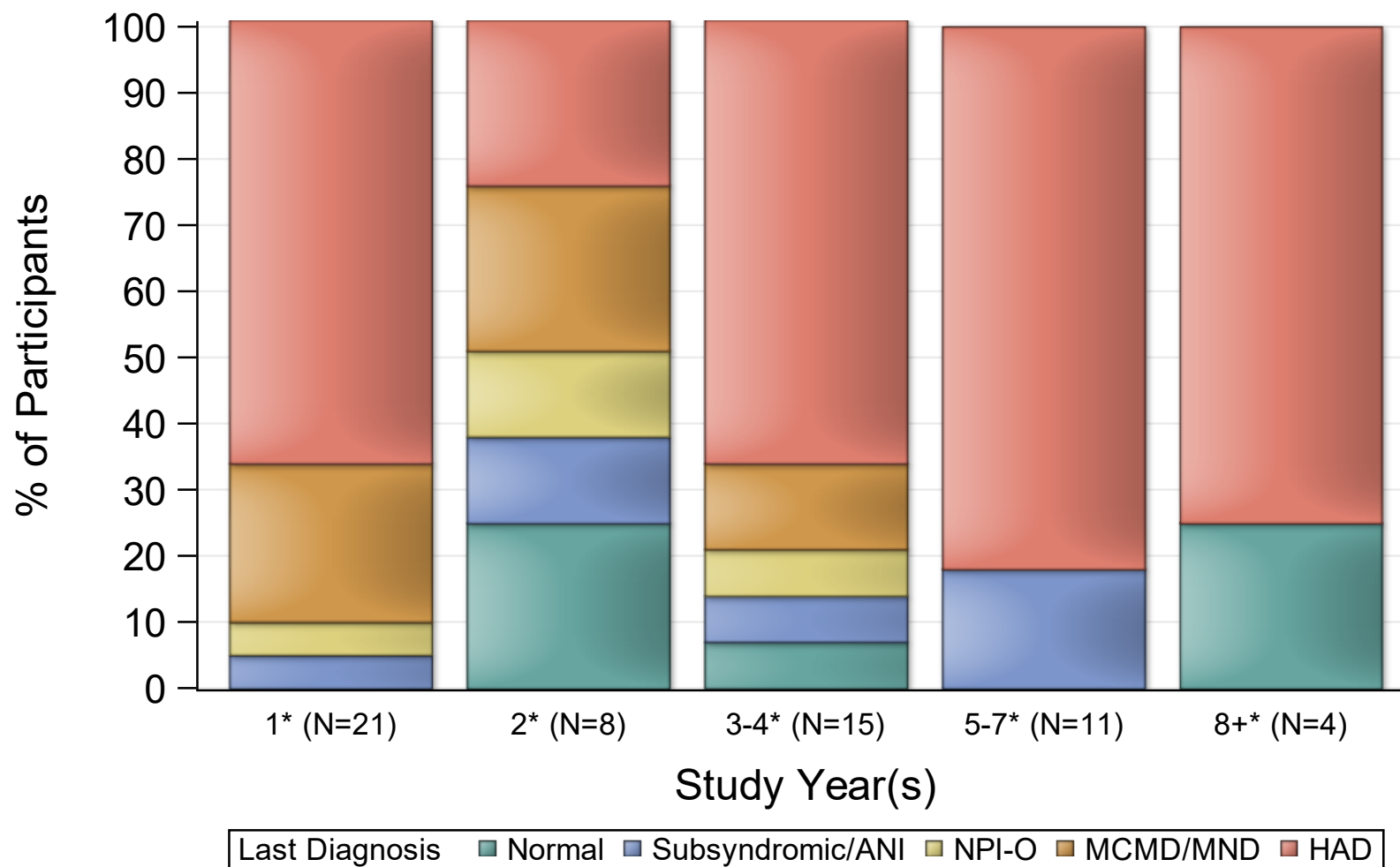*Worst diagnosis in study year period shown.

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

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Current Neurologic Diagnoses

	N	%
Clinical Myelopathy (N=169)		
HIV associated	4	2
Other	4	2
None	161	95
Neuropathy (N=167)		
HIV associated DSP	117	70
None	50	30

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Baseline Neurologic Diagnoses

	N	%
Clinical Myelopathy (N=238)		
HIV associated	9	4
Other	4	2
None	225	95
Neuropathy (N=237)		
HIV associated DSP	111	47
HIV/nucleoside	7	3
None	119	50

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Participants Reporting Concomitant Medications

Medication	# of Pts (N=257)	%
Central Nervous System Agents	245	95.3
Cardiovascular Drugs	224	87.2
Vitamins	218	84.8
Gastrointestinal Drugs	203	79
Anti-infective Agents	191	74.3
Hormones and Synthetic Substitutes	160	62.3
Autonomic Drugs	152	59.1
Electrolytic, Caloric, and Water Balance	139	54.1
Skin and Mucous Membrane Agents	128	49.8
Miscellaneous Therapeutic Agents	125	48.6
Antihistamine Drugs	117	45.5
Eye, Ear, Nose, and Throat (EENT) Preparations	112	43.6
Blood Formation, Coagulation, and Thrombosis Agents	90	35
No medication use reported on at least one occasion	61	23.7
Respiratory Tract Agents	44	17.1
Local Anesthetics	38	14.8
Smooth Muscle Relaxants	35	13.6
Antineoplastic Agents	31	12.1
Pharmaceutical Aids	19	7.4
Enzymes	9	3.5

