

The data presented in the following reports reflect the NNTC central database as of
July 21, 2025

Usage Statement

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

Questions regarding these data should be directed to the Data Coordinating Center
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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

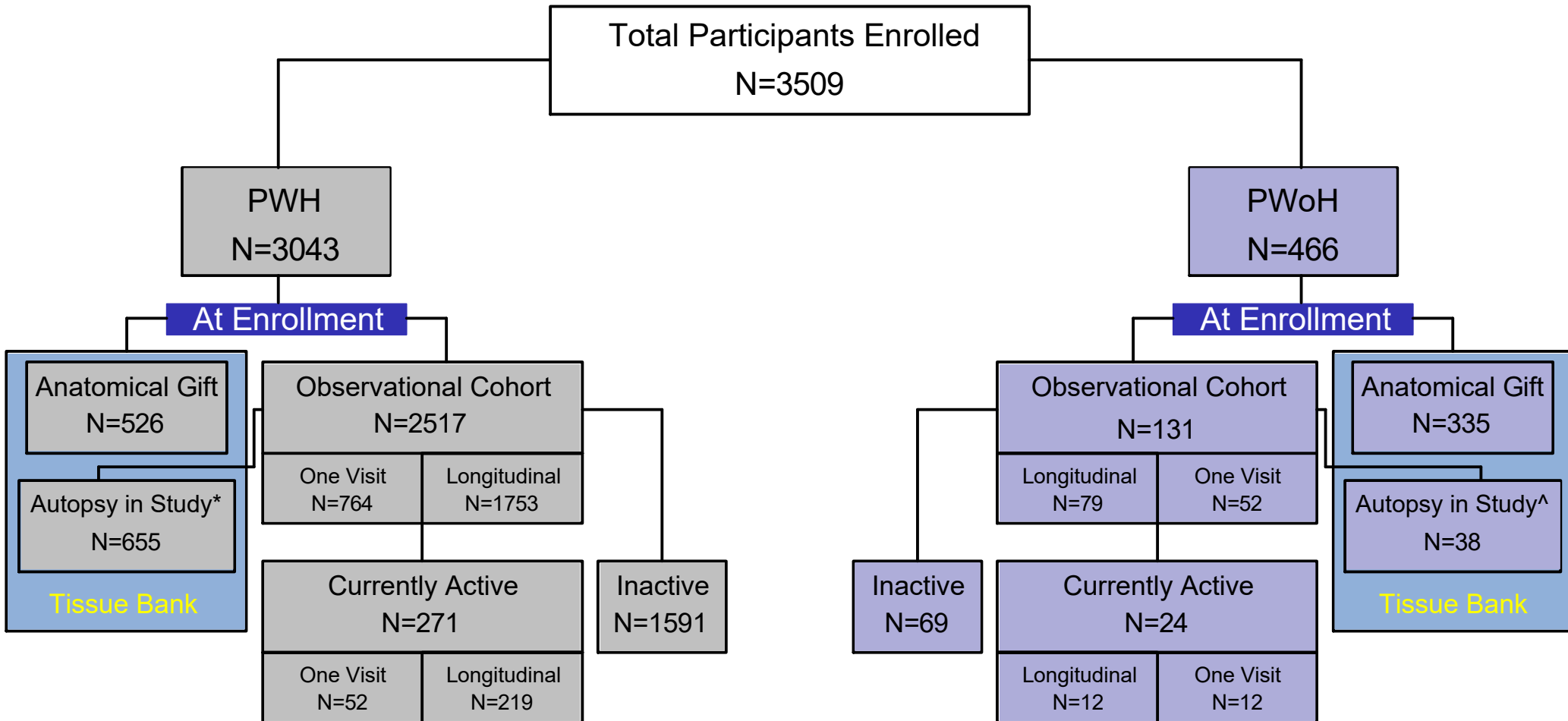
Manhattan HIV Brain Bank

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 264 cases categorized as unknown HIV status, unknown study status, lost to follow-up, administratively censored, withdrawn, or deceased without autopsy prior to enrollment.

PWH inactive cases are either lost to follow-up/administratively censored/withdrawn (N=1213) or deceased without autopsy (N=378).

PWoH inactive cases are either lost to follow-up/administratively censored/withdrawn (N=49) or deceased without autopsy (N=20).

* 266 autopsy cases included in Observational Cohort; 389 autopsy cases included in Longitudinal Cohort.

^ 24 autopsy cases included in Observational Cohort; 14 autopsy cases included in Longitudinal Cohort.

NNTC Participants Co-enrolled or in a Special Cohort

Study Name:	# Participants Enrolled
WIHS	68
CHARTER	125
Last Gift	48
NIDA Opioid	53

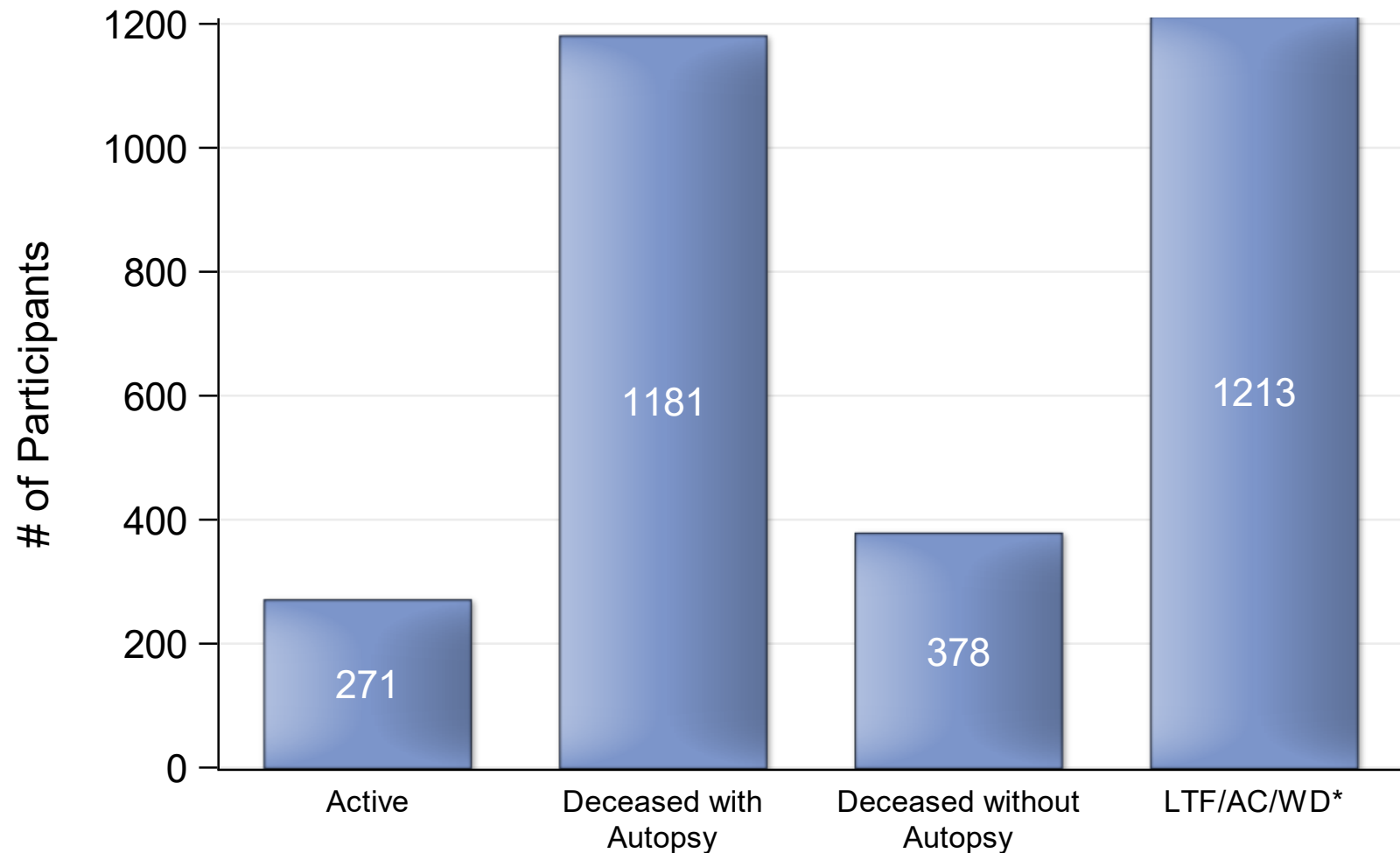
WIHS: The Women's Interagency HIV Study (WIHS) was established in 1993 as a multi-center, prospective, observational cohort study of women living in the United States. The study was closed in 2018 after which it was merged with the Multicenter AIDS Cohort Study (MACS) under a unified study comprising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

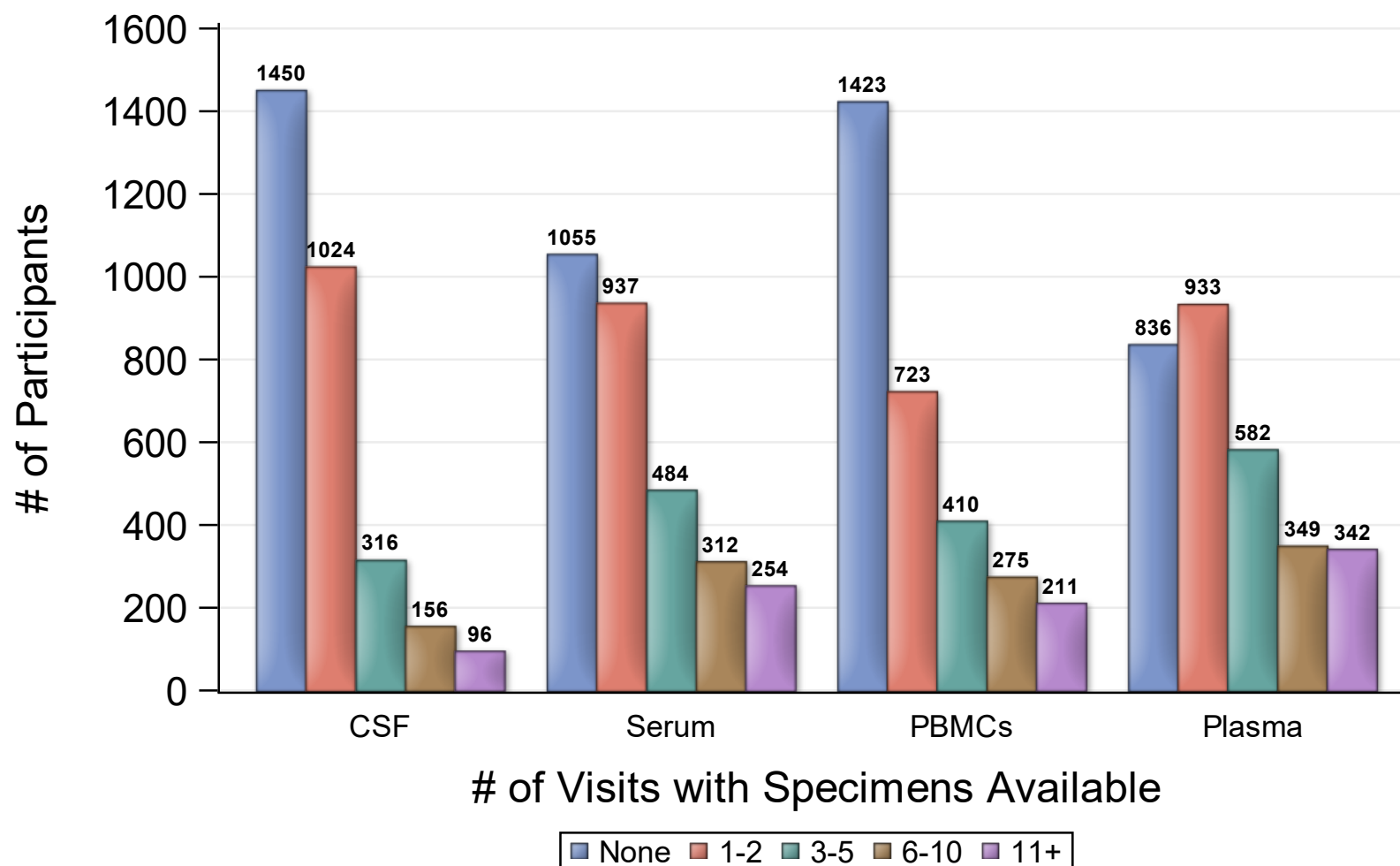
NIDA Opioid Study: The NIDA Opioid Study was a supplemental grant that was awarded to the NNTC starting in 2019 to allow for the collection of up to 100 brains from donors without HIV who died of an opiate related overdose. The tissues collected are designed to bolster the supply of HIV negative control 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=3043)



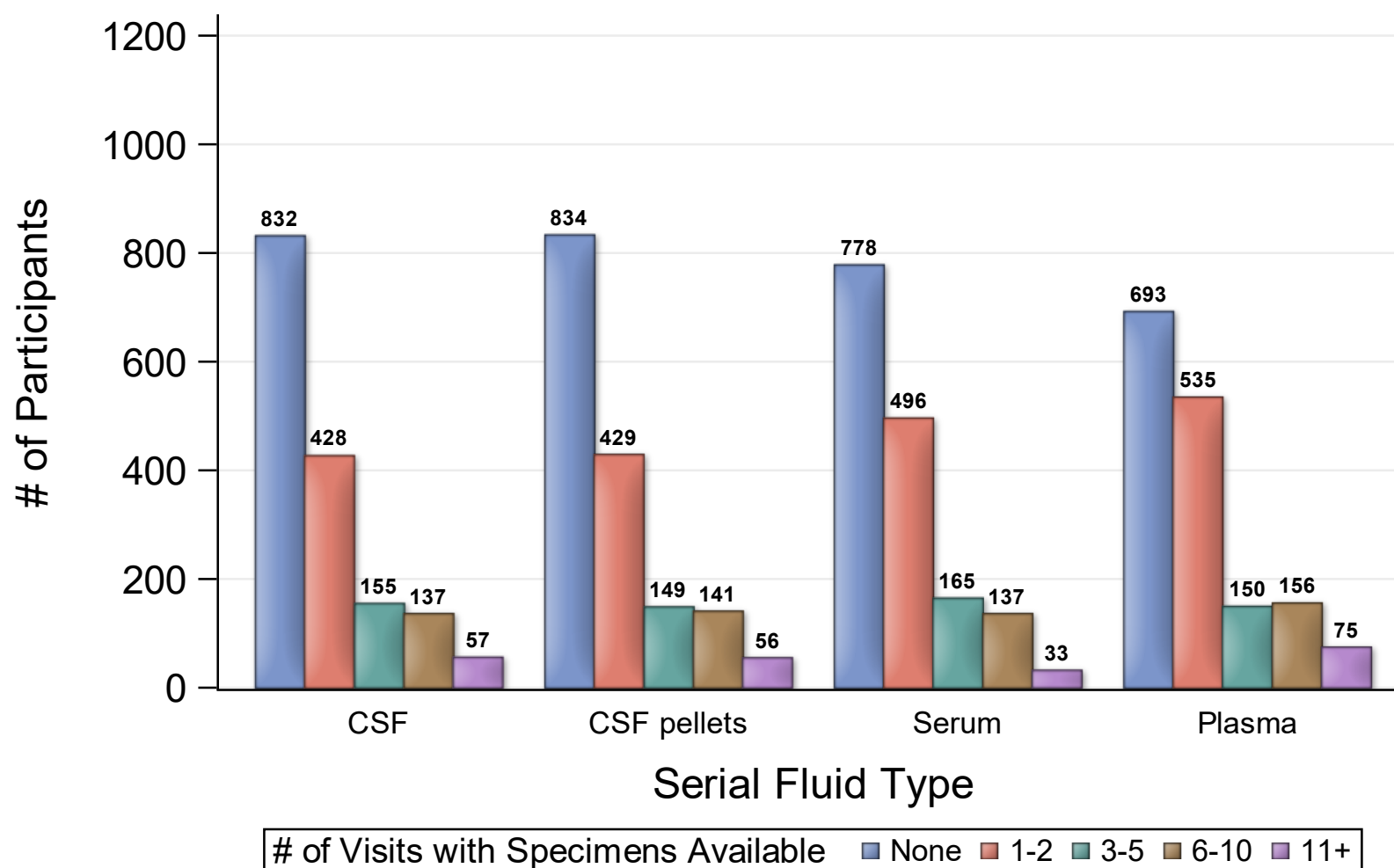
*Group #'s reflect only those lost to follow-up (LTF), administratively censored (AC), or withdrawn (WD) on study

Serial Fluid Specimen Inventory



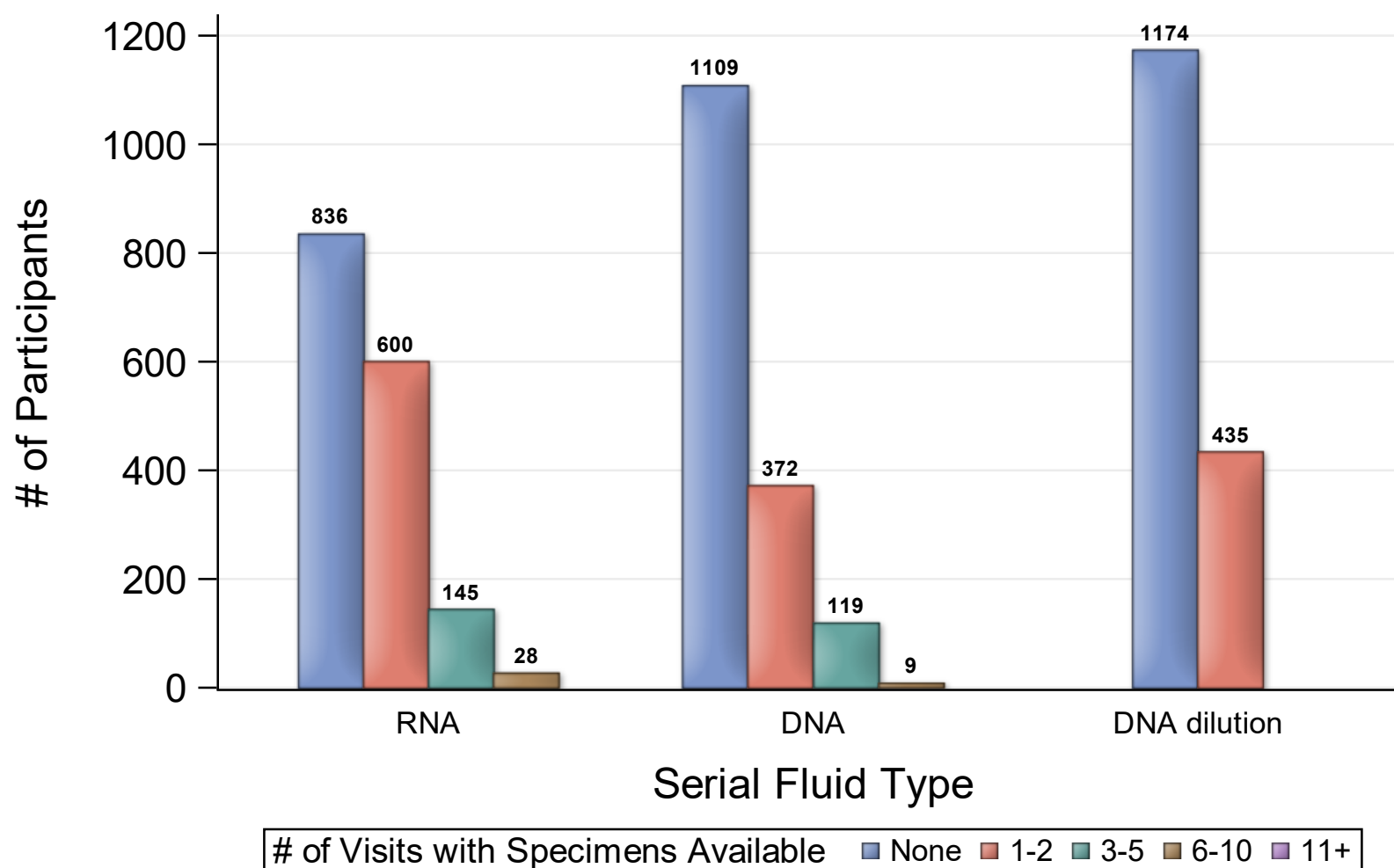
*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted; Inventory totals include both ante- and post-mortem collections.