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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	983	42	107	35
Mean Corpuscular Hemoglobin (MCH)	982	42	106	35
Mean Corpuscular Volume (MCV)	4298	98	252	87
Mean Corpuscular Hemoglobin Concentration (MCHC)	982	42	106	35
Blood Red cell Distribution Width (RDW)	837	42	85	27
Blood Rapid Plasma Reagin (RPR)	675	67	108	23
Blood Neutrophil Percent	4068	98	226	77
Blood Lymphocyte Percent	4243	99	253	87
Blood Monocyte Percent	4244	99	253	87
Blood Eosinophil Percent	4230	99	252	86
Blood Basophil Percent	4163	99	249	85
Blood Mean Platelet Volume (MPV)	266	19	26	9
Blood CD3 Percent	477	21	54	18
Blood CD3 Absolute	320	20	32	11
Miscellaneous Serology & viralogy				
Blood Hepatitis B Surface Antigens	313	57	132	17
Blood Hepatitis B Surface Antibodies	313	57	130	18
Blood Hepatitis B Core Antibodies	283	57	132	15
Blood Hepatitis B Viral Load	39	7	5	1
Blood Hepatitis C Antibodies (HCV)	1014	98	202	45
Blood Hepatitis C Viral Load	211	21	27	5
Miscellaneous Serology & viralogy				
COVID-19 Test Results (qualitative)	66	11	3	0

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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	3956	98	247	84
Hemoglobin A1c	1717	96	109	32
Sodium	3882	98	247	84
Calcium	3891	98	247	84
Chloride	3802	98	237	81
Potassium	3884	98	247	84
Total Protein	3786	98	247	84
Alkaline Phosphatase	3849	98	245	83
AST	3841	98	245	83
ALT	3830	98	243	83
Total Bilirubin	3845	98	247	84
Direct Bilirubin	770	41	86	27
Creatinine	3935	98	247	84
BUN	3923	98	246	84
CO2	3820	98	242	82
PT	1868	57	142	50
INR	1870	57	143	50
Urate	172	9	24	7
Triglycerides	2446	98	194	63
Cholesterol	2449	99	193	62
LDL	2135	94	159	52
HDL	2314	98	174	55
Phosphorus	777	41	86	27
LDH	308	17	35	12

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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 CSF values				
CSF-VDRL Test	18	4	4	1
Miscellaneous Urine values				
Urinalysis: Glucose	1960	57	146	51
Urinalysis: Protein	1960	57	146	51
Urinalysis: pH	1959	57	146	51
Urinalysis: Specific Gravity	1958	57	145	50
Urinalysis: Ketones	1956	57	145	50
Urinalysis: Bilirubin	1953	57	144	50
Urine Toxicology; Methamphetamine	975	40	96	32
Urinalysis: Red Blood Cells	537	37	52	17
Urinalysis: White Blood Cells	541	37	52	17

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Tissue Bank Cohort Overview

CNS Specimens Available

Type:	PWH	PWoH
Frozen Brain	1003	333
Spinal Cord	983	258
Fixed Brain	894	319
Dorsal Root Ganglia	808	215
Cerebellum*	561	129
Brain Stem*	547	129
Trigerminal Ganglia	536	74
Frontal Lobe*	298	107
Parietal Lobe*	294	106
Occipital Lobe*	294	106
Temporal Lobe*	293	106
Thalamus*	282	105
Basal Ganglia*	269	92
Hippocampus*	253	80

*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.

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Peripheral Organ Specimens Available

Type:	PWH	PWoH
Liver	964	255
Spleen	940	245
Peripheral Nerve	853	224
Adipose Tissue	805	204
Heart	774	189
Muscle	745	203
Lymph Node	737	182
Bone Marrow	735	184
Pituitary Gland	689	118
Kidney	609	186
Lung	568	180
Bowel	341	98
Testes	182	76
Hair	149	10
Eye	38	2
Thymus	30	5

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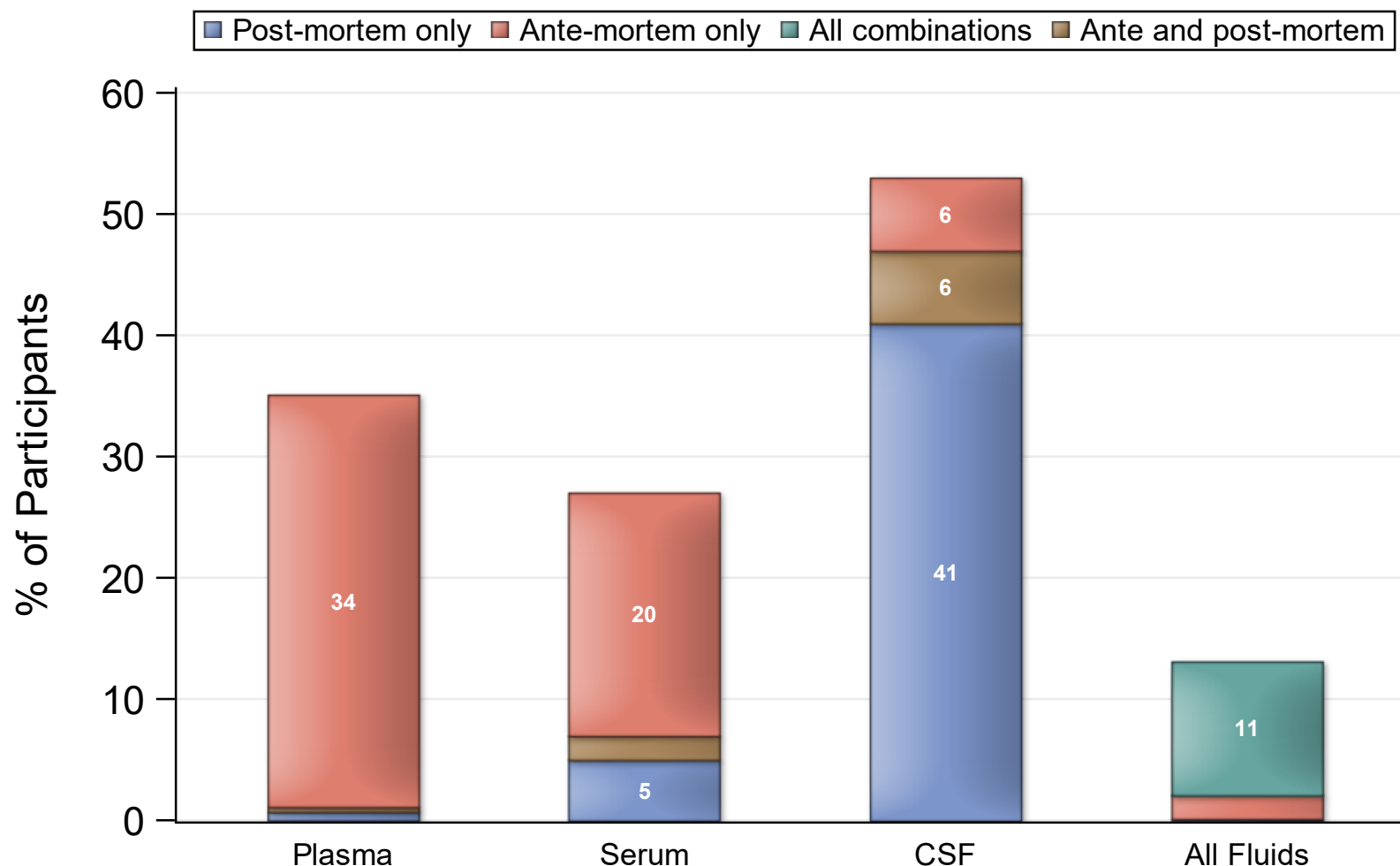
*All combinations (e.g., one specimen might be available ante-mortem while the other two might be ante- and post-mortem or any of the other 23 combinations where all 3 specimen availabilities are not the same).