CHARTER Serial Fluid Specimen Inventory



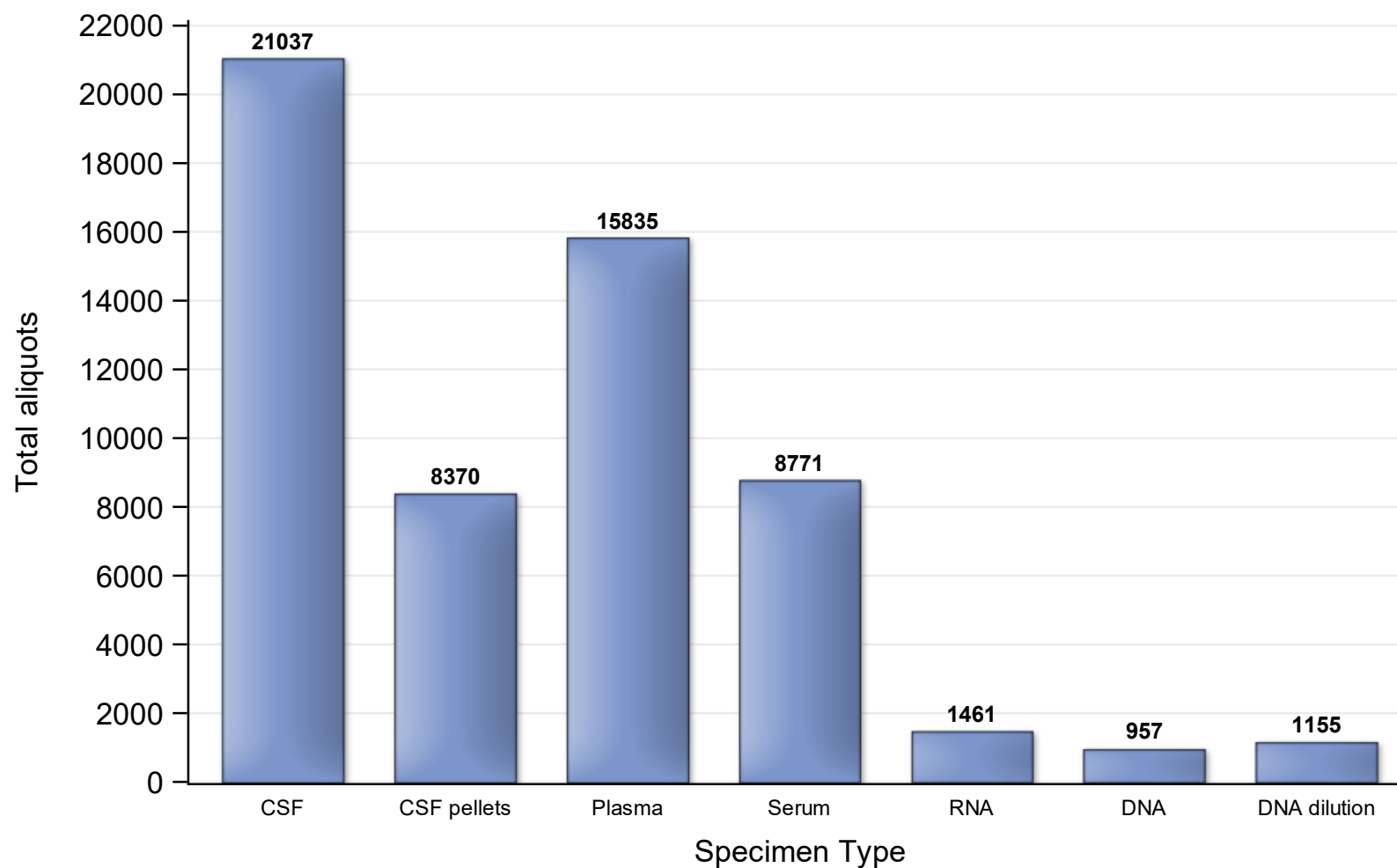
*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted.
CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

CHARTER Serial Fluid Specimen Inventory

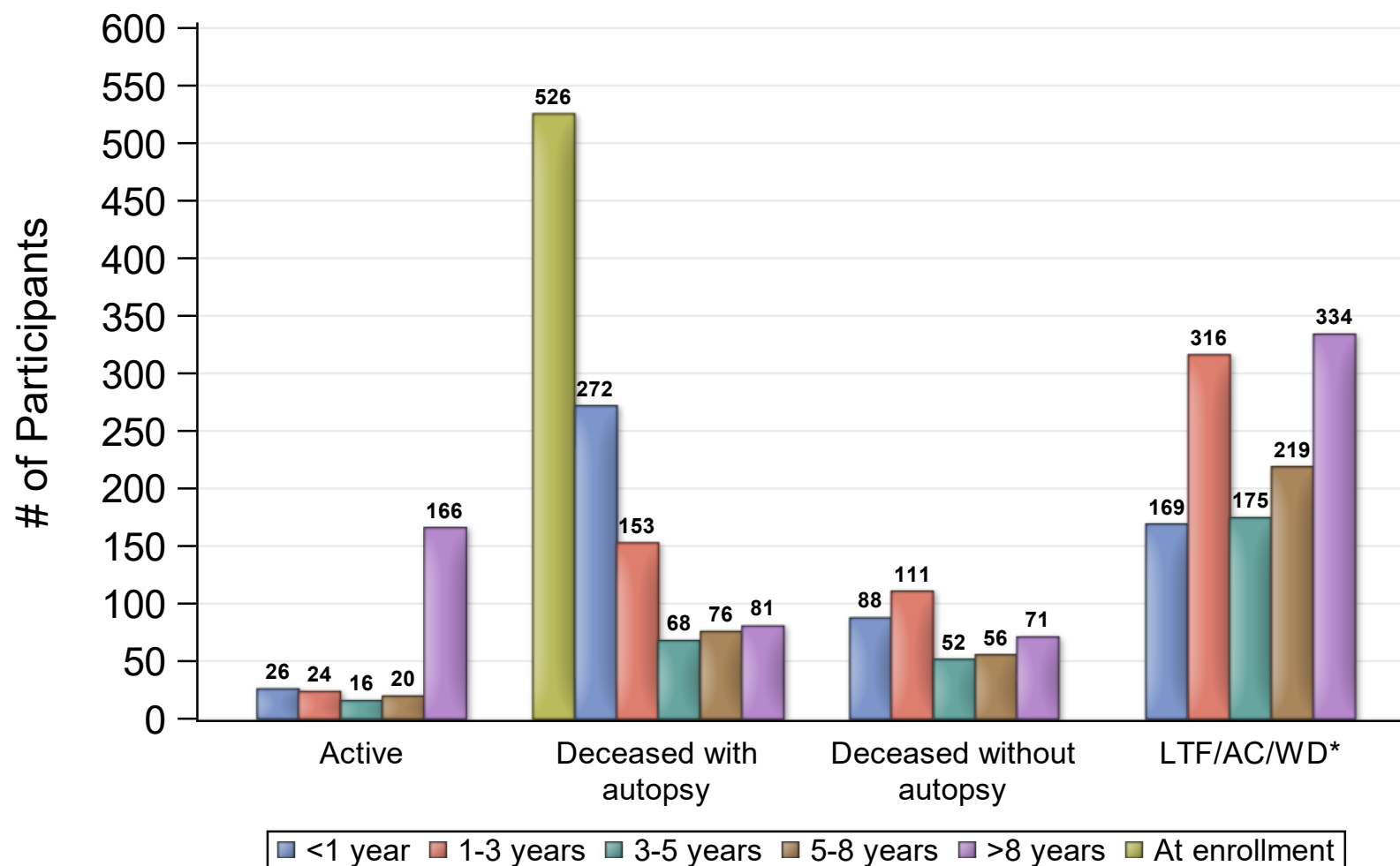


*Each bar represents # of participants. 'None' represents a visit where the specimen type was either not collected or is depleted.
CHARTER data presented on slides 11, 12, 13, 18, 19, 20 and 21 only.

Total Available CHARTER Aliquots by Specimen Type

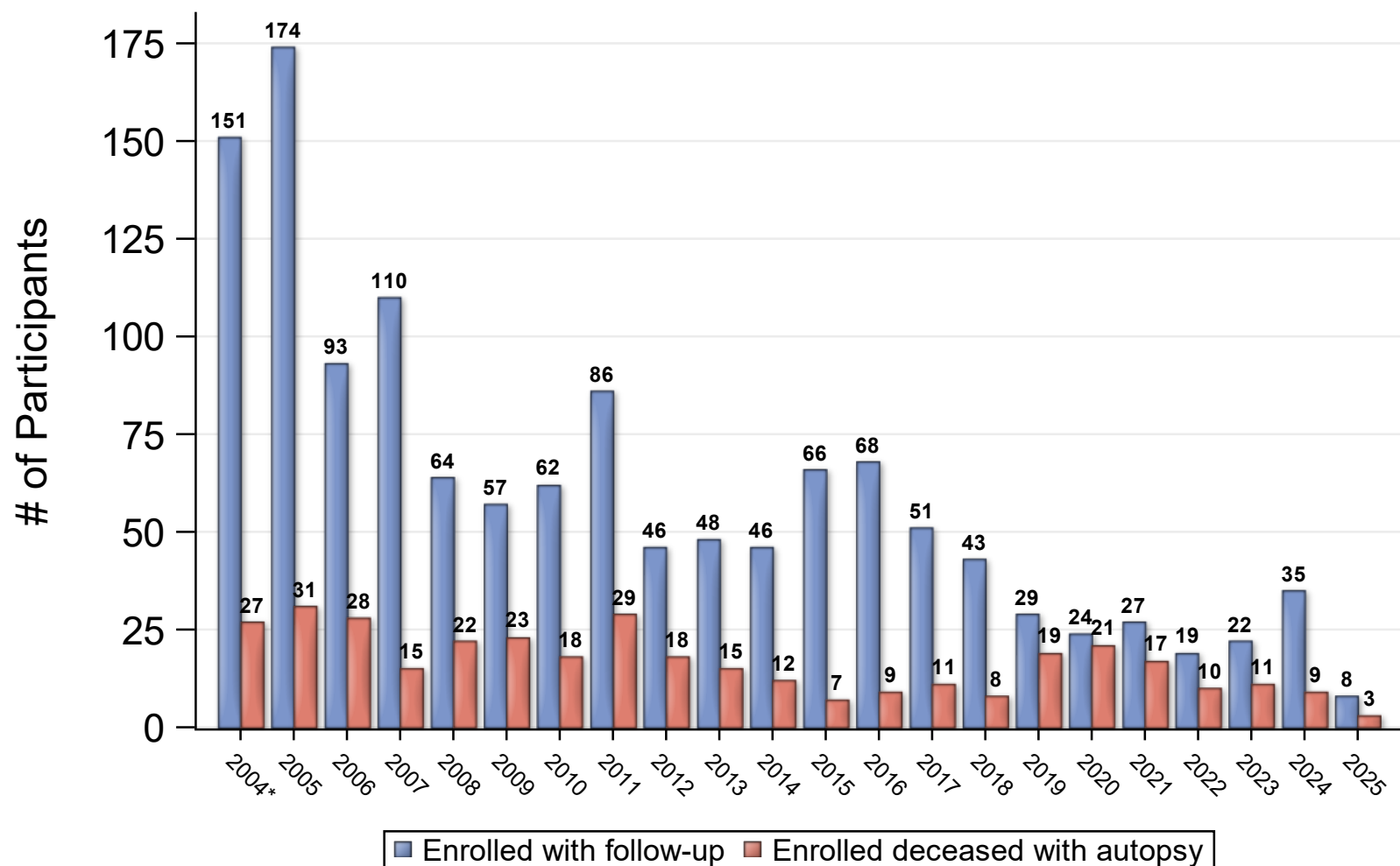


Length of Study Participation



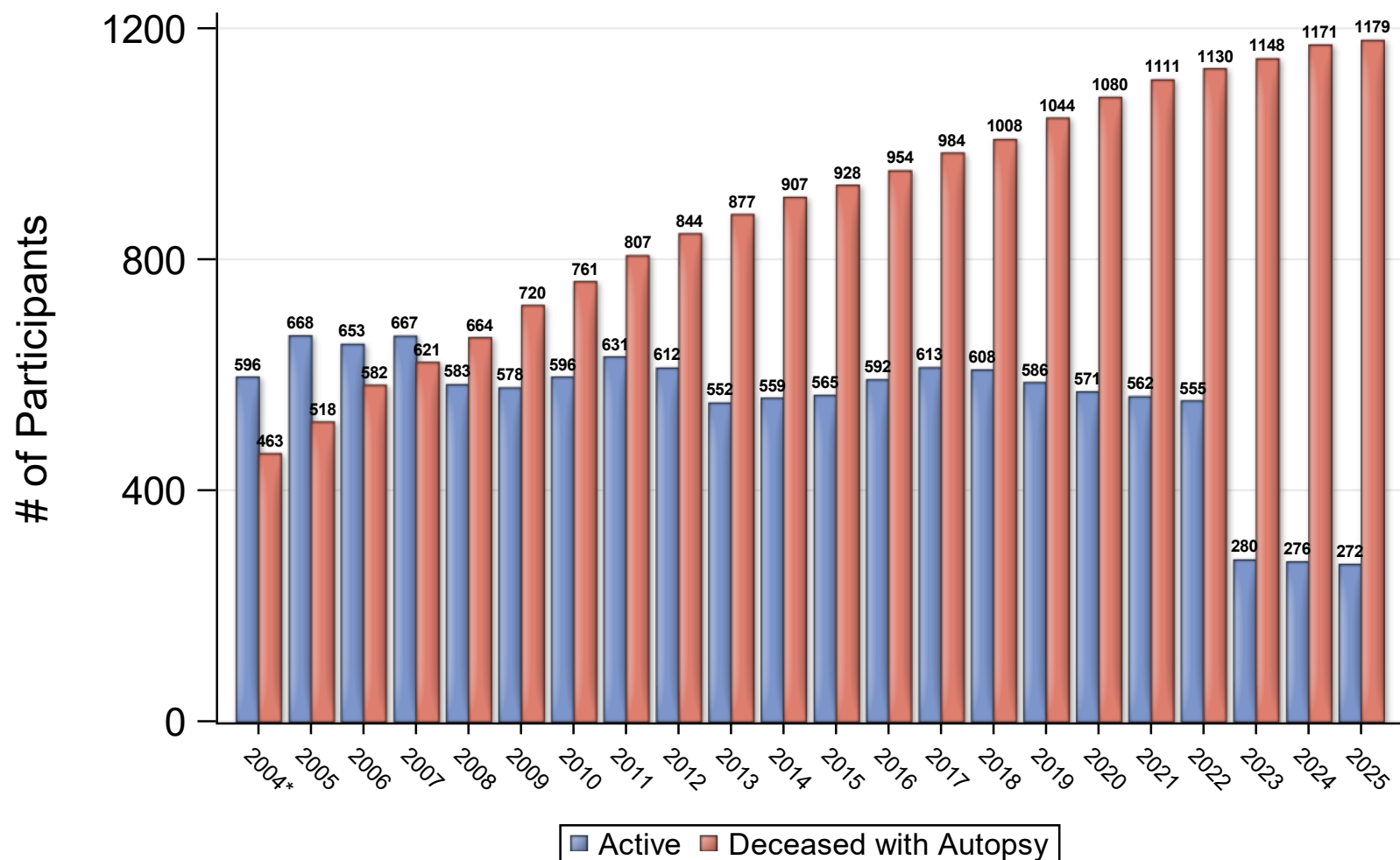
*LTF = Lost to follow-up (LTF); AC = Administratively censored; WD = Withdrawn

Participants Enrolled by Year



*1188 Enrolled with follow-up and 163 Enrolled deceased with autopsy prior to 2004

Cohort Status Over Time



*794 Active and 398 Deceased w/ Autopsy prior to 2004

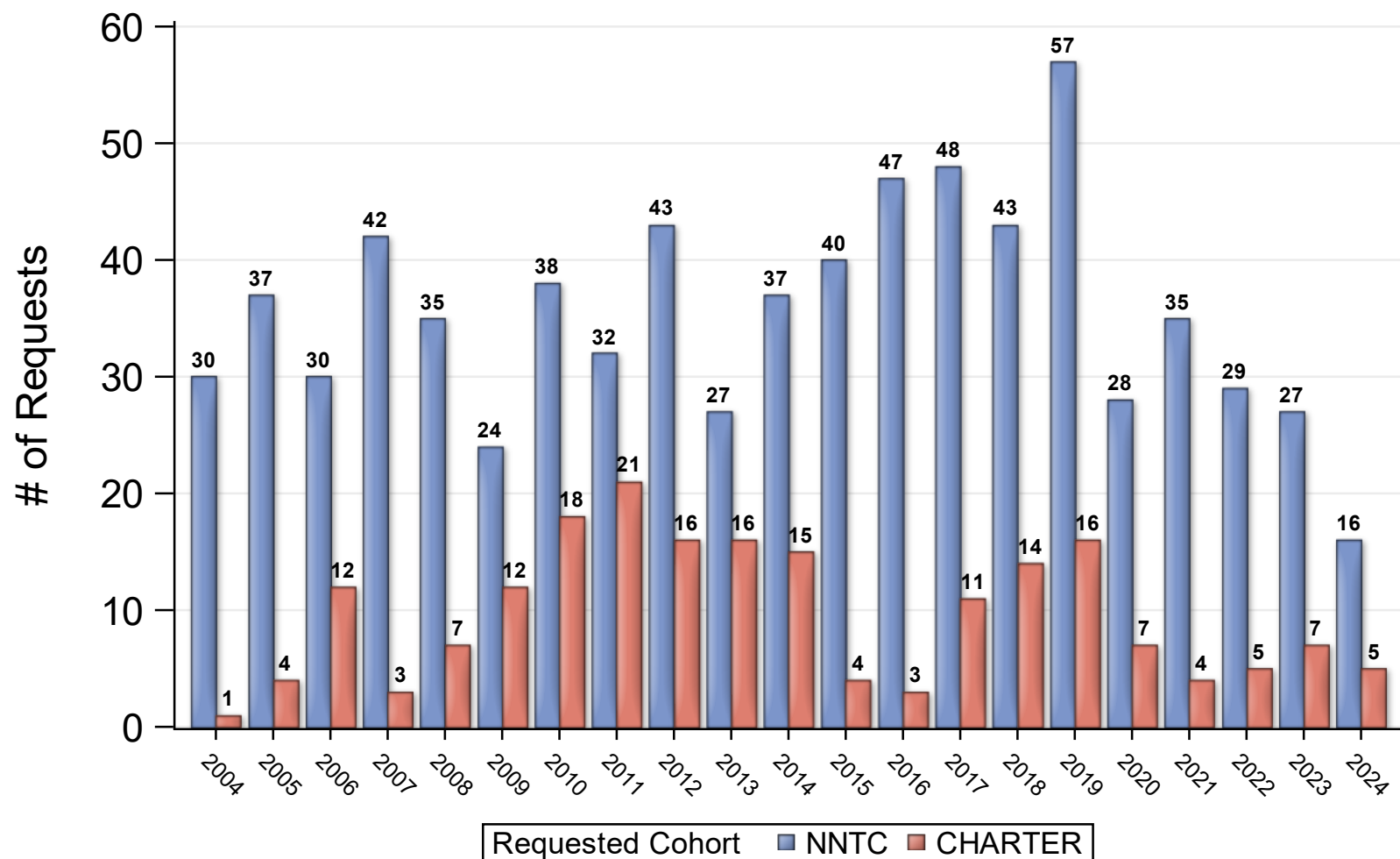
Diagnostic Normality

Diagnosis at Baseline:	Active Cohort (N=271)	Overall Cohort (N=2517)
Normal Neuromedical Diagnosis	112 (41%)	614 (24%)
No abuse/dependence on PRISM/CIDI*	83 (31%)	523 (21%)
Both normal (Neuromedical & PRISM/CIDI)	38 (14%)	146 (6%)

Diagnosis ≥ 5 yrs on study:	Active Cohort (N=186)	Overall Cohort (N=1022)
Normal Neuromedical Diagnosis	66 (35%)	310 (30%)
No abuse/dependence on PRISM/CIDI*	64 (34%)	251 (25%)
Both normal (Neuromedical & PRISM/CIDI)	29 (16%)	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)

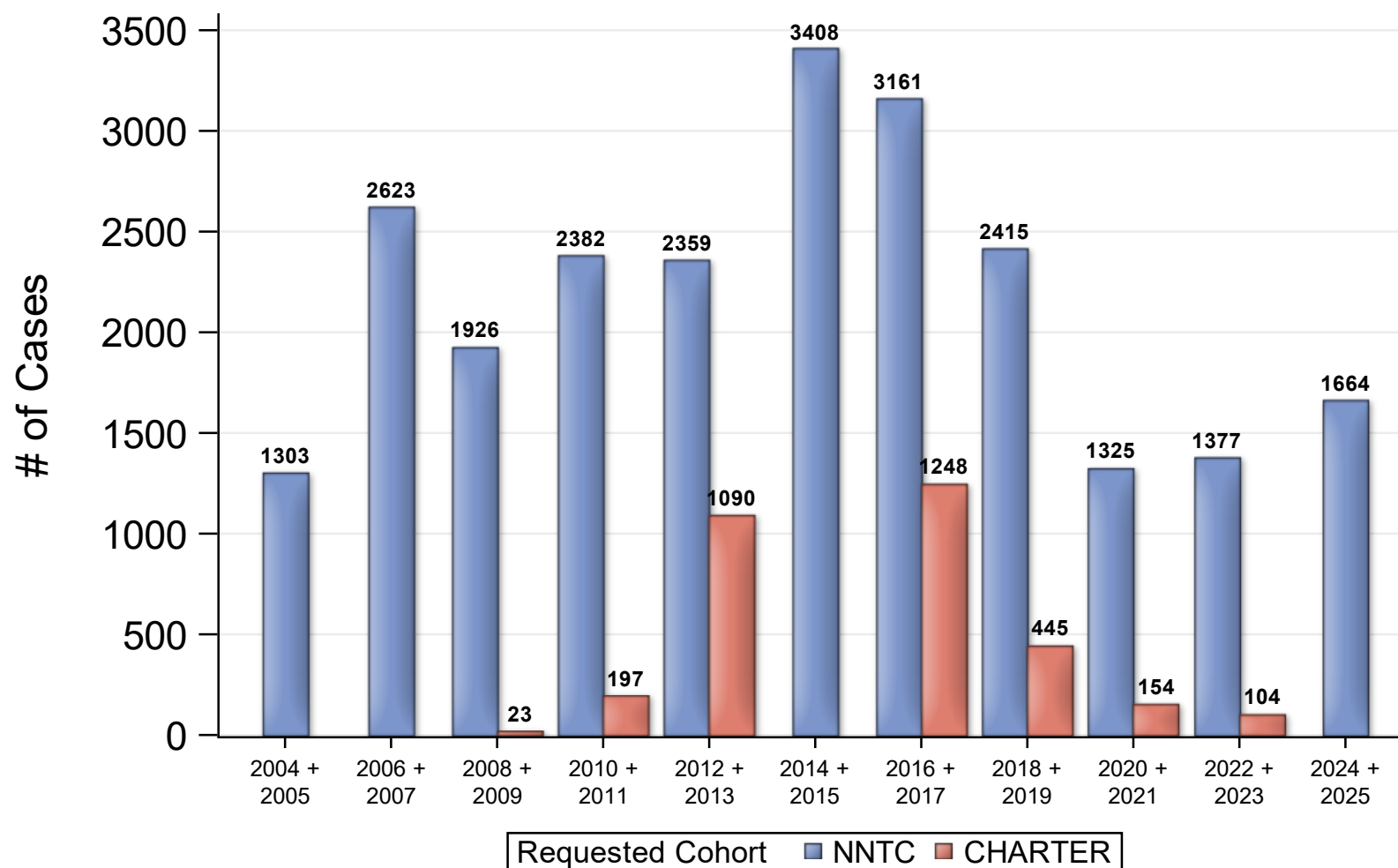


*95 requests submitted prior to 2004. Resource requests include consortium-wide requests and local requests for biospecimens, as well as requests for data and Letters of Support for grant submissions.

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

Cases Shipped by Year*

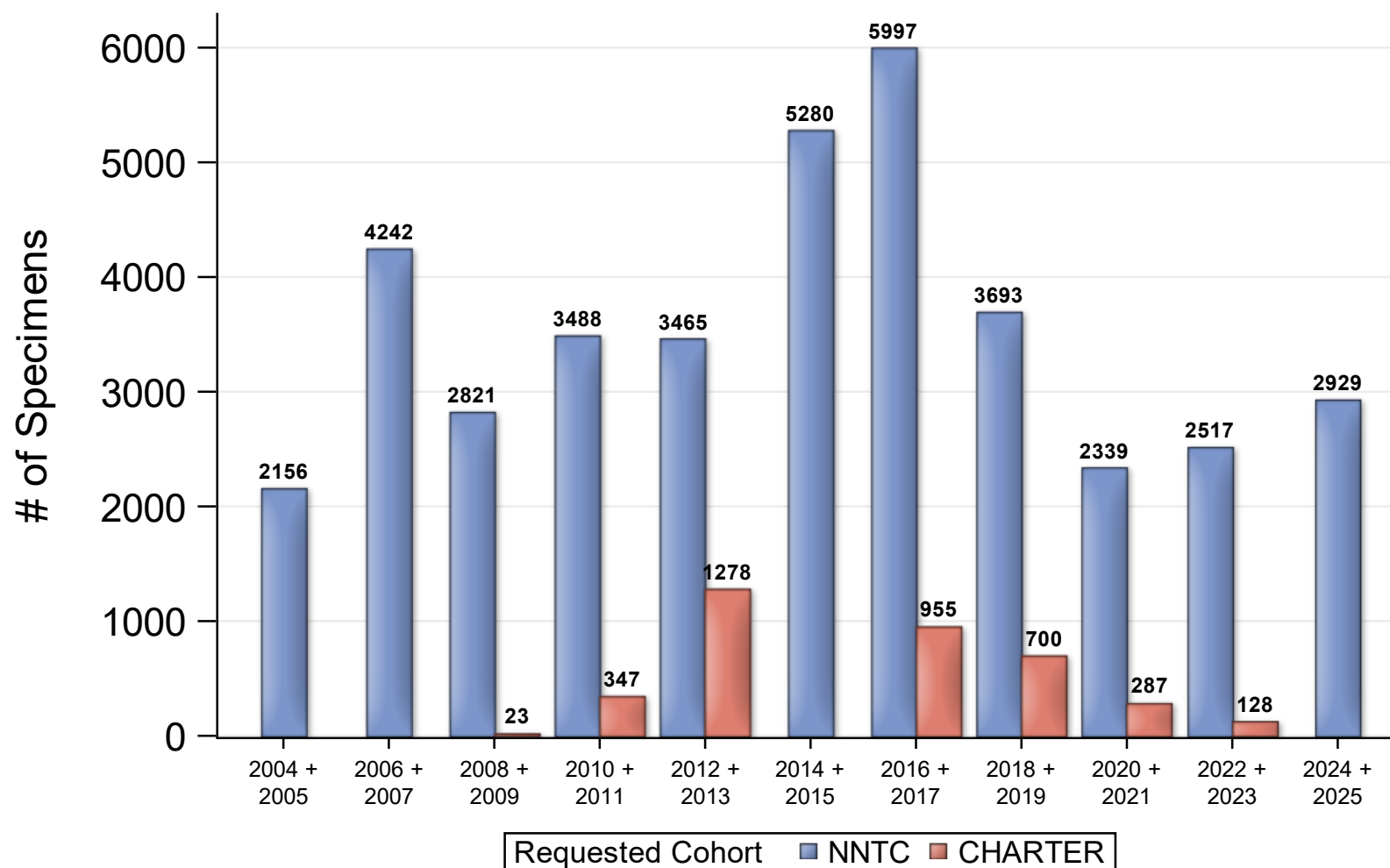
Cases Shipped (N=28827)



*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.

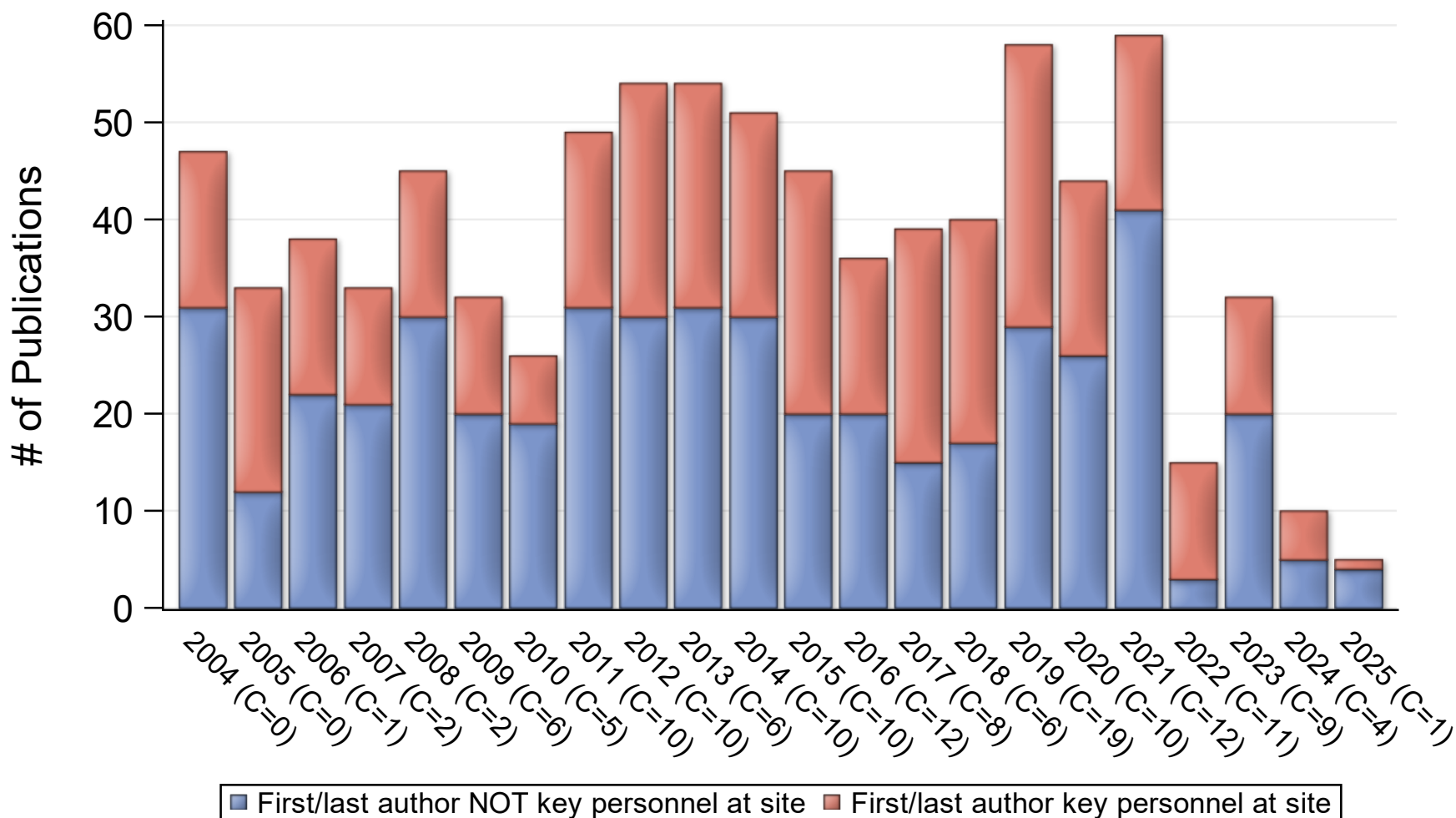
Specimens Shipped (N=45092)



*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=919; CHARTER N=154)



*74 publications prior to 2004.

Total N includes 154 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	647	86	Other	118	16
Positive	109	14	Roche COBAS 6800 System	117	15
Unique participants tested positive	41	29*	Agena MassARRAY	98	13
	3	.	CDC PCR Test (FDA Approved)	73	10
			Cepheid GeneXpert	64	8
<u>Site</u>			Lumria Dx	50	7
Nasopharyngeal swab	208	27	DiaSorin Molecular PCR Test (FDA Approved)	33	4
Nasopharynx	208	27	Panther	31	4
Anterior Nares	161	21	COVID-19 IgM/IgG Rapid Test	29	4
Nasal swab	36	5	ABBOT SARS-COV-2 IGG/IGM ASSAY	28	4
Blood	8	1	ID NOW Assay	8	1
Pharyngeal swab	1	0	DiaSorin IgG test	4	1
Unknown	137	18	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	90	12

*Of unique participants tested.

Specimen collections

Type:	# cases*
CNS tissue	11
Systemic tissue	11
Pre-mortem fluids	38
Post-mortem fluids	7

*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.

Observational Cohort Overview

Baseline Demographics

<u>N</u>	<u>2488</u>
<u>Age</u>	
Mean	46.8
SD	11.2
25th Percentile	39
Median	45
75th Percentile	53

Baseline Demographics cont.

	<u>N</u>	<u>%</u>
<u>Sex</u>		
Male	2041	81
Female	464	19
<u>Ethnicity</u>		
Hispanic origin	668	27
<u>Race</u>		
White	1402	56
Black	822	33
Other	281	11

Baseline Demographics cont.

	<u>N</u>	<u>%</u>
<u>Furthest Education</u>		
8th grade or less	238	10
Some High School	476	20
High School Graduate	509	22
Some College/Associate's Degree	655	28
College Graduate	261	11
Advanced Degree work	187	8

Baseline HIV Characteristics

	<u>N</u>	<u>%</u>
<u>HIV risk</u>		
IV drug use	592	24
Male to male sex	1174	47
Heterosexual sex	552	22
Other	187	7
ARV med use	2309	92

Baseline HIV Characteristics cont.