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.

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*Demographics**

N	**894**
Age	
Mean	50.8
SD	12.3
25th Percentile	42
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.**

	N	%
Gender		
Male	699	78
Female	192	22
Ethnicity		
Hispanic origin	241	27
Race		
White	476	53
Black	296	33
Other	120	13

*Cases with a fixed brain specimen available.

Demographics cont.

|	N	%
Furthest Education		
8th grade or less	33	7
Some High School	90	20
High School Gradudate	125	28
Some College/Associate's Degree	124	28
College Graduate	39	9
Advanced Degree work	39	9

*Cases with a fixed brain specimen available.

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cART Era Demographics - Gender
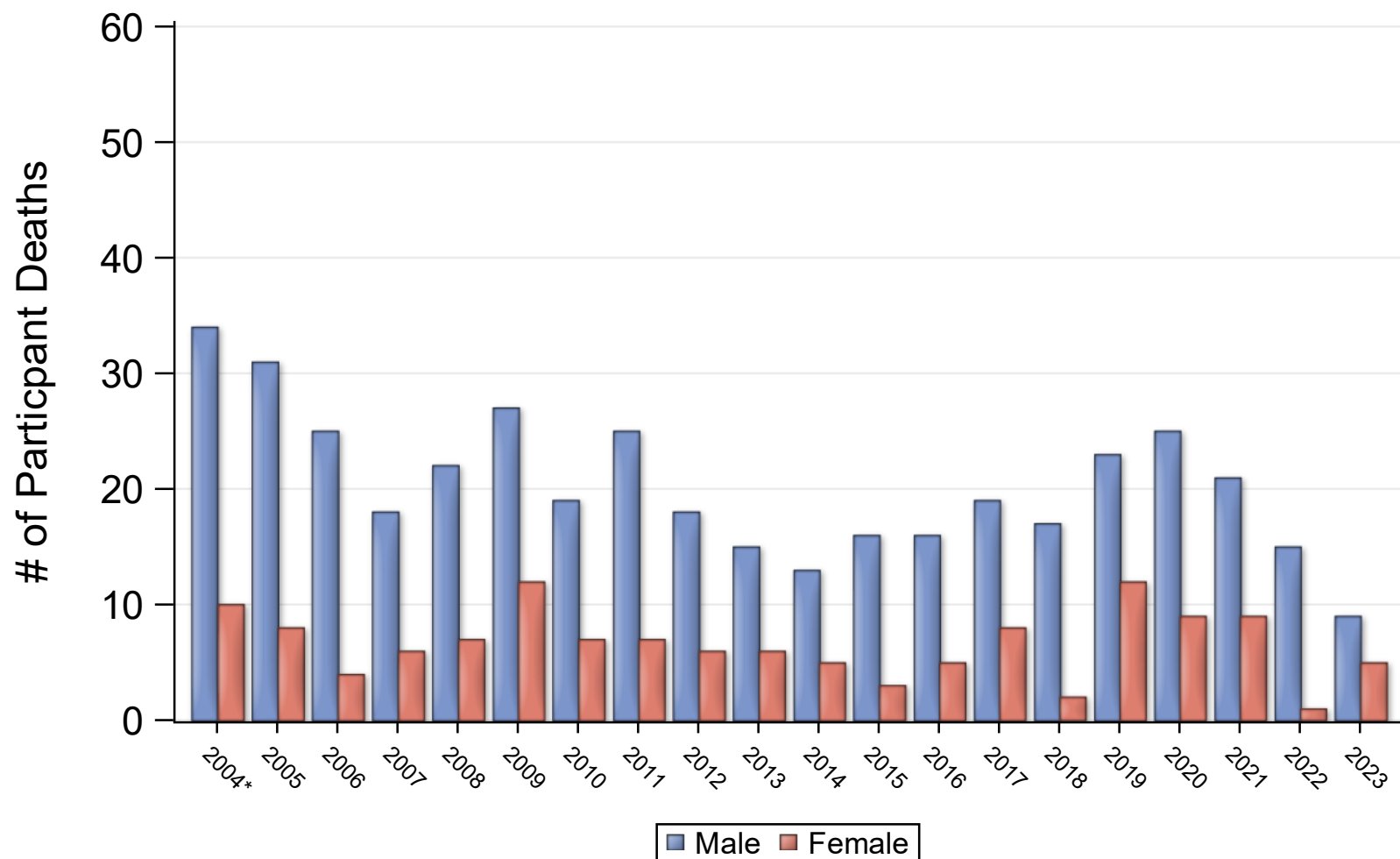
*275 males and 58 females prior to 2004. The NNTC did not collect data before 1998.

cART Era Demographics - Race
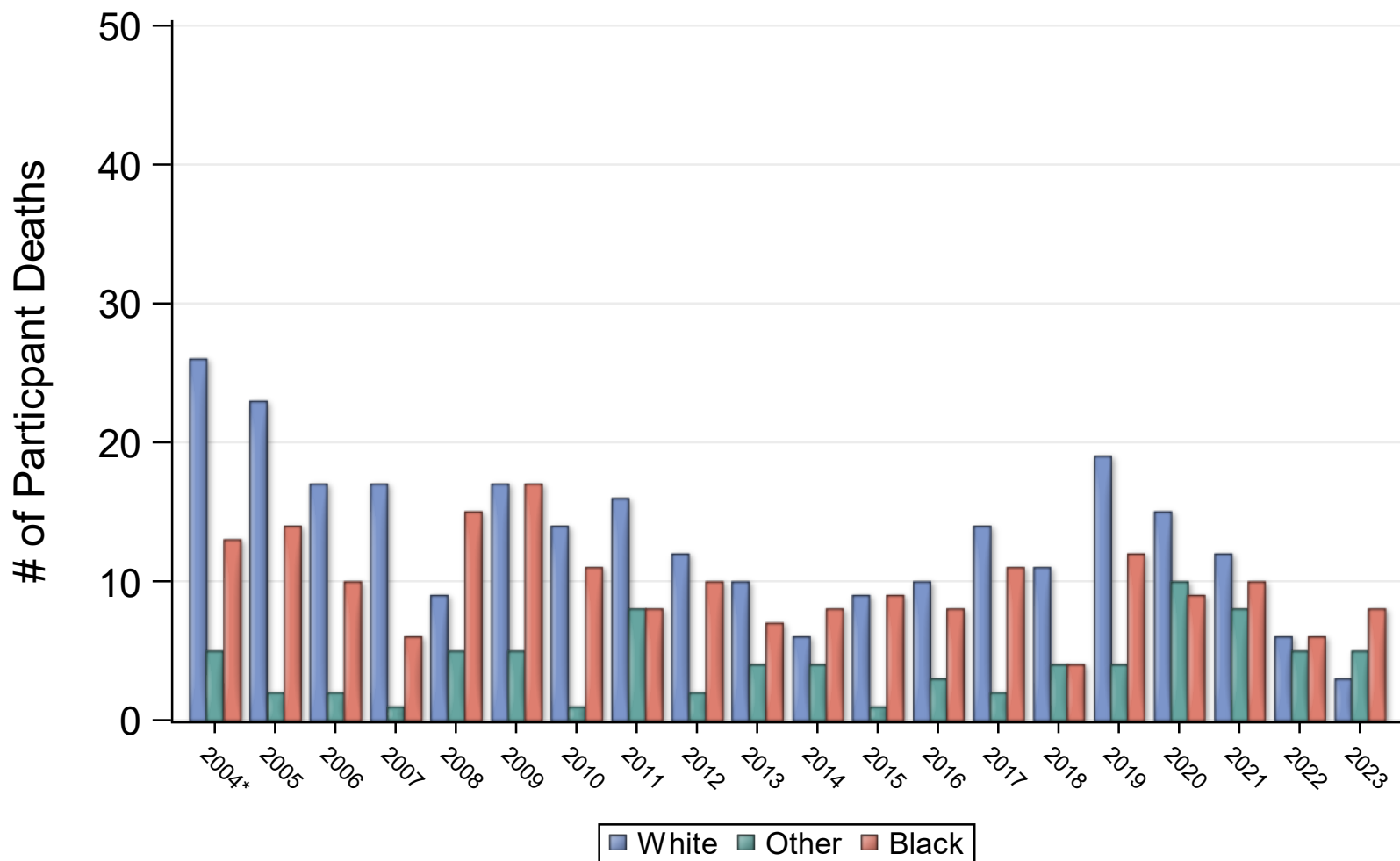
*207 White, 85 Black, and 41 Other prior to 2004. The NNTC did not collect data before 1998.

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HIV Characteristics of autopsy cases *

	N	%
Baseline HIV risk		
IV drug use	268	30
Male to male sex	326	36
Heterosexual sex	190	21
Other	110	12
On ART		
at baseline	707	79
at last visit	715	80

*Cases with a fixed brain specimen available.

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*HIV Characteristics at time of death**

CD4 Count (N=664)

25th Percentile	21
Median	105
75th Percentile	273.5

Log Plasma Viral Load** (N=604)