CD4 Count (cells/mm³, N=2329)

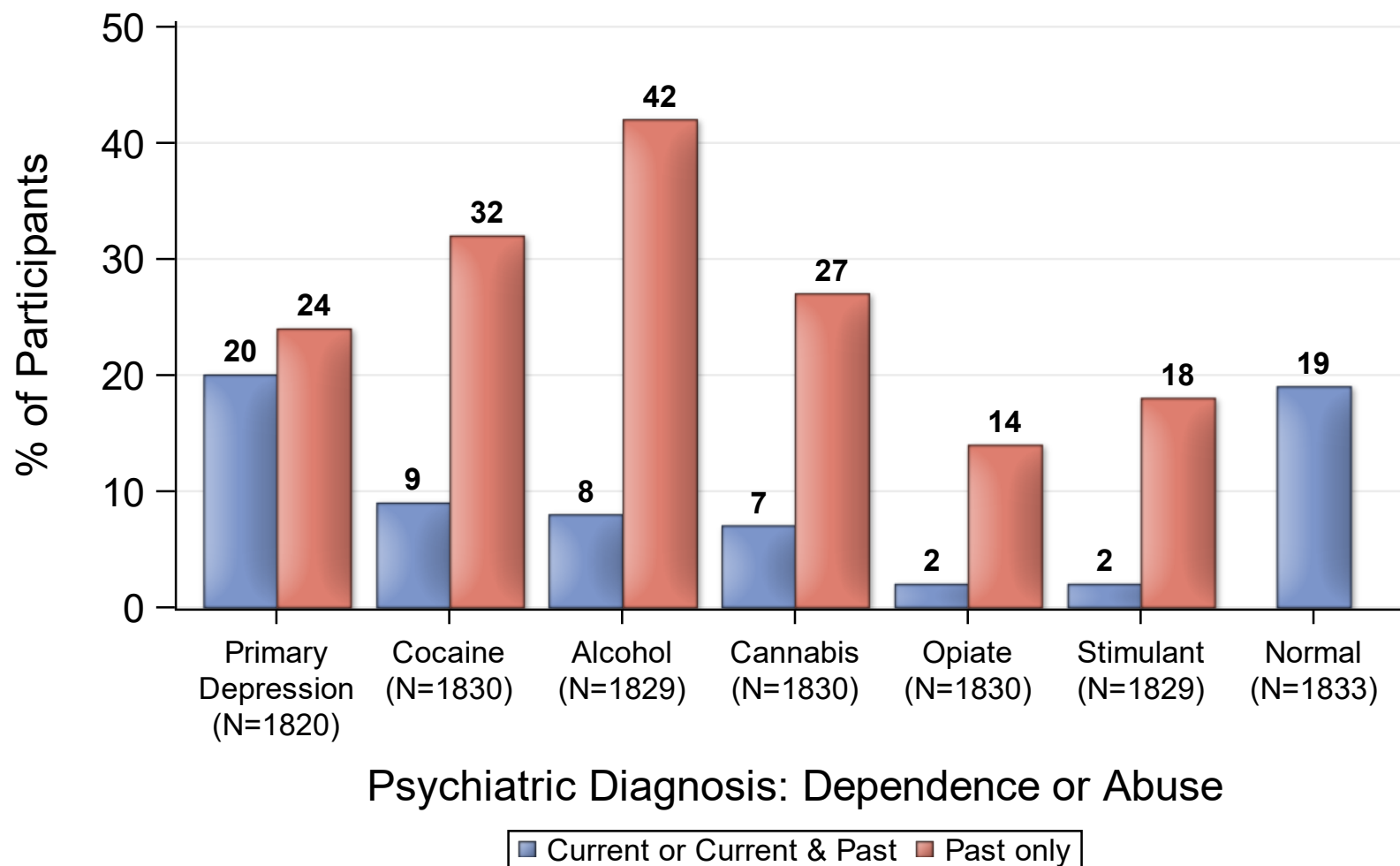
25th Percentile	54
Median	177
75th Percentile	413

Log Plasma Viral Load* (log10 copies/mL, N=2067)

25th Percentile	1.70
Median	2.60
75th Percentile	4.49

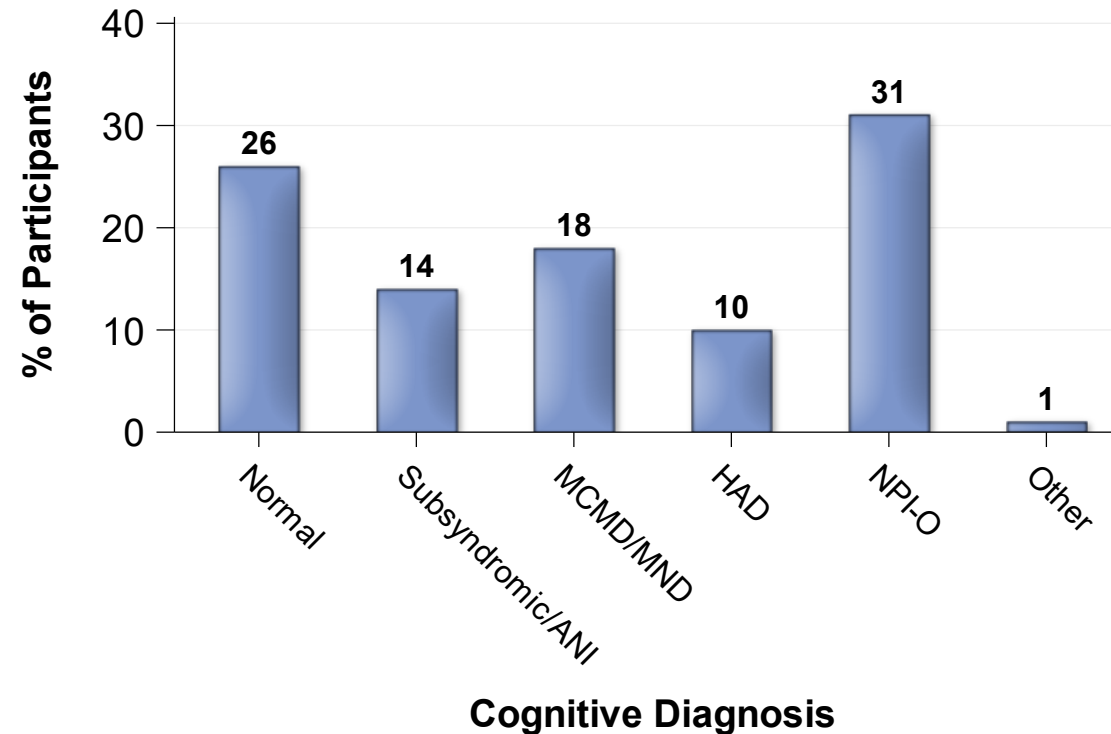
*Among those with known ARV medication status. 7 participants had detectable VL values of 0 where a viral log could not otherwise be calculated.

Baseline Psychiatric Diagnoses



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

Baseline Cognitive Diagnosis (N=2322)*



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

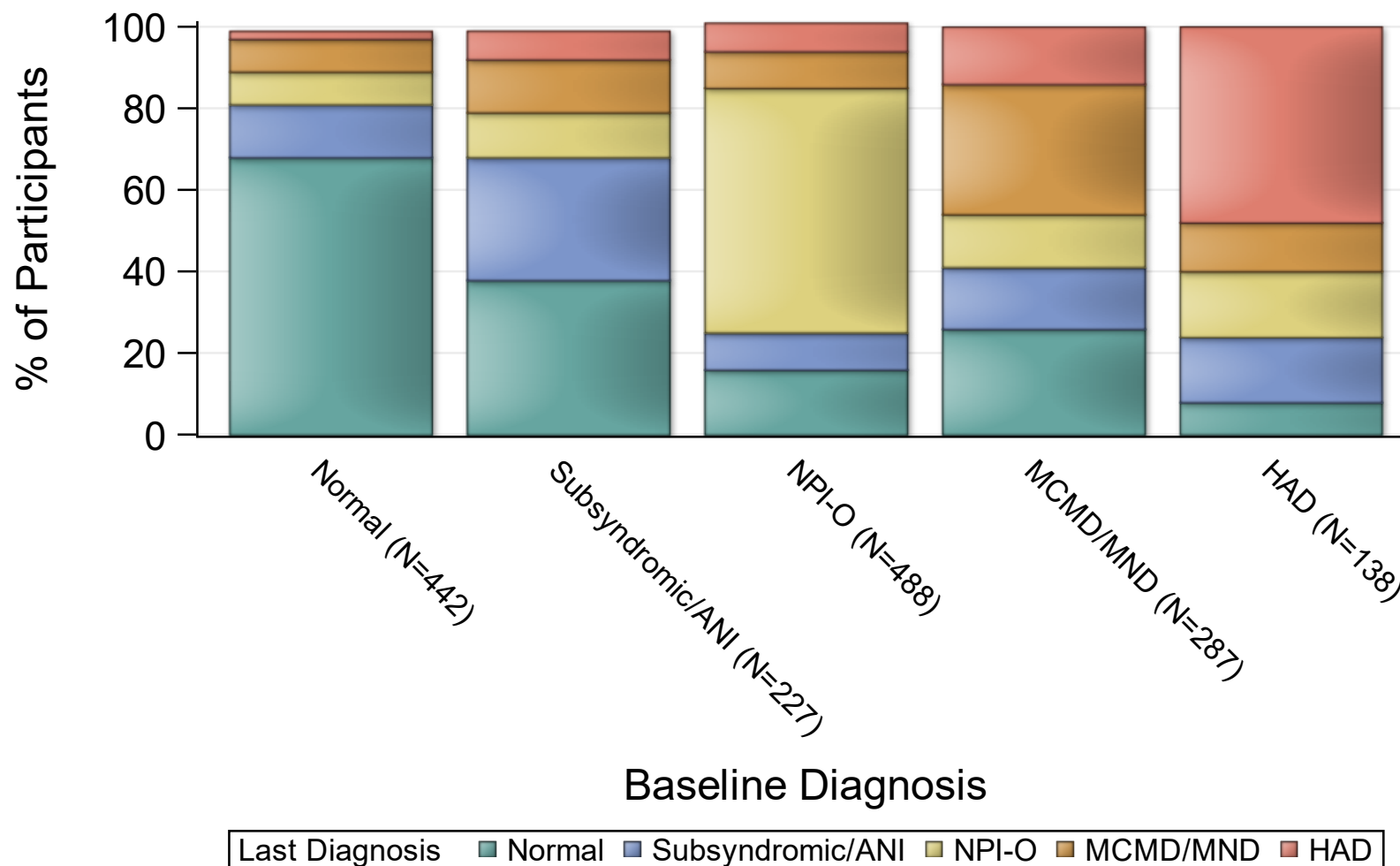
MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

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

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

Change in Cognitive Diagnosis



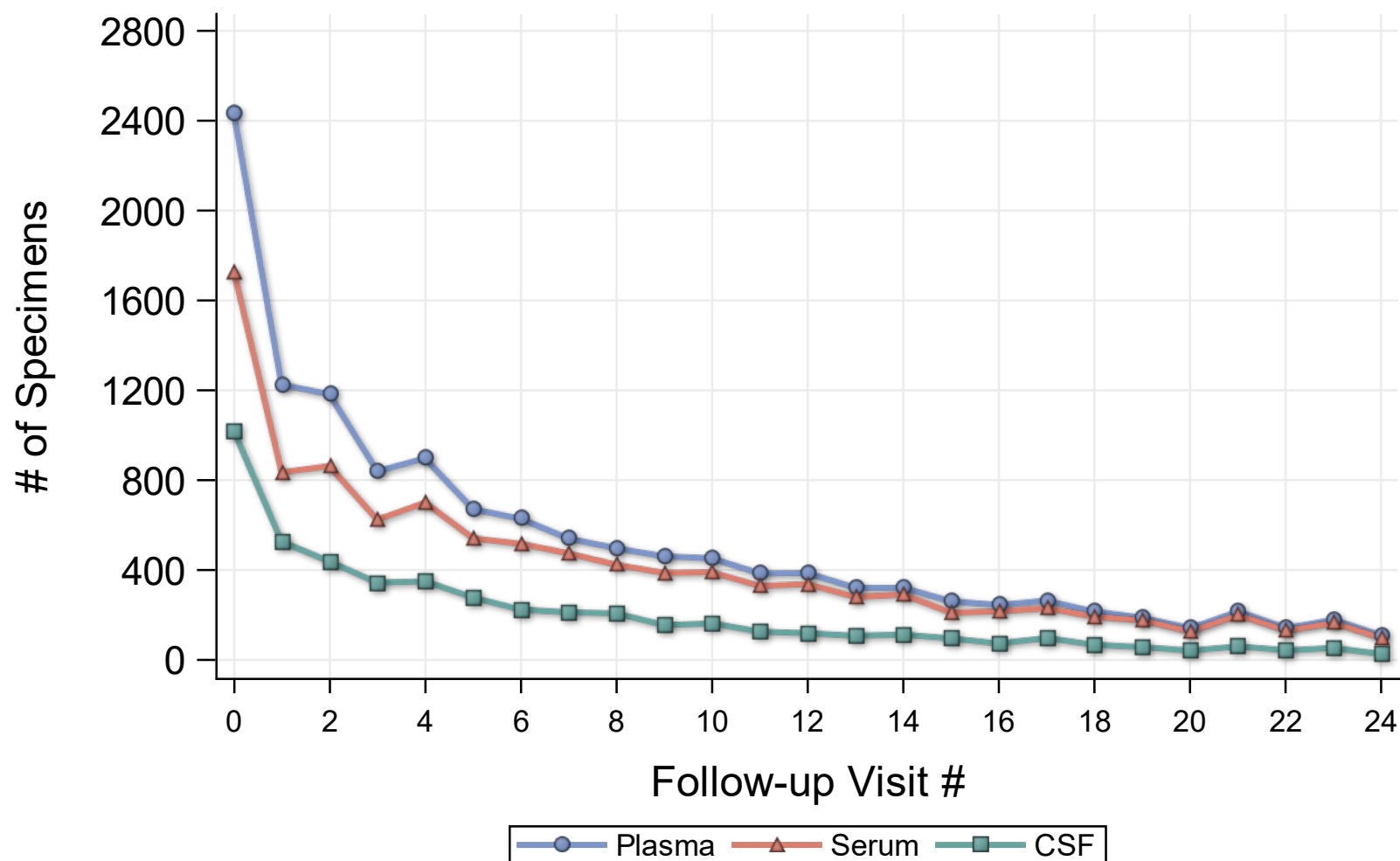
Baseline Neurologic Diagnoses

	<u>N</u>	<u>%</u>
<u>Clinical Myelopathy (N=2269)</u>		
HIV associated	166	7
Other	30	1
None	2073	91

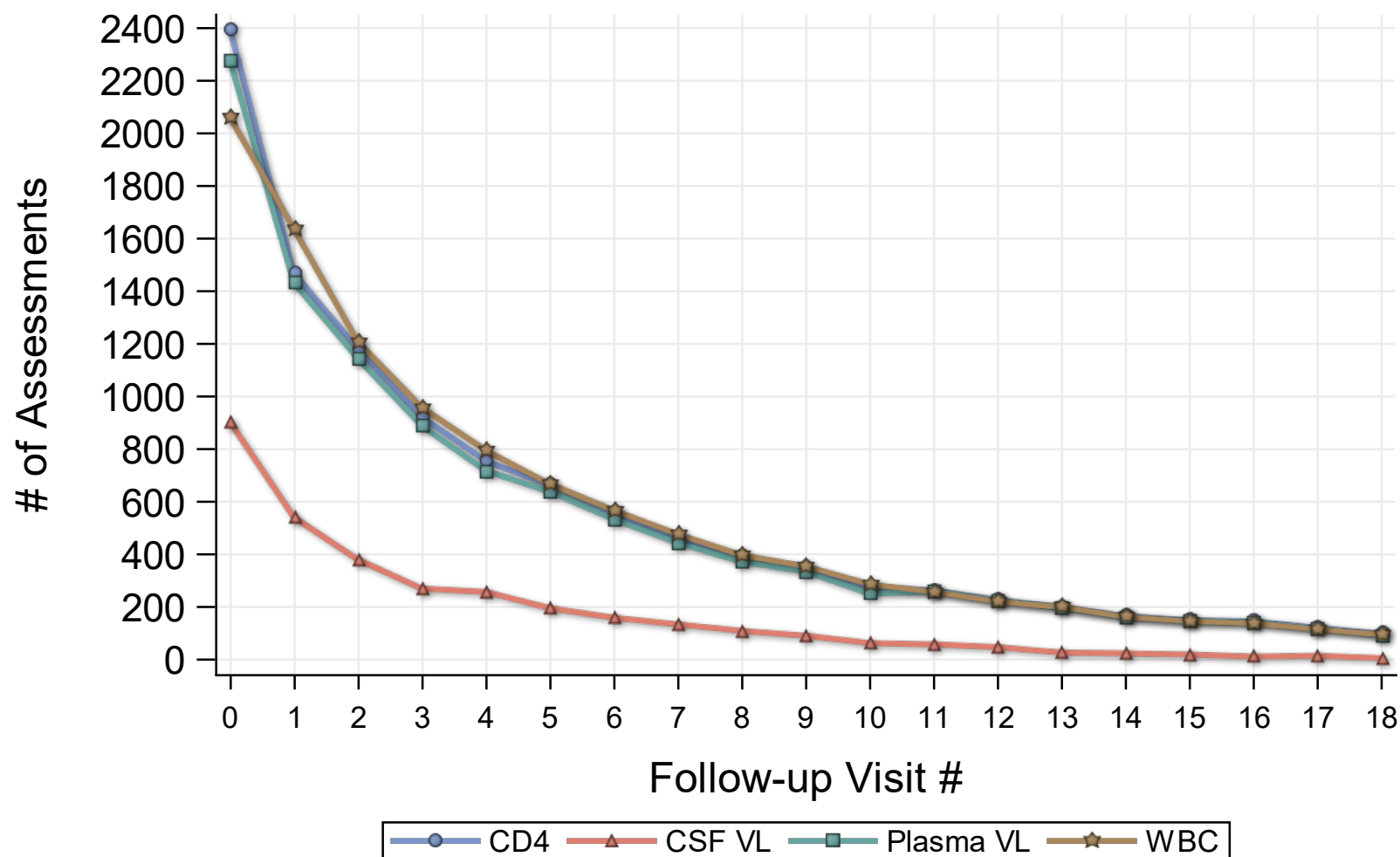
Neuropathy (N=2135)

HIV associated DSP	718	34
Nucleoside associated	11	1
HIV/nucleoside	210	10
None	1196	56

Number of Available Fluid Collections, By Visit



Number of Assessments Completed, By Visit



Participants Reporting Concomitant Medications

Medication	# of Pts (N=2012)	%
Central Nervous System Agents	1782	88.6
Anti-infective Agents	1565	77.8
Gastrointestinal Drugs	1236	61.4
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	27.2
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	8372	40	896	26
Mean Corpuscular Hemoglobin (MCH)	8342	40	893	26
Mean Corpuscular Volume (MCV)	16578	61	1419	43
Mean Corpuscular Hemoglobin Concentration (MCHC)	8308	39	890	26
Blood Red cell Distribution Width (RDW)	6557	28	441	12
Blood Rapid Plasma Reagin (RPR)	2010	26	353	7
Blood Neutrophil Percent	14225	48	946	28
Blood Lymphocyte Percent	16384	60	1400	42
Blood Monocyte Percent	16074	61	1395	41
Blood Eosinophil Percent	15971	60	1378	41
Blood Basophil Percent	15708	59	1330	39
Blood Mean Platelet Volume (MPV)	4659	19	256	8
Blood CD3 Percent	3060	24	554	16
Blood CD3 Absolute	1317	13	134	4
<u>Miscellaneous Serology & virealogy</u>				
Blood Hepatitis B Surface Antigens	1067	21	427	6
Blood Hepatitis B Surface Antibodies	1022	21	407	6
Blood Hepatitis B Core Antibodies	956	21	408	5
Blood Hepatitis B Viral Load	120	2	15	0
Blood Hepatitis C Antibodies (HCV)	2693	45	703	12
Blood Hepatitis C Viral Load	599	11	131	1
<u>Miscellaneous Serology & virealogy</u>				
COVID-19 Test Results (qualitative)	319	5	14	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 Blood Chemistries</u>				
Glucose	15588	64	1496	43
Hemoglobin A1c	3662	30	299	7
Sodium	15261	65	1509	44
Calcium	14716	62	1425	41
Chloride	14509	60	1323	39
Potassium	14870	60	1373	40
Total Protein	12938	59	1319	39
Alkaline Phosphatase	13194	59	1356	40
AST	13048	58	1291	38
ALT	12944	57	1239	36
Total Bilirubin	14442	69	1536	44
Direct Bilirubin	3337	26	503	13
Creatinine	15532	67	1524	44
BUN	15214	65	1499	43
CO2	14120	57	1245	35
PT	4777	25	513	15
INR	4735	24	493	15
Urate	1276	11	239	6
Triglycerides	6541	46	760	20
Cholesterol	6535	46	758	20
LDL	4990	34	429	13
HDL	5566	39	526	14
Phosphorus	3654	24	492	13
LDH	1851	16	329	9
TSH	424	5	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	9	151	3
<u>Miscellaneous Urine values</u>				
Urinalysis: Glucose	4822	26	551	17
Urinalysis: Protein	4870	26	555	17
Urinalysis: pH	4825	26	553	17
Urinalysis: Specific Gravity	4828	26	552	17
Urinalysis: Ketones	4816	26	552	17
Urinalysis: Bilirubin	4808	26	549	17
Urine Toxicology; Methamphetamine	5748	41	941	27
Urinalysis: Red Blood Cells	2208	19	300	8
Urinalysis: White Blood Cells	2214	19	297	8

Comorbidities

Diagnosis	# Pts before Baseline (N=1387)	# Pts at Baseline (N=2517)	# Pts Current* (N=1449)
Viral Hepatitis	628 (45%)	726 (37%)	453 (31%)
Tobacco Smoking	632 (46%)	699 (35%)	402 (28%)
Hypertension	462 (33%)	652 (33%)	617 (43%)
Hyperlipidemia	382 (28%)	502 (25%)	526 (36%)
Non AIDS Defining Cancer	175 (13%)	346 (17%)	343 (24%)
Diabetes	202 (15%)	281 (14%)	274 (19%)
Cardiac Disease	181 (13%)	275 (14%)	296 (20%)
Cerebrovascular Disease	154 (11%)	212 (11%)	206 (14%)
COPD	156 (11%)	210 (11%)	245 (17%)
Chronic Renal Disease	130 (9%)	207 (10%)	222 (15%)
Lipodystrophy	111 (8%)	186 (9%)	141 (10%)
End Stage Liver Disease	55 (4%)	93 (5%)	65 (4%)

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

Active Cohort Overview

Current Demographics

<u>N</u>	<u>271</u>
<u>Age</u>	
Mean	65.1
SD	8.3
25th Percentile	60
Median	65
75th Percentile	71
<u>ARV med use</u>	
N	200
%	74

Baseline Demographics

<u>N</u>	<u>252</u>
<u>Age</u>	
Mean	53.6
SD	11.3
25th Percentile	45
Median	53
75th Percentile	63

Demographics

	<u>N</u>	<u>%</u>
<u>Sex</u>		
Male	184	68
Female	86	32
<u>Ethnicity</u>		
Hispanic origin	69	26
<u>Race</u>		
White	141	52
Black	94	35
Other	36	13

Demographics cont.