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.
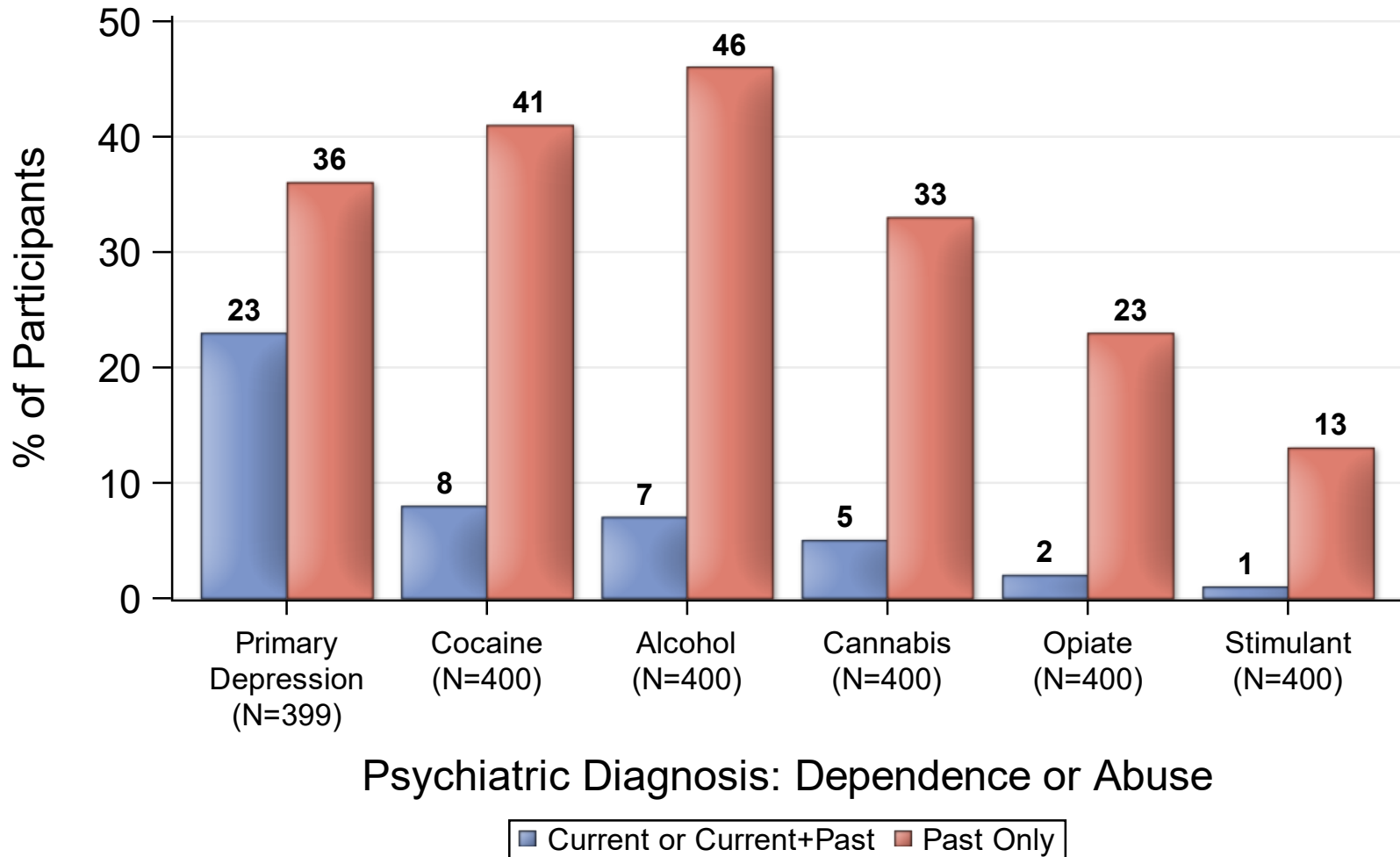
01MAY2024

cART Era Viral Load
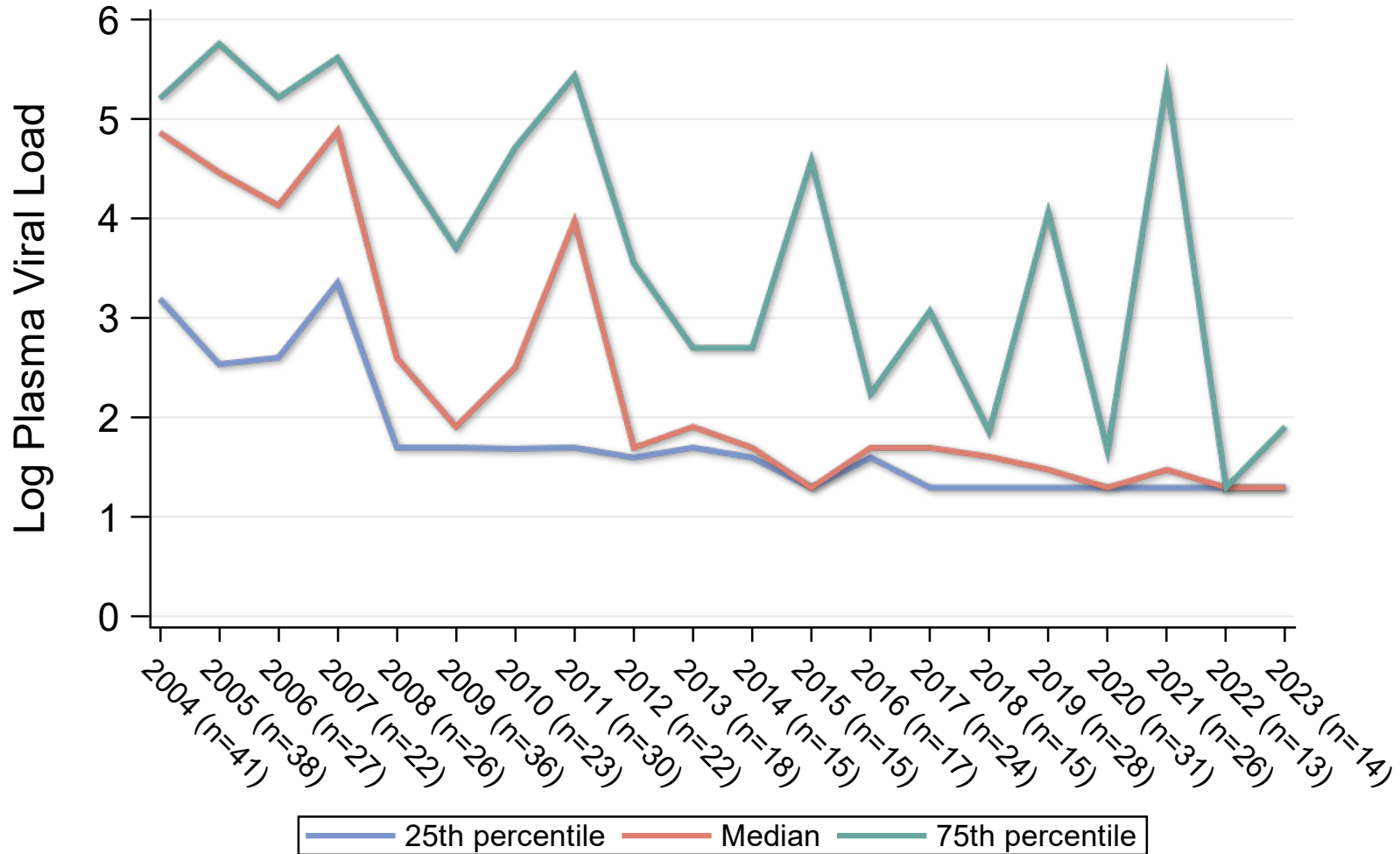
*Among those who have died during the cART era.

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Pathological Conditions: Year of Autopsy

Type:	Year of Autopsy			
	1998-2004	2005-2011	2012-present	Total Cases
Total Fixed Specimens	395	218	281	894
Normal/minor neuropath changes	102 (26%)	70 (32%)	38 (14%)	210 (23%)
Other non-infectious pathology	74 (19%)	70 (32%)	100 (36%)	244 (27%)
Alzheimer's type 2 gliosis	71 (18%)	24 (11%)	30 (11%)	125 (14%)
Focal infarct	50 (13%)	38 (17%)	64 (23%)	152 (17%)
HIV encephalitis	58 (15%)	16 (7%)	4 (1%)	78 (9%)
Hypoxic/ischemic damage	32 (8%)	40 (18%)	59 (21%)	131 (15%)
Aseptic Leptomeningitis	28 (7%)	16 (7%)	30 (11%)	74 (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 (6%)	5 (2%)	39 (4%)
Cryptococcus	14 (4%)	8 (4%)	2 (1%)	24 (3%)
Primary CNS lymphoma	22 (6%)	5 (2%)	8 (3%)	35 (4%)
Other infections	17 (4%)	7 (3%)	19 (7%)	43 (5%)
Cytomegalovirus encephalitis	19 (5%)	3 (1%)	2 (1%)	24 (3%)

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Last Psychiatric Diagnosis

% of Participants

Psychiatric Diagnosis: Dependence or Abuse

- Primary Depression (N=399): 23, 36
- Cocaine (N=400): 8, 41
- Alcohol (N=400): 7, 46
- Cannabis (N=400): 5, 33
- Opiate (N=400): 2, 23
- Stimulant (N=400): 1, 13

■ Current or Current+Past   ■ Past Only

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.
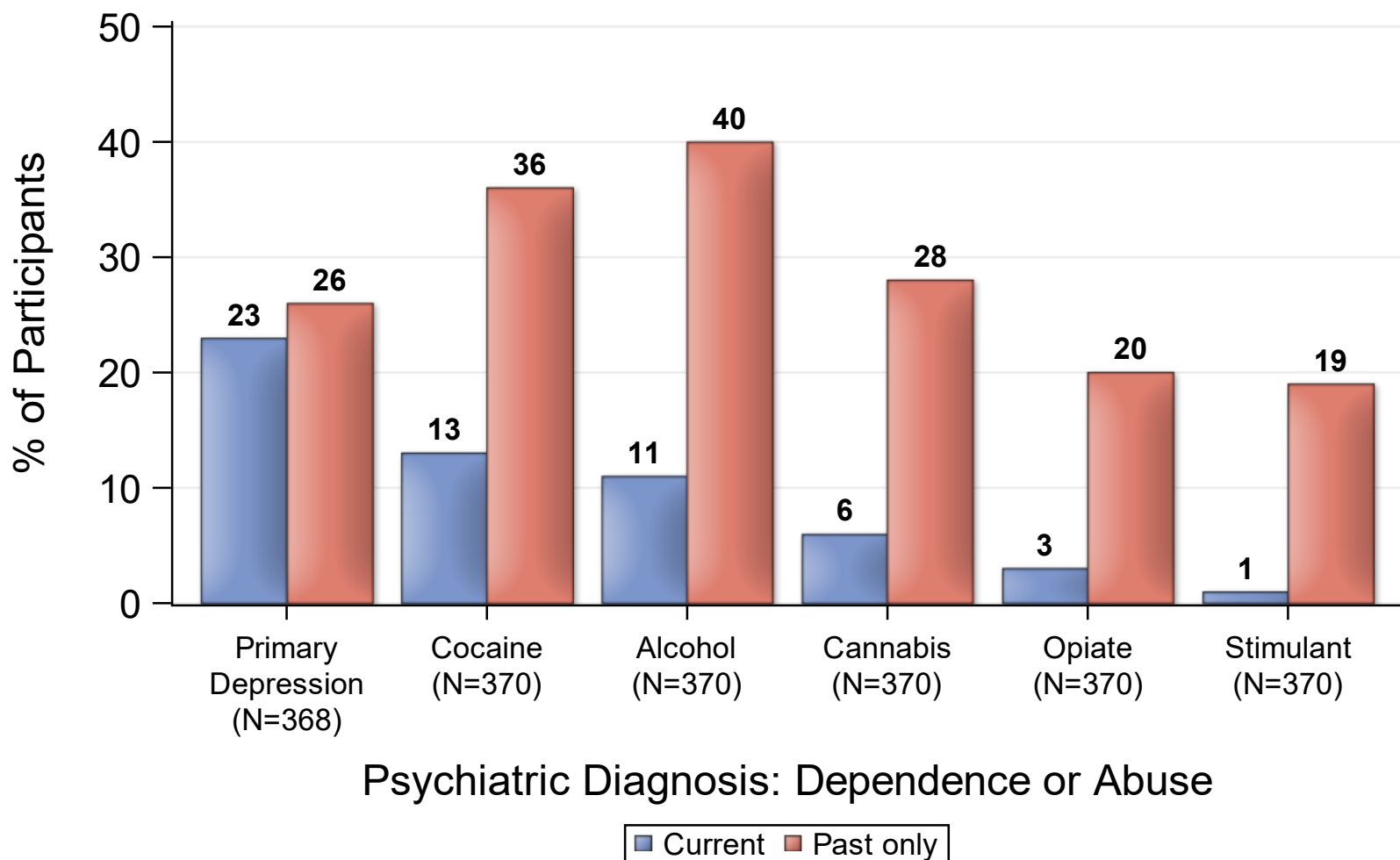
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Baseline Psychiatric Diagnosis