	<u>N</u>	<u>%</u>
<u>Furthest Education</u>		
8th grade or less	12	4
Some High School	54	20
High School Graduate	41	15
Some College/Associate's Degree	83	31
College Graduate	41	15
Advanced Degree work	36	13

Baseline HIV Characteristics

	<u>N</u>	<u>%</u>
<u>HIV risk</u>		
IV drug use	44	16
Male to male sex	109	40
Heterosexual sex	69	25
Other	49	18
ARV med use	238	88

Current HIV Characteristics

CD4 Count (cells/mm³, N=264)

25th Percentile	387.5
Median	548
75th Percentile	761

Log Plasma Viral Load*(log10 copies/mL, N=249)

25th Percentile	1.30
Median	1.48
75th Percentile	1.70

Baseline HIV Characteristics

CD4 Count (cells/mm³, N=260)

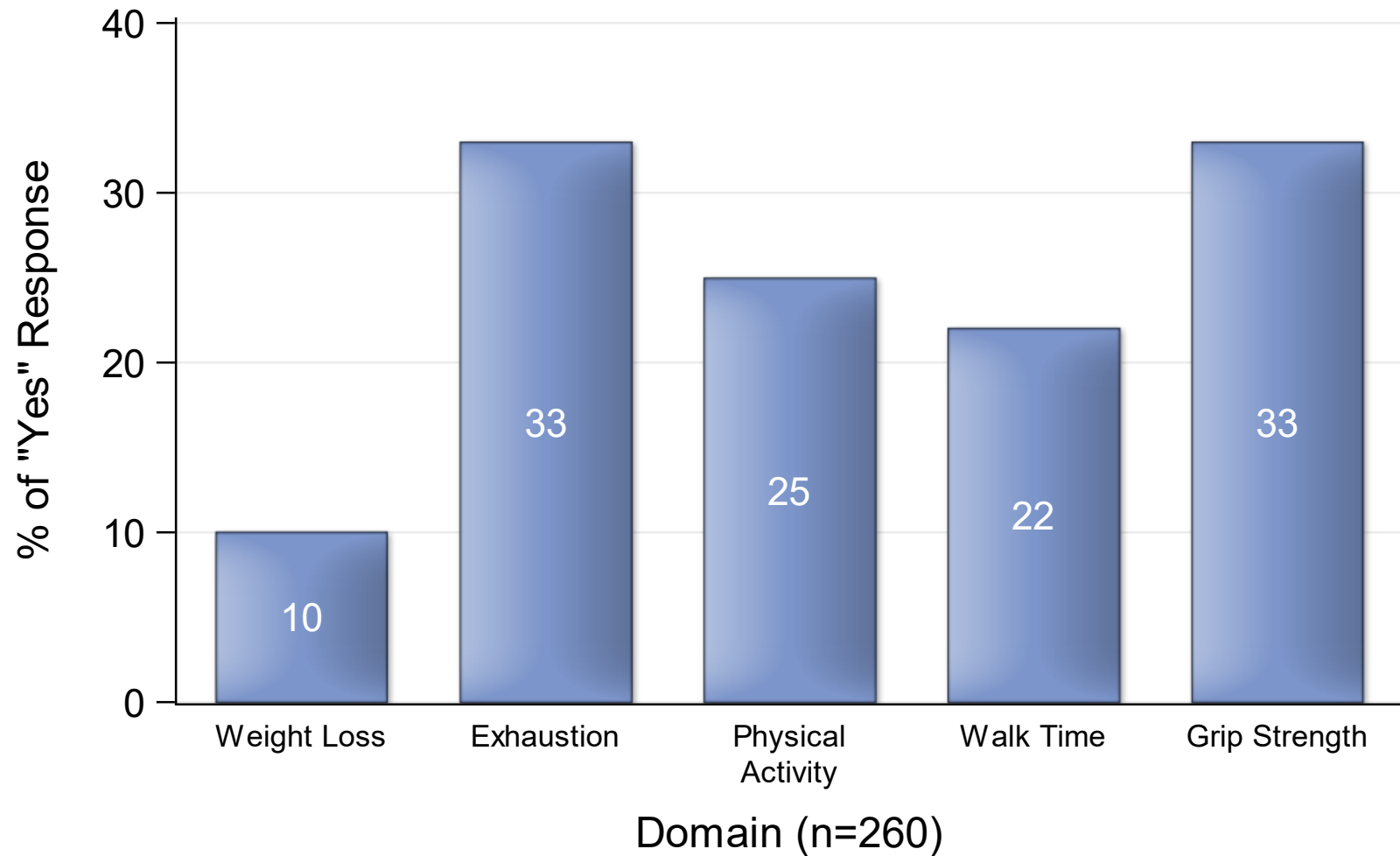
25th Percentile	276.5
Median	480.5
75th Percentile	709

Log Plasma Viral Load* (log10 copies/mL, N=233)

25th Percentile	1.49
Median	1.70
75th Percentile	2.50

*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



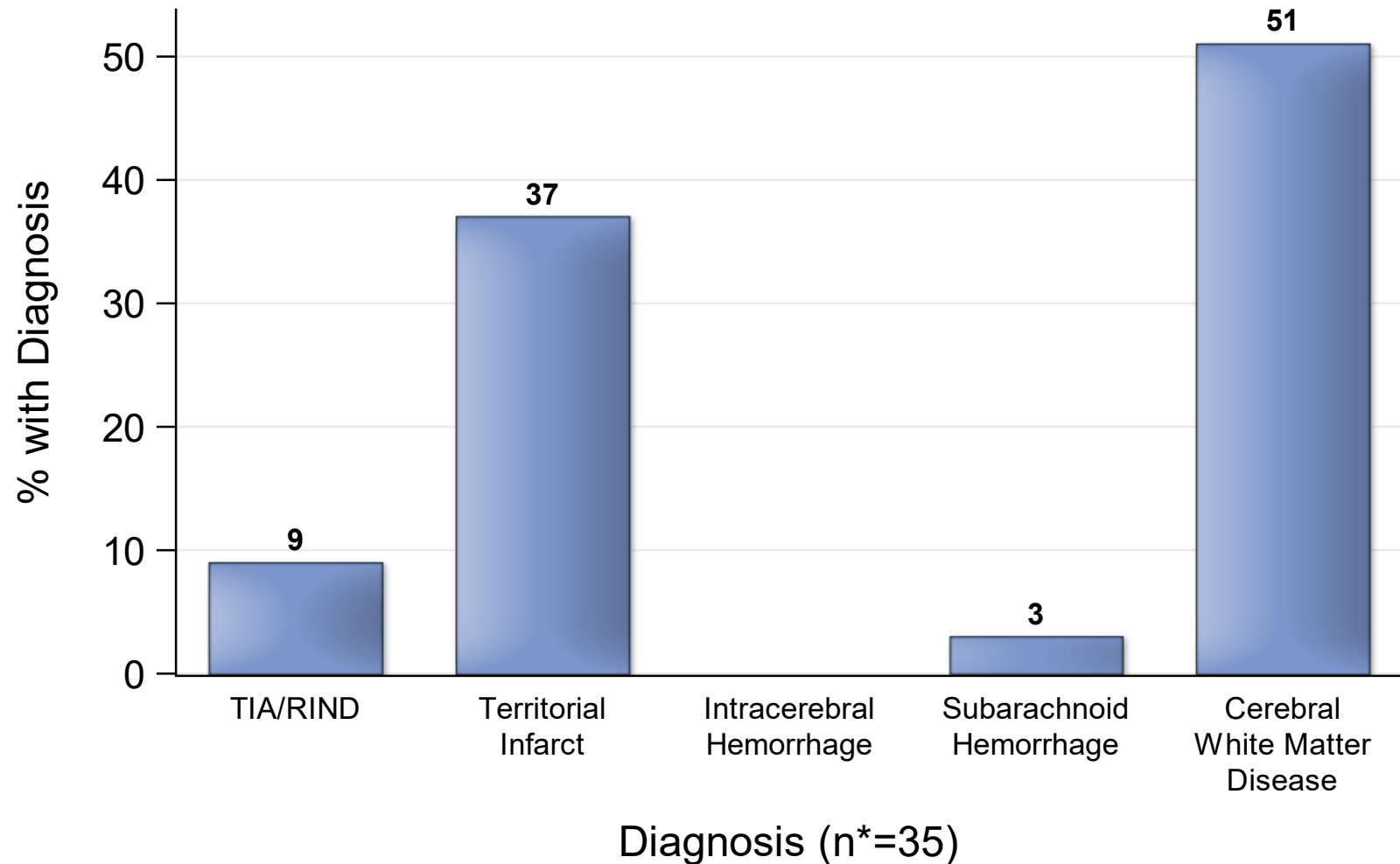
*From the first available visit. Domains with missing responses are categorized as 'no'.

Frailty Demographics

<u>Characteristics:</u>	<u>All Frailty Stages</u>	<u>Not Frail</u>	<u>Pre-frail</u>	<u>Frail</u>
N*	259	78	144	37
<u>Age</u>				
Mean	59.4	59.9	59.3	58.8
Std	8.3	7.8	8.5	9.0
<u>Sex</u>				
Male	177 (68%)	58 (33%)	99 (56%)	20 (11%)
Female	82 (32%)	20 (24%)	45 (55%)	17 (21%)

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

Cerebrovascular Diagnosis Frequency



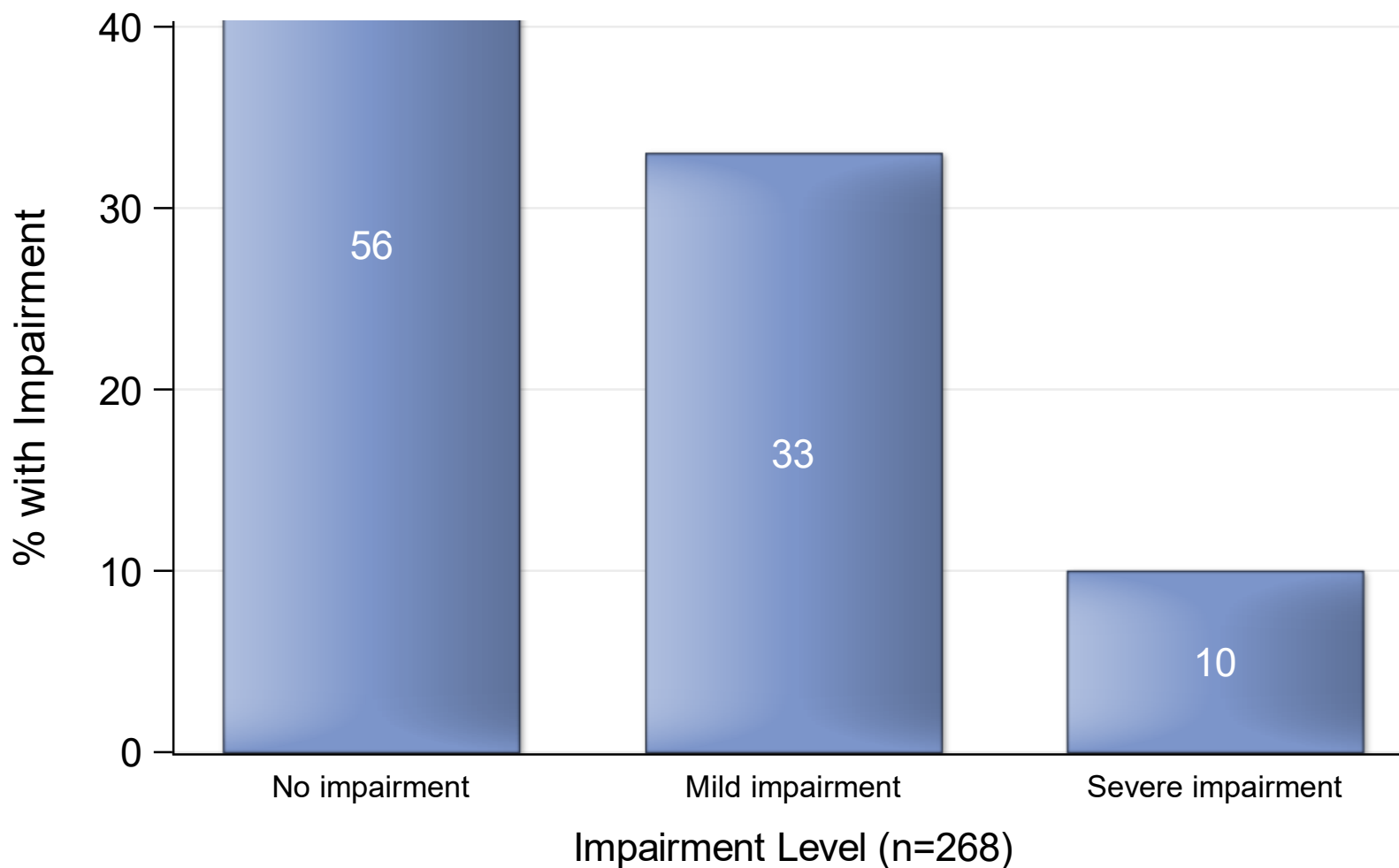
*From the first available visit. 58 participants have an assigned diagnosis at baseline.

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*	205	163	35	7
<u>Age</u>				
Mean	57.9	57.3	61.3	56.0
Std	8.5	8.6	7.1	8.5
<u>Sex</u>				
Male	129 (63%)	104 (81%)	21 (16%)	4 (3%)
Female	76 (37%)	59 (78%)	14 (18%)	3 (4%)

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

HIV Motor Scale - Impairment Rating

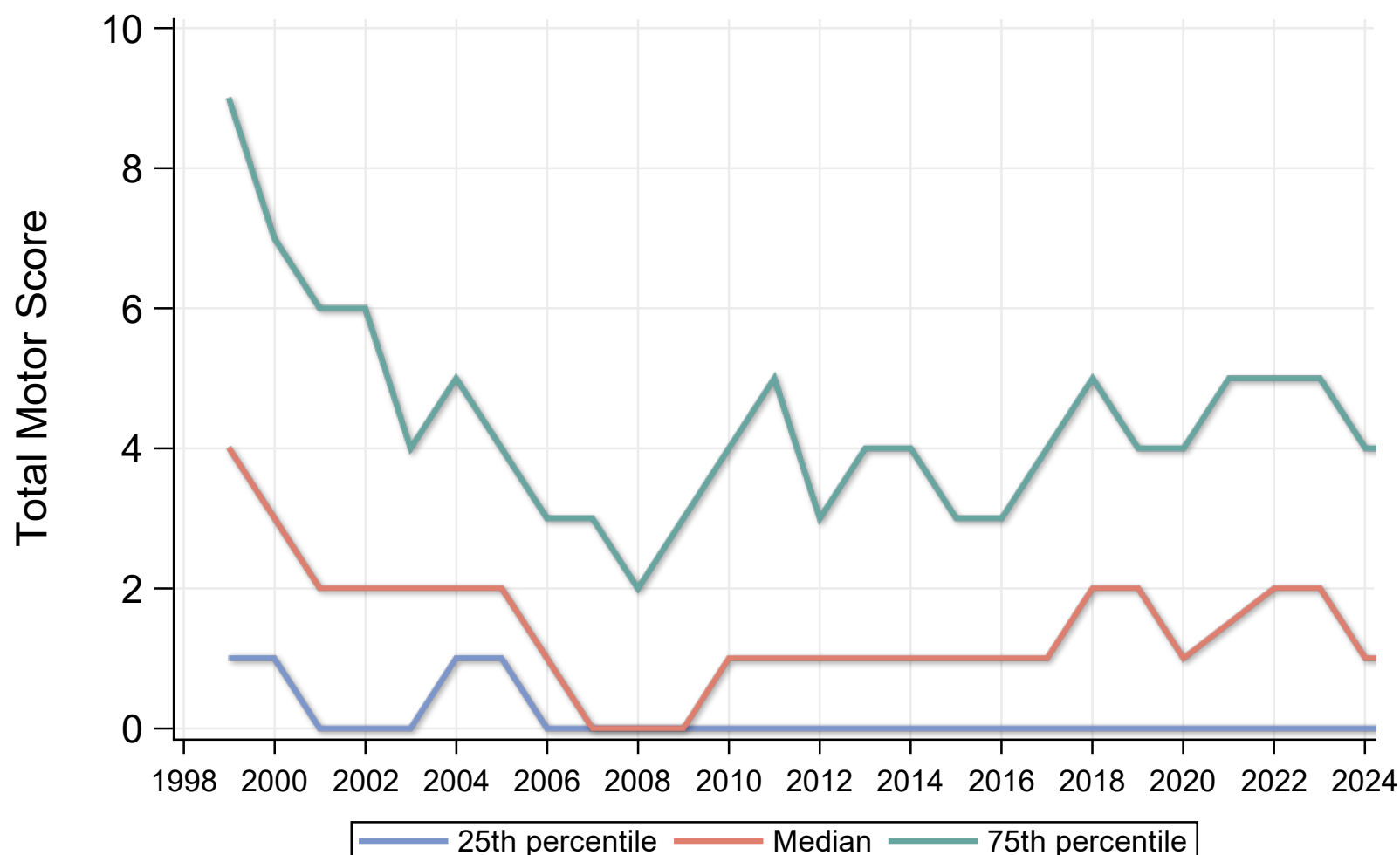


*From the first available visit.