15% 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.
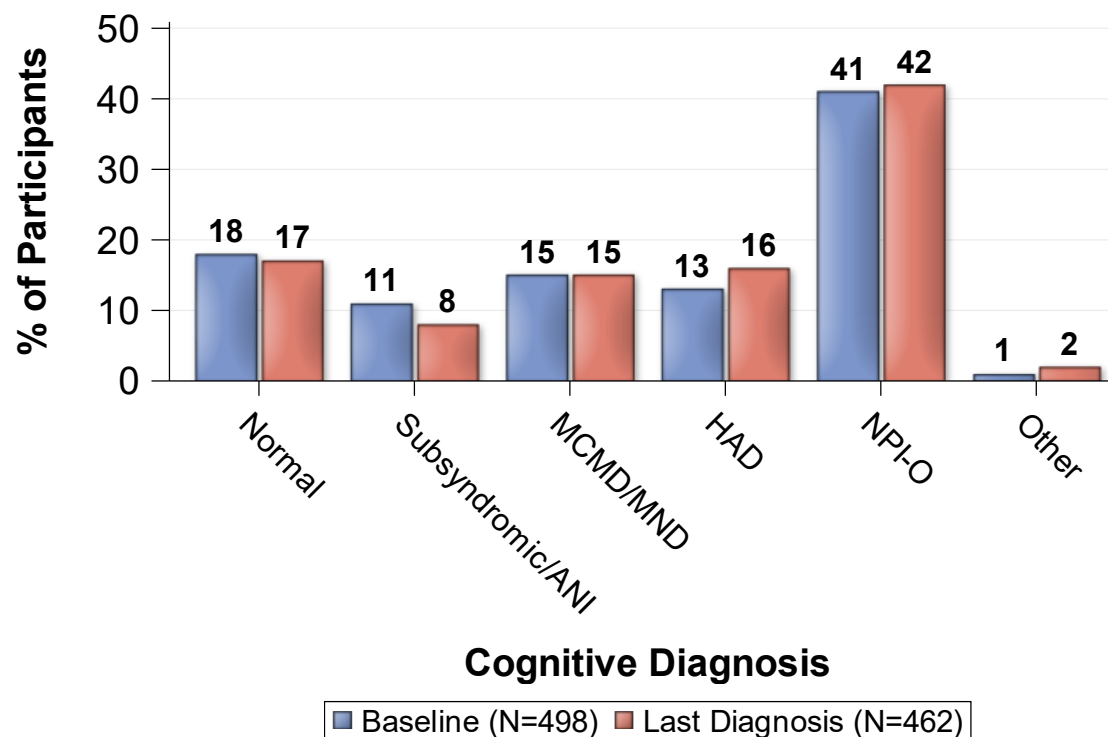
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Cognitive Diagnosis

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.

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Change in Cognitive Diagnosis

Baseline Diagnosis categories: Normal (N=79), Subsyndromic/ANI (N=56), NPI-O (N=114), MCMD/MND (N=57), HAD (N=34)