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.

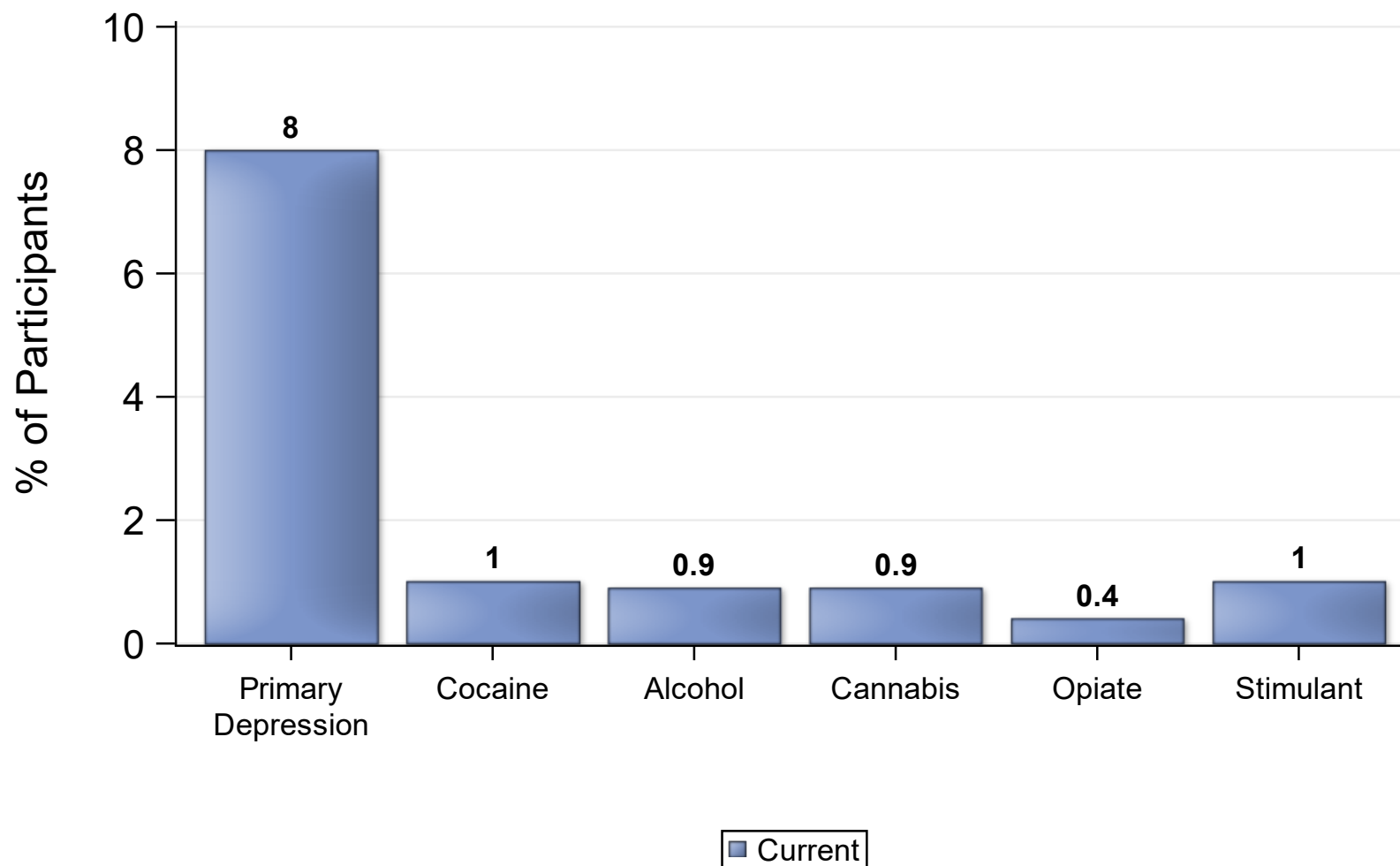
The Total Motor Score is a continuous measure on a scale of 0-18, with a score of 0 indicating a normal assessment; 1-4 indicating mild impairment; and 5 or more indicating severe impairment.

HIV Motor Scale Demographics

<u>Characteristics:</u>	<u>All Records</u>	<u>No impairment</u>	<u>Mild impairment</u>	<u>Severe impairment</u>
N*	267	150	89	28
<u>Age</u>				
Mean	54.3	54.0	56.4	49.1
Std	10.8	11.0	10.1	11.0
<u>Sex</u>				
Male	181 (68%)	108 (60%)	59 (33%)	14 (8%)
Female	86 (32%)	42 (49%)	30 (35%)	14 (16%)

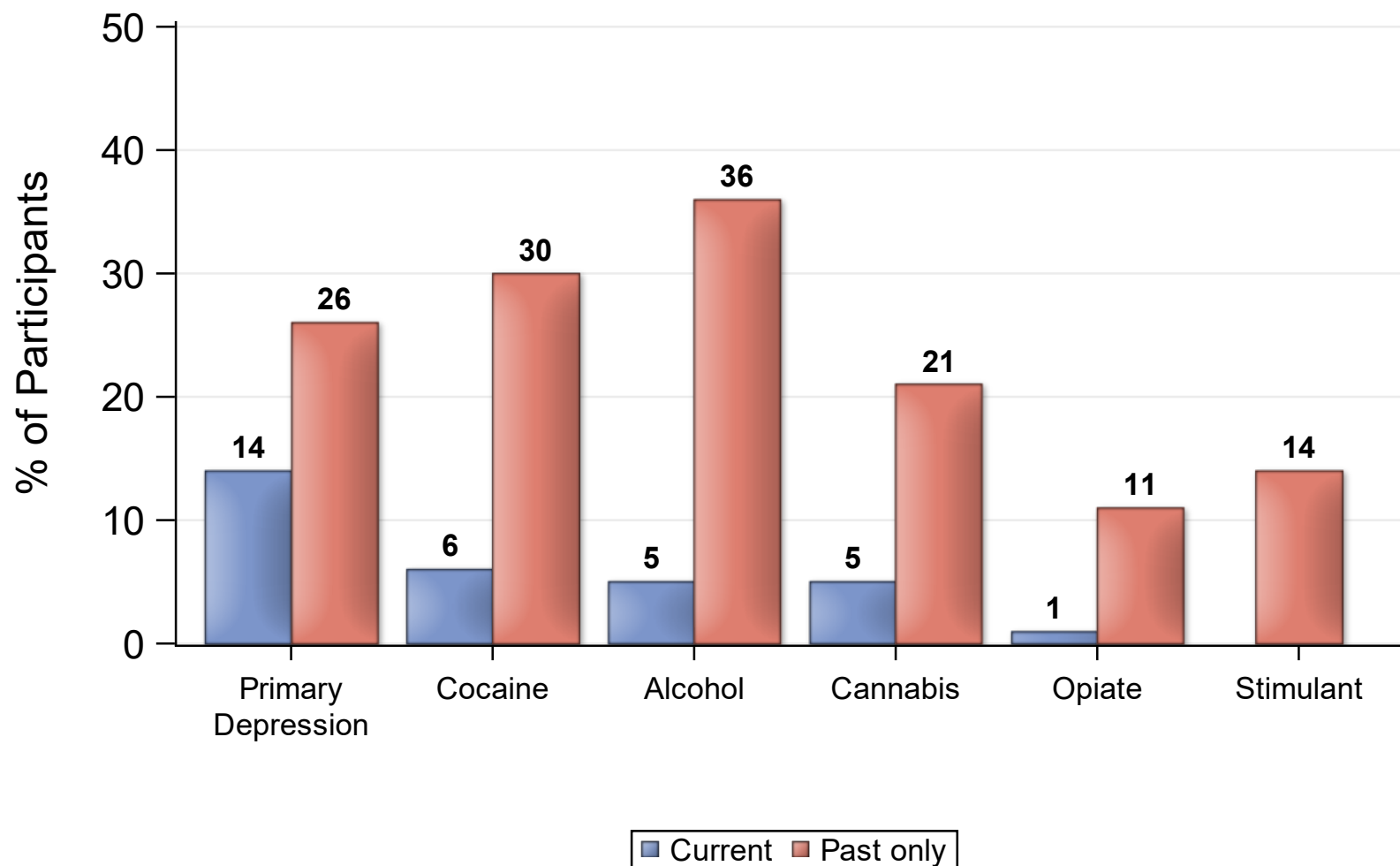
*HIV Motor Scale impairment from the first available visit. Sex unknown for some recent cases.

Current Psychiatric Diagnosis



*Please note the totals listed above reflect only those cases in the active cohort who have undergone a PRISM/CIDI evaluation (N=225).
74% are Normal/No Diagnosis, 14% have past diagnoses only
Substance use diagnoses include dependence and abuse.

Baseline Psychiatric Diagnosis

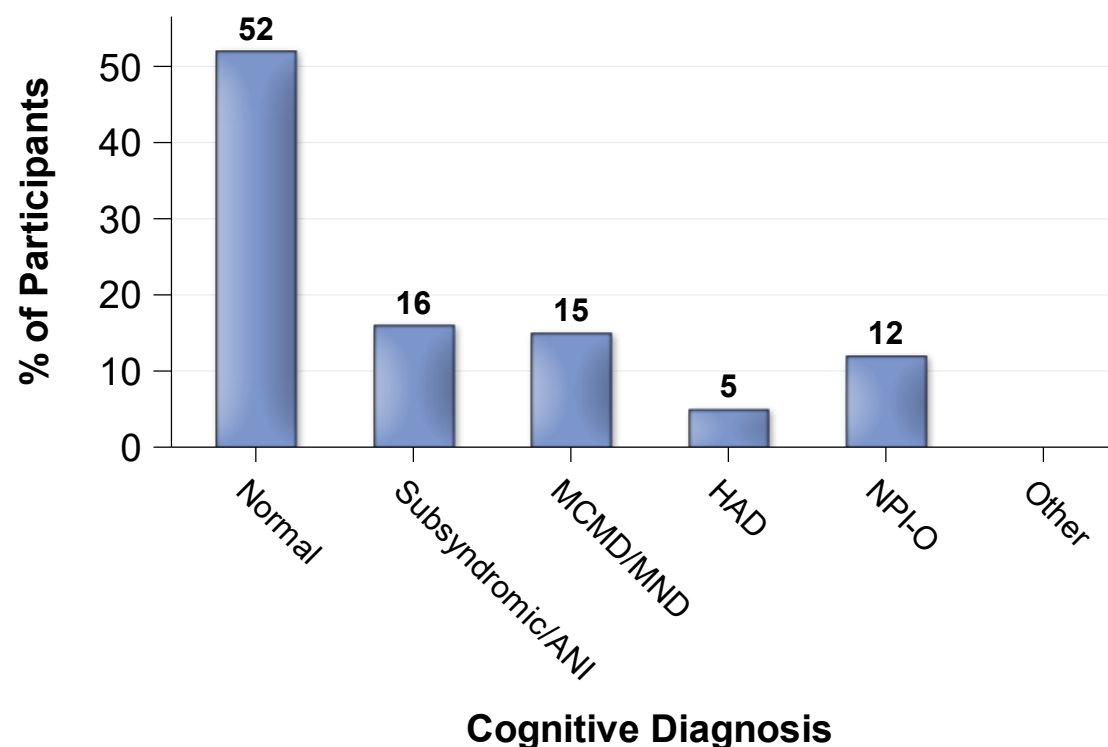


*Please note the totals listed above reflect only those cases in the active cohort who have undergone a PRISM/CIDI evaluation (N=225).

26% are Normal/No Diagnosis

Substance use diagnoses include dependence and abuse.

Current Cognitive Diagnosis (N=255)*



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

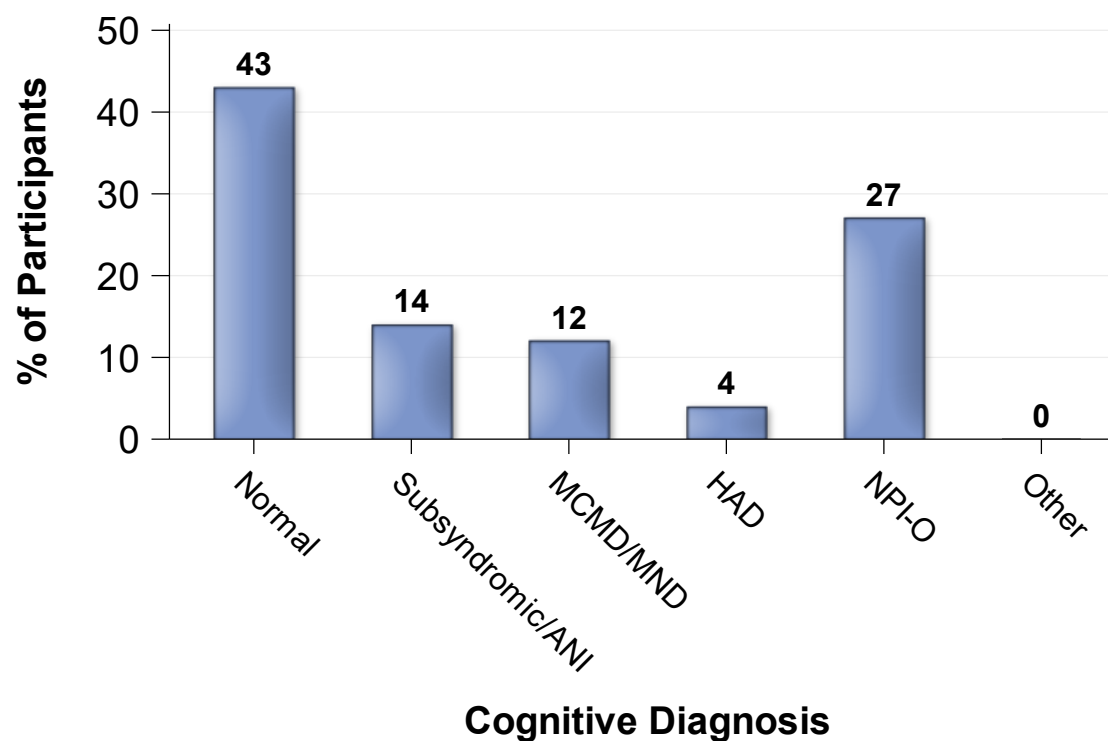
MND = Minor Neurocognitive Disorder

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=263)*



ANI = Asymptomatic Neurocognitive Impairment

MCMD = Minor Cognitive Motor Disorder

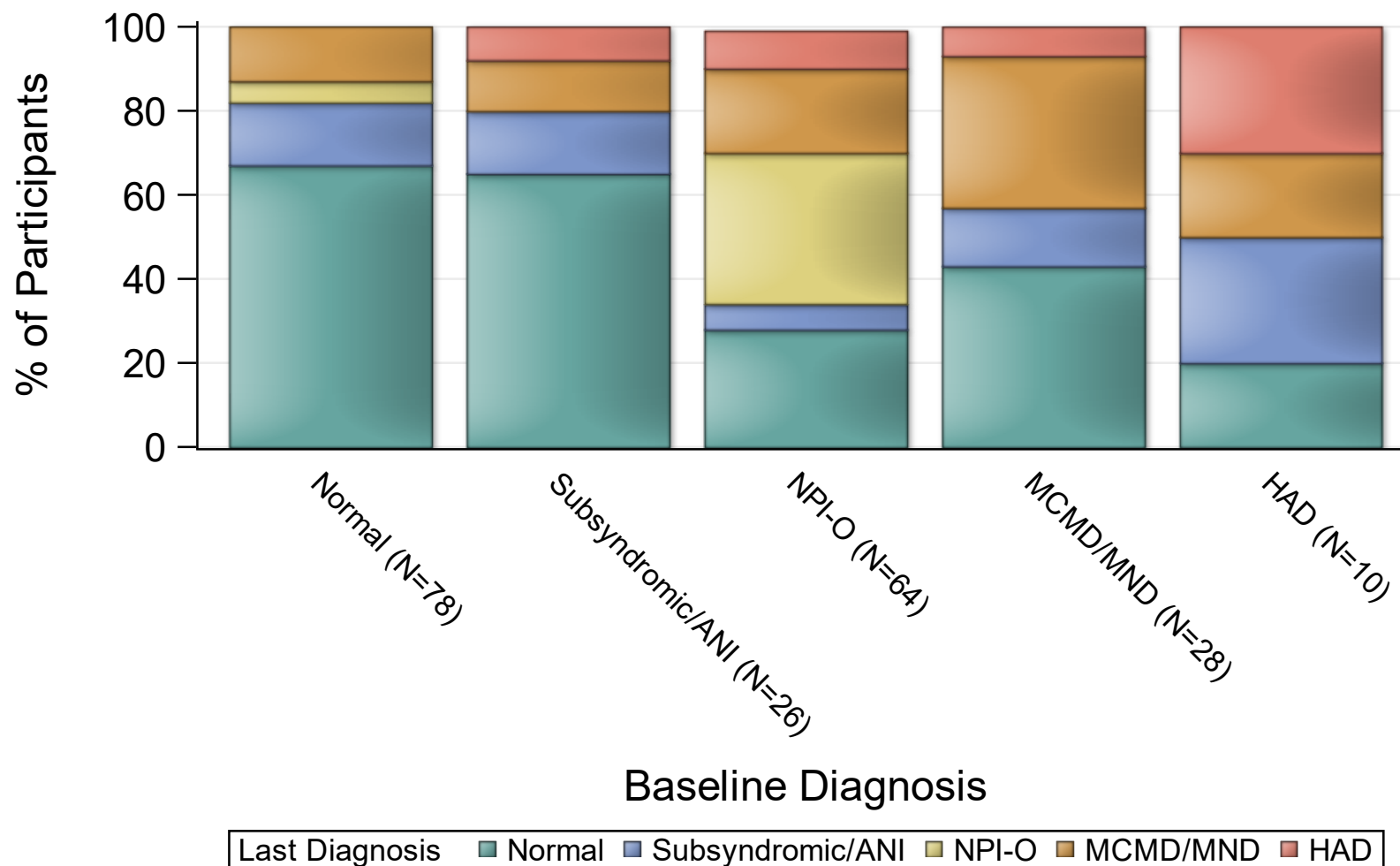
MND = Minor Neurocognitive Disorder

HAD = HIV-Associated Dementia

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

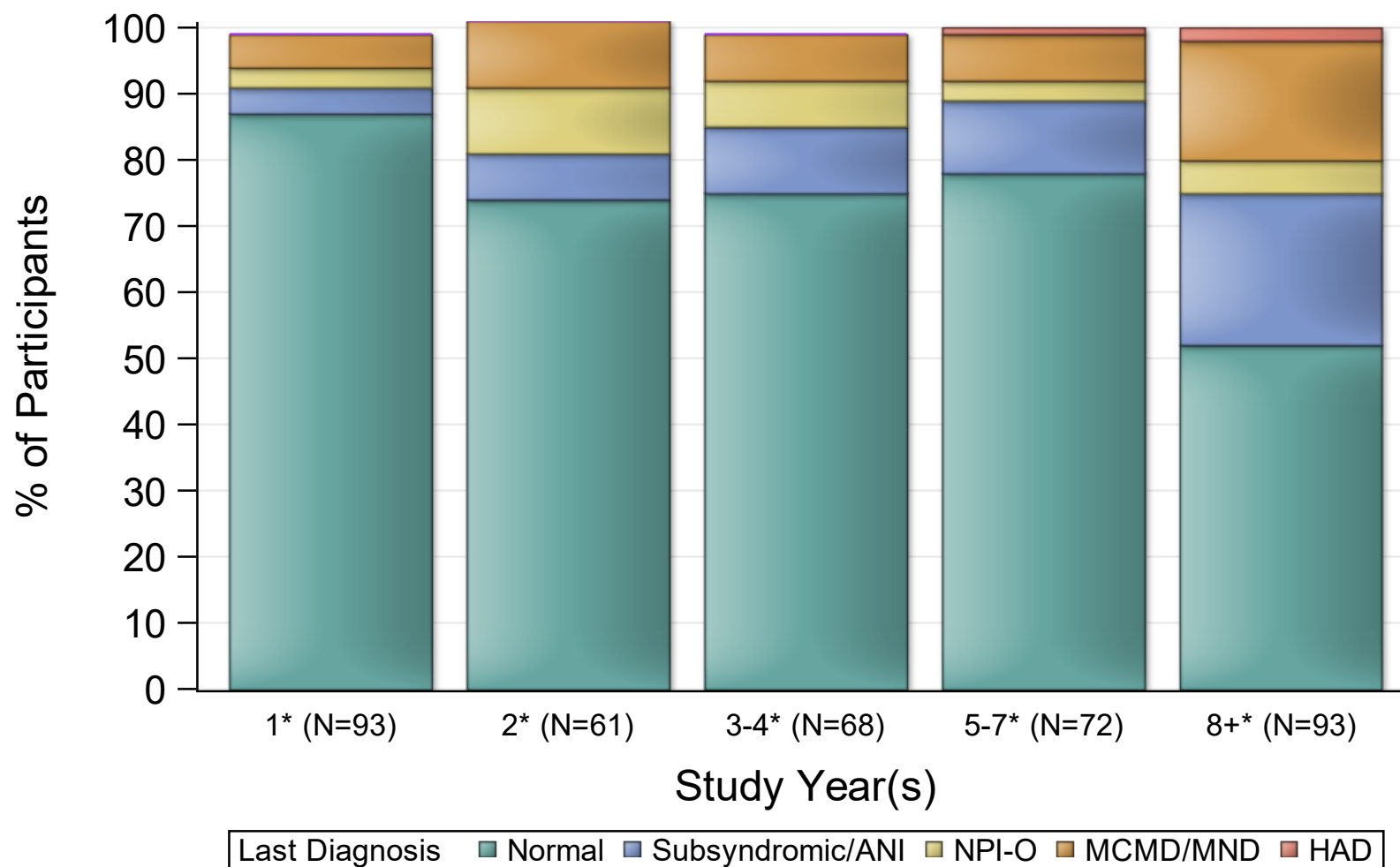
*Please note the totals listed above reflect only those cases in the active cohort who were assigned a cognitive diagnosis at baseline.

Change in Cognitive Diagnosis



Change in Cognitive Diagnosis

Normal at Baseline

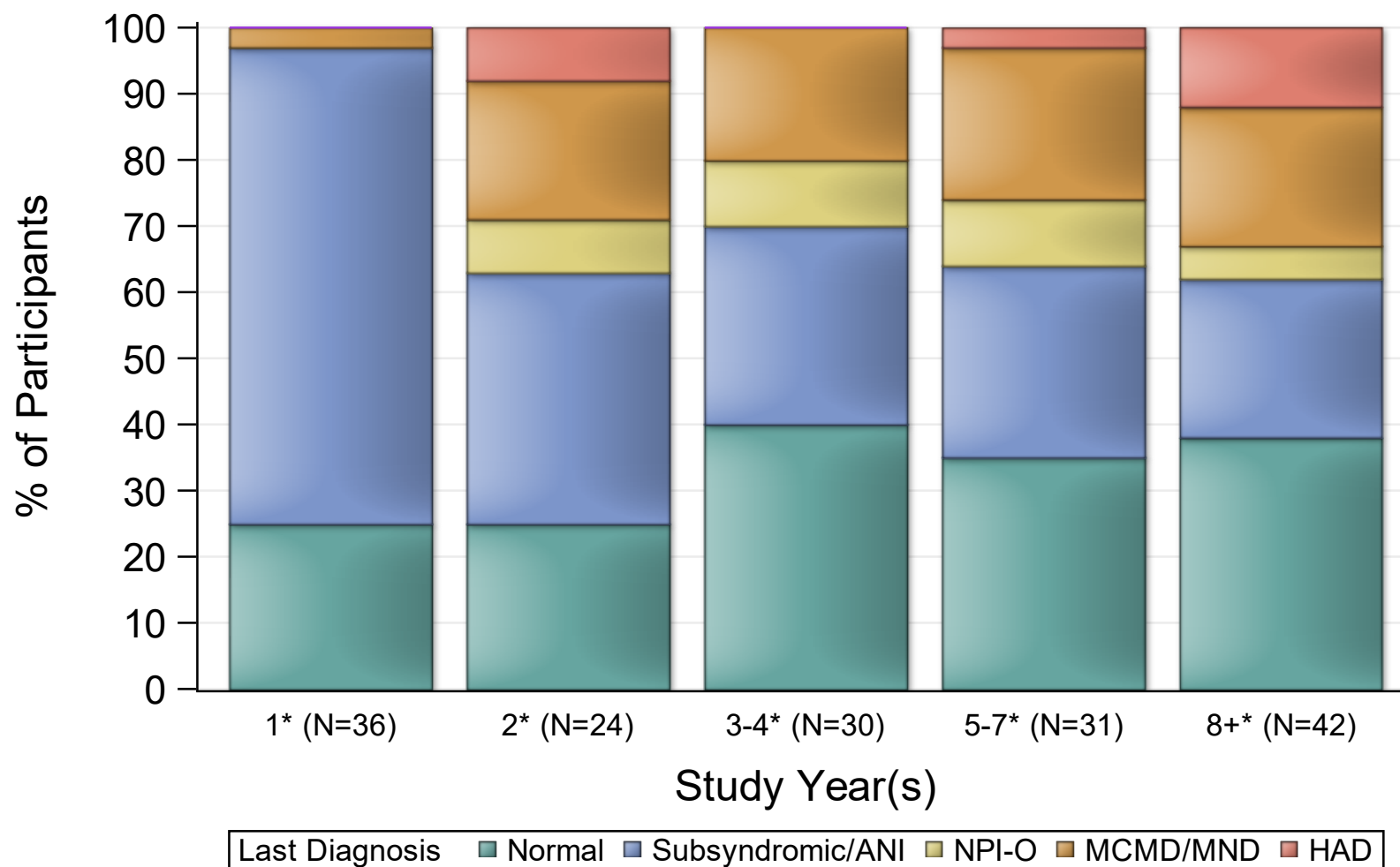


*Worst diagnosis in study year period shown.

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

Change in Cognitive Diagnosis

Subsyndromic/ANI at Baseline

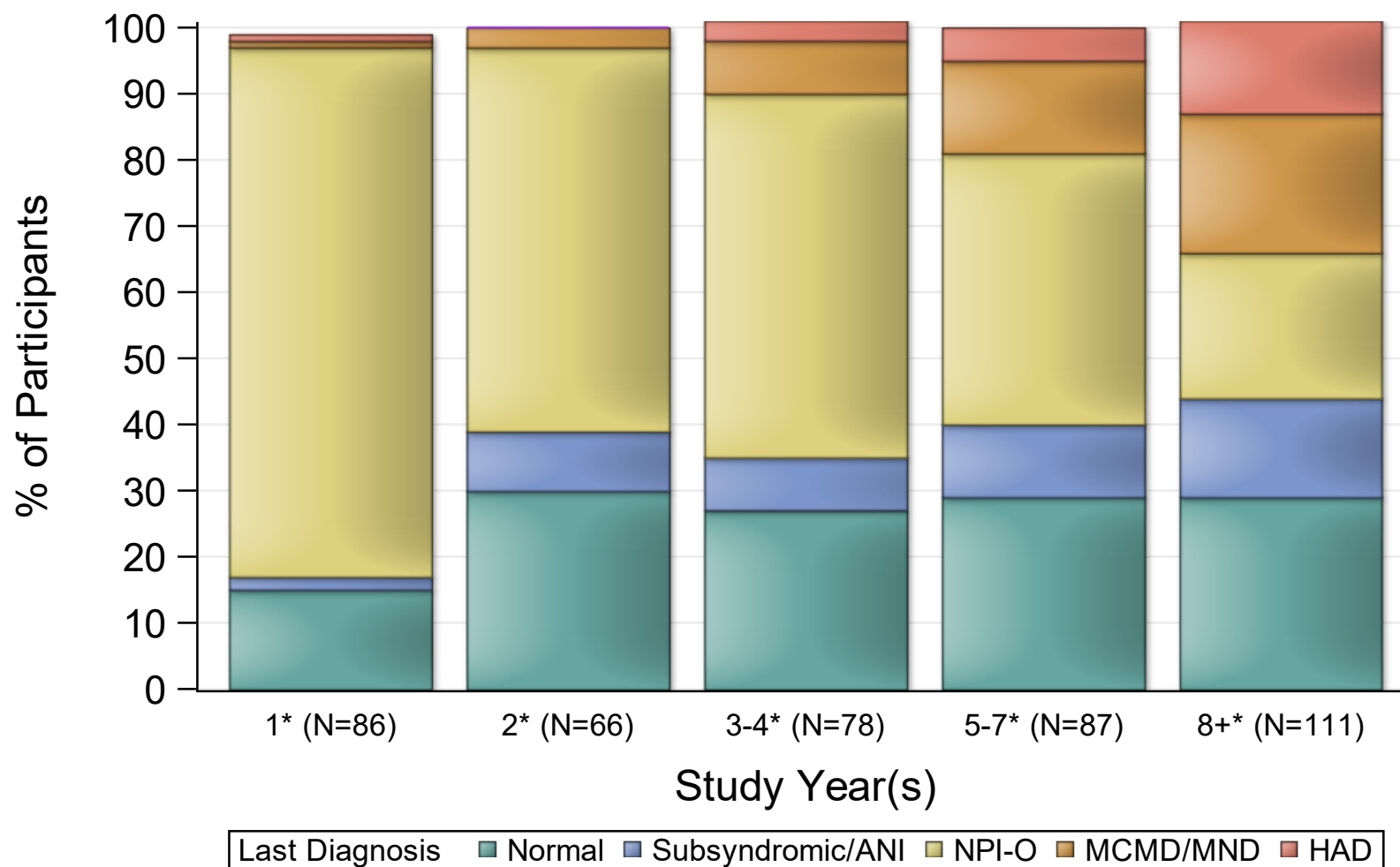


*Worst diagnosis in study year period shown.

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

Change in Cognitive Diagnosis

NPI-O at Baseline

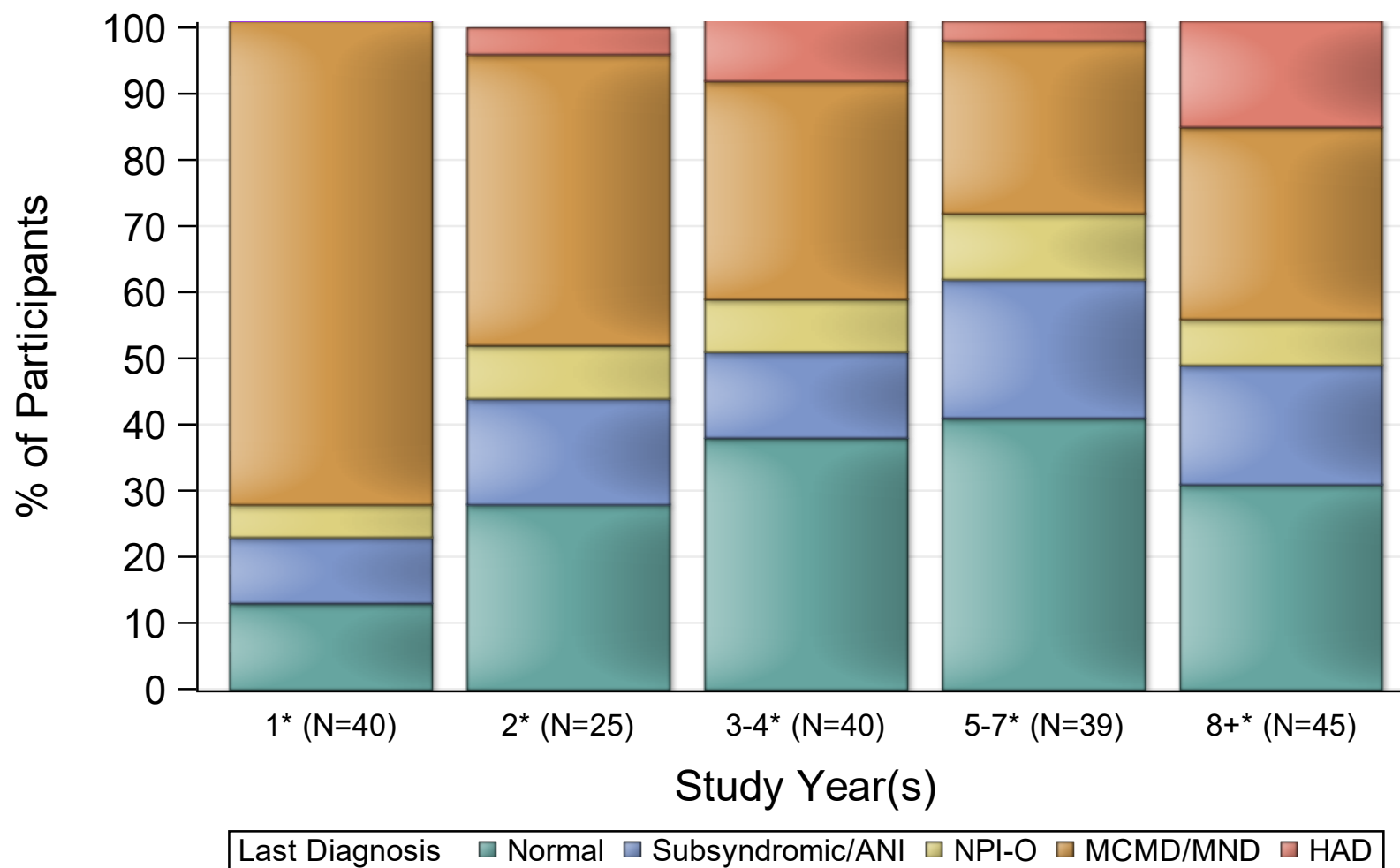


*Worst diagnosis in study year period shown.

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

Change in Cognitive Diagnosis

MCMD/MND at Baseline

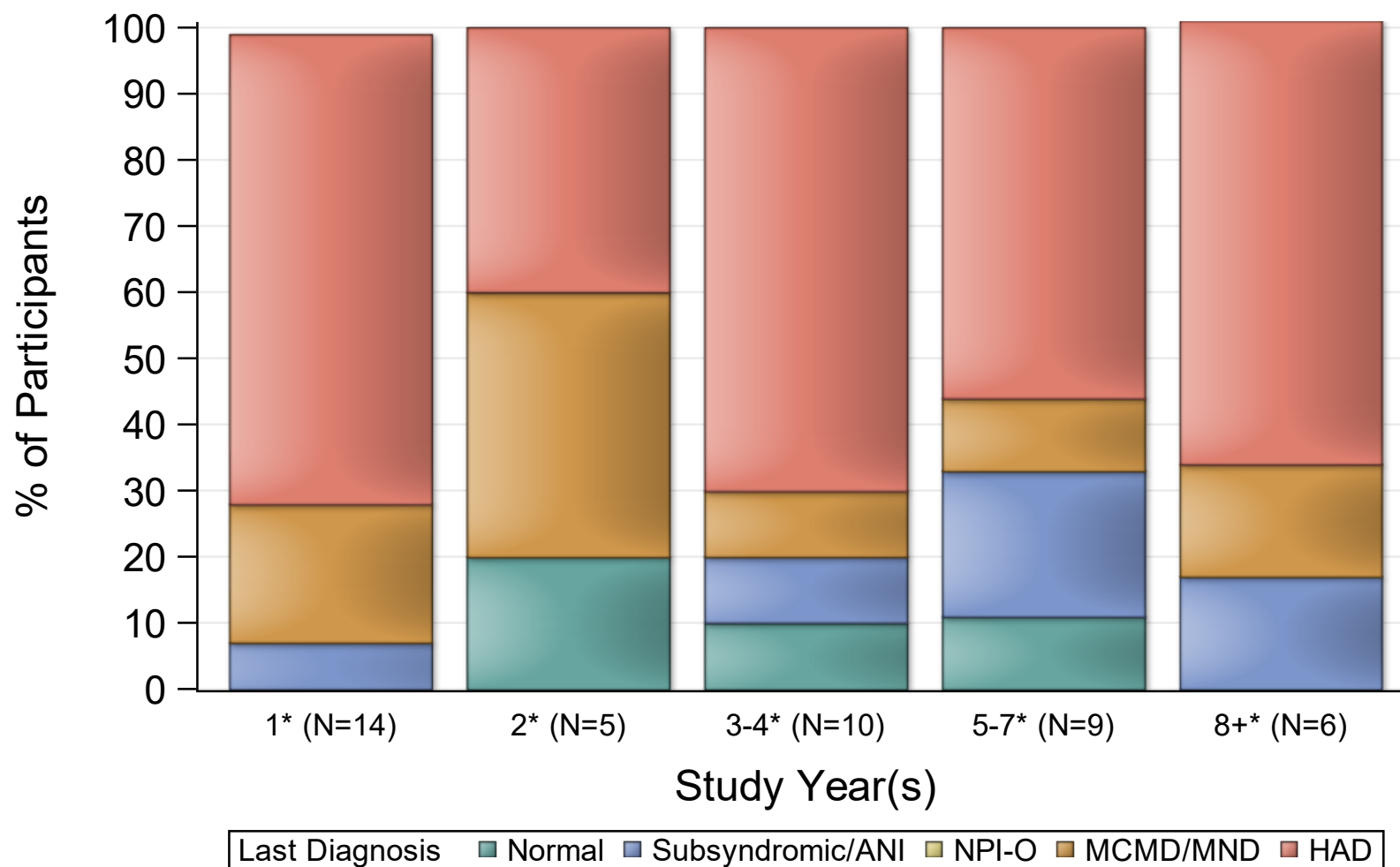


*Worst diagnosis in study year period shown.