Last Diagnosis legend: Normal, Subsyndromic/ANI, NPI-O, MCMD/MND, HAD

01MAY2024
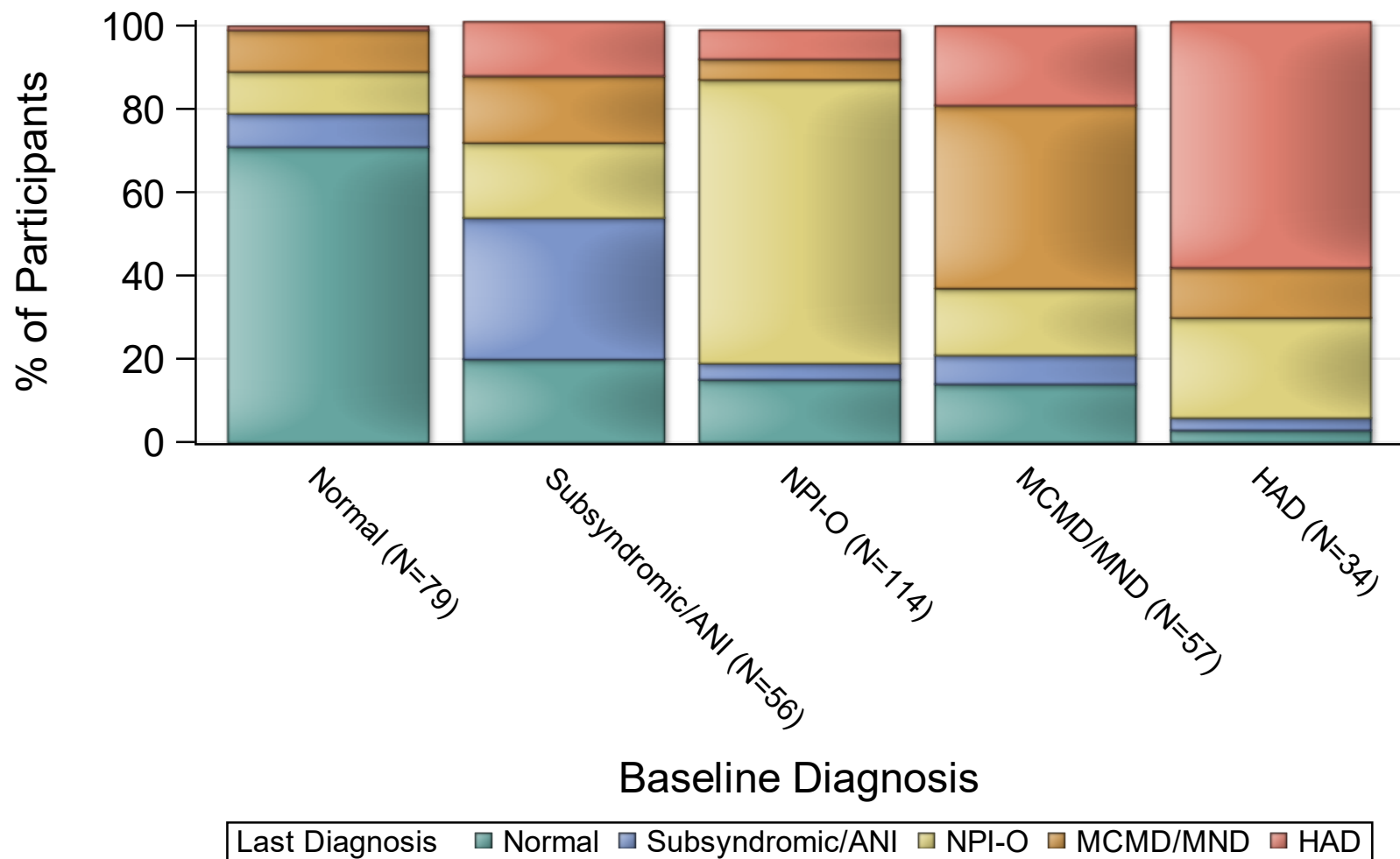
Neurologic Diagnoses*

	Last Dx		Baseline	
	N	**%**	**N**	**%**
Clinical Myelopathy	(N=441)		(N=499)	
HIV associated	50	11	56	11
Other	9	2	12	2
None	382	87	431	86
Neuropathy	(N=375)		(N=429)	
HIV associated DSP	173	46	168	39
Nucleoside associated	4	1	3	1
HIV/nucleoside	46	12	61	14
None	152	41	197	46

*Cases with a fixed brain specimen available.

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Participants Reporting Concomitant Medications

Medication	# of Pts (N=669)	%
Central Nervous System Agents	580	86.7
Anti-infective Agents	517	77.3
Gastrointestinal Drugs	454	67.9
Cardiovascular Drugs	348	52
Vitamins	326	48.7
Hormones and Synthetic Substitutes	322	48.1
Electrolytic, Caloric, and Water Balance	284	42.5
Autonomic Drugs	262	39.2
Blood Formation, Coagulation, and Thrombosis Agents	222	33.2
Skin and Mucous Membrane Agents	149	22.3
Antihistamine Drugs	144	21.5
Miscellaneous Therapeutic Agents	137	20.5
Antineoplastic Agents	116	17.3
Eye, Ear, Nose, and Throat (EENT) Preparations	93	13.9
Respiratory Tract Agents	66	9.9
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

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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	2163	20	156	8
Mean Corpuscular Hemoglobin (MCH)	2155	20	157	9
Mean Corpuscular Volume (MCV)	4789	58	494	23
Mean Corpuscular Hemoglobin Concentration (MCHC)	2150	20	157	8
Blood Red cell Distribution Width (RDW)	2048	13	94	6
Blood Rapid Plasma Reagin (RPR)	766	35	239	6
Blood Neutrophil Percent	4433	50	418	20
Blood Lymphocyte Percent	4663	56	477	22
Blood Monocyte Percent	4538	56	476	22
Blood Eosinophil Percent	4508	56	475	22
Blood Basophil Percent	4500	55	472	21
Blood Mean Platelet Volume (MPV)	1582	10	72	5
Blood CD3 Percent	168	9	73	3
Blood CD3 Absolute	55	2	9	0
Miscellaneous Serology & viralogy				
Blood Hepatitis B Surface Antigens	598	41	315	6
Blood Hepatitis B Surface Antibodies	492	33	253	5
Blood Hepatitis B Core Antibodies	439	31	235	4
Blood Hepatitis B Viral Load	55	3	20	0
Blood Hepatitis C Antibodies (HCV)	933	65	453	9
Blood Hepatitis C Viral Load	310	22	123	2
Miscellaneous Serology & viralogy				
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	4662	60	502	23
Hemoglobin A1c	605	19	93	3
Sodium	4231	61	506	23
Calcium	4005	58	486	21
Chloride	4040	58	470	20
Potassium	4137	58	472	21
Total Protein	2964	55	439	19
Alkaline Phosphatase	3073	56	467	20
AST	2993	54	440	19
ALT	3074	55	450	19
Total Bilirubin	3259	60	497	22
Direct Bilirubin	492	14	94	3
Creatinine	5399	74	611	27
BUN	4203	61	508	22
CO2	4189	56	463	20
PT	1568	37	283	13
INR	1547	36	266	12
Urate	127	8	56	1
Triglycerides	1244	37	246	9
Cholesterol	1262	37	245	9
LDL	978	28	161	6
HDL	1044	29	173	7
Phosphorus	1033	16	113	4
LDH	307	12	83	3
TSH	249	12	73	2
T4	24	2	6	0

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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 CSF values				
CSF-VDRL Test	229	9	56	3
Miscellaneous Urine values				
Urinalysis: Glucose	1371	37	296	14
Urinalysis: Protein	1397	37	300	14
Urinalysis: pH	1378	37	298	13
Urinalysis: Specific Gravity	1378	37	299	14
Urinalysis: Ketones	1370	37	297	14
Urinalysis: Bilirubin	1372	37	295	13
Urine Toxicology; Methamphetamine	544	15	106	7
Urinalysis: Red Blood Cells	926	30	218	9
Urinalysis: White Blood Cells	917	30	215	8

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