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

	<u>N</u>	<u>%</u>
<u>Clinical Myelopathy (N=151)</u>		
HIV associated	5	3
Other	4	3
None	142	94
<u>Neuropathy (N=152)</u>		
HIV associated DSP	117	77
None	35	23

Baseline Neurologic Diagnoses

	<u>N</u>	<u>%</u>
<u>Clinical Myelopathy (N=212)</u>		
HIV associated	8	4
Other	4	2
None	200	94

Neuropathy (N=211)

HIV associated DSP	106	50
HIV/nucleoside	6	3
None	99	47

Participants Reporting Concomitant Medications

Medication	# of Pts (N=216)	%
Central Nervous System Agents	206	95.4
Cardiovascular Drugs	189	87.5
Vitamins	186	86.1
Gastrointestinal Drugs	174	80.6
Anti-infective Agents	162	75
Hormones and Synthetic Substitutes	137	63.4
Autonomic Drugs	134	62
Electrolytic, Caloric, and Water Balance	118	54.6
Skin and Mucous Membrane Agents	117	54.2
Miscellaneous Therapeutic Agents	110	50.9
Antihistamine Drugs	104	48.1
Eye, Ear, Nose, and Throat (EENT) Preparations	103	47.7
Blood Formation, Coagulation, and Thrombosis Agents	74	34.3
No medication use reported on at least one occasion	50	23.1
Respiratory Tract Agents	40	18.5
Local Anesthetics	35	16.2
Smooth Muscle Relaxants	32	14.8
Antineoplastic Agents	28	13
Pharmaceutical Aids	17	7.9
Enzymes	8	3.7

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	880	43	115	30
Mean Corpuscular Hemoglobin (MCH)	878	43	115	30
Mean Corpuscular Volume (MCV)	20878	97	258	79
Mean Corpuscular Hemoglobin Concentration (MCHC)	880	43	115	30
Blood Red cell Distribution Width (RDW)	751	43	97	23
Blood Rapid Plasma Reagin (RPR)	3519	60	103	20
Blood Neutrophil Percent	20348	97	240	72
Blood Lymphocyte Percent	20516	97	260	79
Blood Monocyte Percent	20487	97	260	79
Blood Eosinophil Percent	20491	97	259	79
Blood Basophil Percent	20433	97	256	77
Blood Mean Platelet Volume (MPV)	188	13	16	5
Blood CD3 Percent	372	14	39	13
Blood CD3 Absolute	238	14	21	6
<u>Miscellaneous Serology & virealogy</u>				
Blood Hepatitis B Surface Antigens	1892	54	130	15
Blood Hepatitis B Surface Antibodies	1879	53	127	17
Blood Hepatitis B Core Antibodies	1701	54	129	14
Blood Hepatitis B Viral Load	191	7	5	1
Blood Hepatitis C Antibodies (HCV)	3234	82	179	36
Blood Hepatitis C Viral Load	1304	20	26	4
<u>Miscellaneous Serology & virealogy</u>				
COVID-19 Test Results (qualitative)	304	10	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
<u>Miscellaneous Blood Chemistries</u>				
Glucose	18806	97	255	77
Hemoglobin A1c	9075	96	141	35
Sodium	18264	98	256	77
Calcium	18321	98	256	77
Chloride	18225	96	244	73
Potassium	18233	97	255	77
Total Protein	17625	98	256	77
Alkaline Phosphatase	18061	98	255	76
AST	18022	98	254	76
ALT	18013	98	252	75
Total Bilirubin	18015	98	256	77
Direct Bilirubin	685	43	101	23
Creatinine	18518	98	256	77
BUN	18522	98	255	76
CO2	18230	98	253	76
PT	11345	54	139	48
INR	11384	54	140	48
Urate	125	6	16	5
Triglycerides	10839	97	208	59
Cholesterol	10891	97	207	59
LDL	10387	80	144	46
HDL	10713	97	195	54
Phosphorus	705	43	99	23
LDH	225	11	24	8

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	12117	54	145	49
Urinalysis: Protein	12095	54	145	49
Urinalysis: pH	12095	54	145	49
Urinalysis: Specific Gravity	12057	54	144	49
Urinalysis: Ketones	12071	54	144	49
Urinalysis: Bilirubin	12040	54	143	49
Urine Toxicology; Methamphetamine	882	44	110	27
Urinalysis: Red Blood Cells	3179	35	53	16
Urinalysis: White Blood Cells	3183	35	52	16

Tissue Bank Cohort Overview

CNS Specimens Available

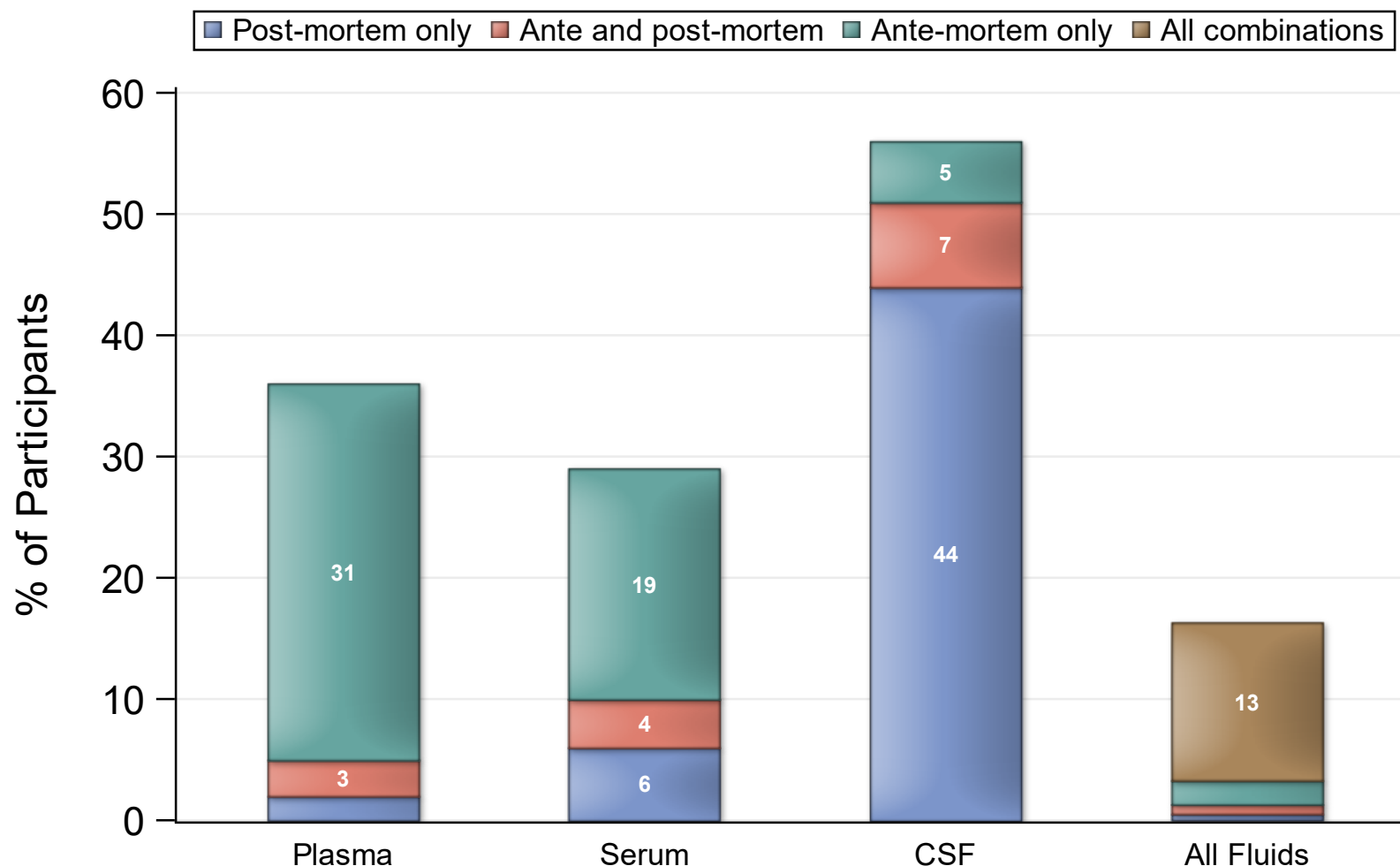
Type:	PWH	PWoH
Frozen Brain	1041	360
Spinal Cord	1004	276
Fixed Brain	925	345
Dorsal Root Ganglia	818	227
Cerebellum	627	152
Brain Stem	606	152
Trigeminal Ganglia	537	75
Frontal Lobe	397	136
Occipital Lobe	394	136
Parietal Lobe	392	136
Temporal Lobe	390	136
Basal Ganglia	364	122
Thalamus	325	130
Hippocampus	315	106
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	976	270
Spleen	952	260
Peripheral Nerve	864	240
Adipose Tissue	814	217
Heart	786	204
Muscle	757	217
Lymph Node	747	195
Bone Marrow	746	198
Pituitary Gland	690	120
Kidney	621	201
Lung	580	195
Bowel	352	114
Testes	190	79
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>931</u>
<u>Age</u>	
Mean	51
SD	12.4
25th Percentile	42
Median	50
75th Percentile	59.5

*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	721	78
Female	198	22
<u>Ethnicity</u>		
Hispanic origin	246	27
<u>Race</u>		
White	487	53
Black	308	33
Other	125	14

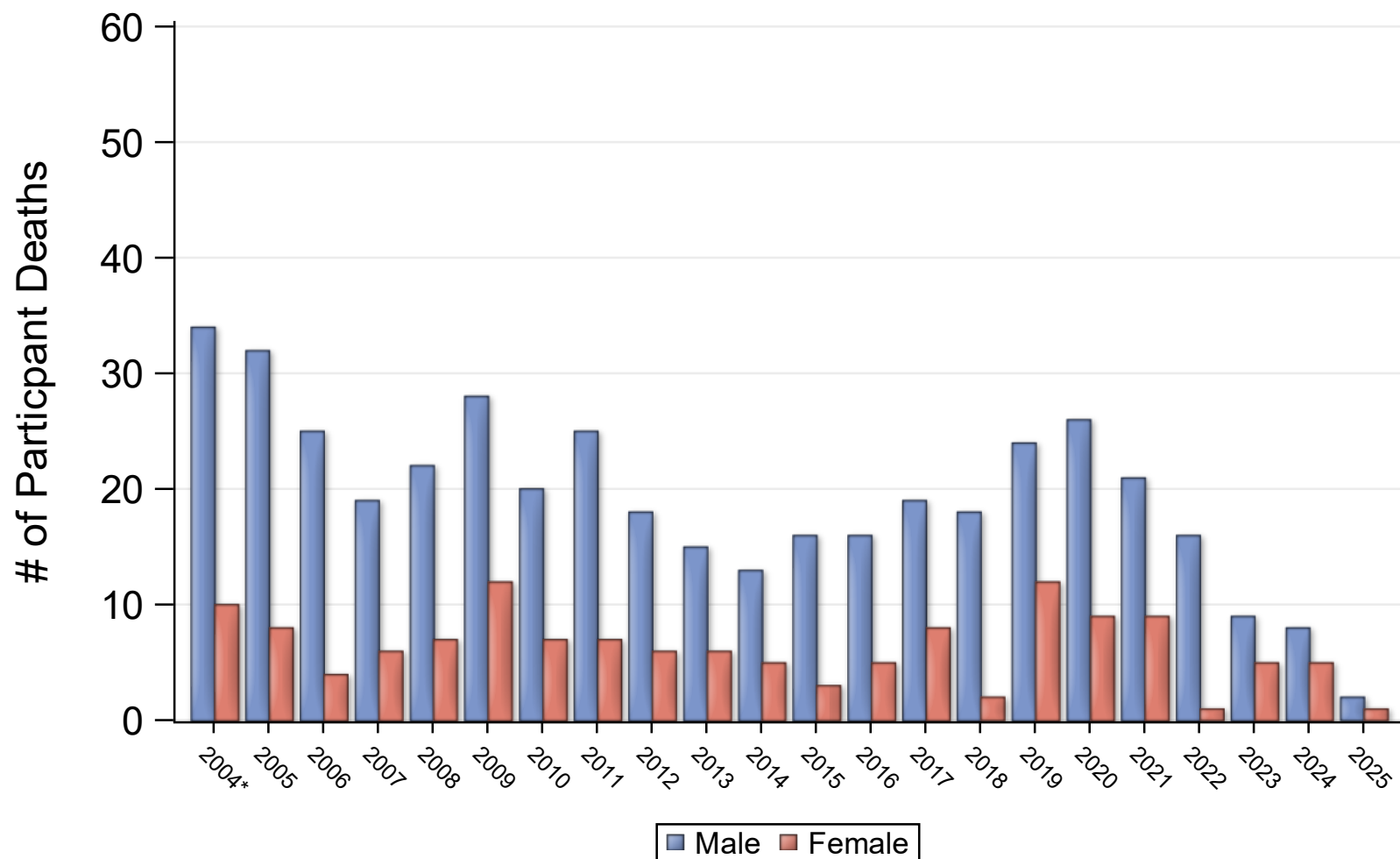
*Cases with a fixed brain specimen available.

Demographics cont.*

	<u>N</u>	<u>%</u>
<u>Furthest Education</u>		
8th grade or less	36	8
Some High School	90	20
High School Graduate	126	28
Some College/Associate's Degree	126	28
College Graduate	40	9
Advanced Degree work	40	9

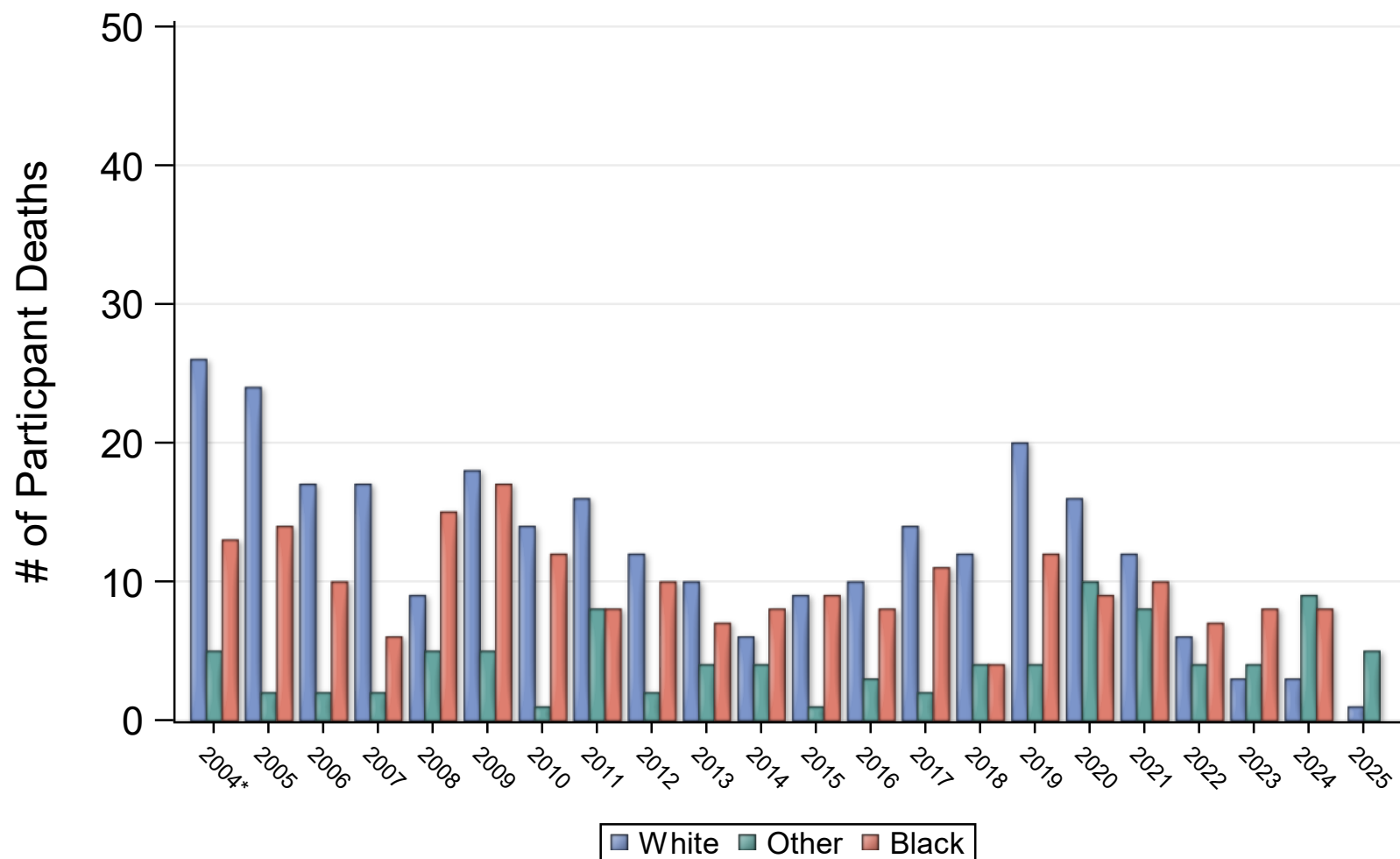
*Cases with a fixed brain specimen available.

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	274	29
Male to male sex	333	36
Heterosexual sex	198	21
Other	126	14
<u>On ART</u>		
at baseline	724	78
at last visit	734	79

*Cases with a fixed brain specimen available.

*HIV Characteristics at time of death**

CD4 Count (cells/mm³, N=678)

25th Percentile	22
Median	106.5
75th Percentile	274

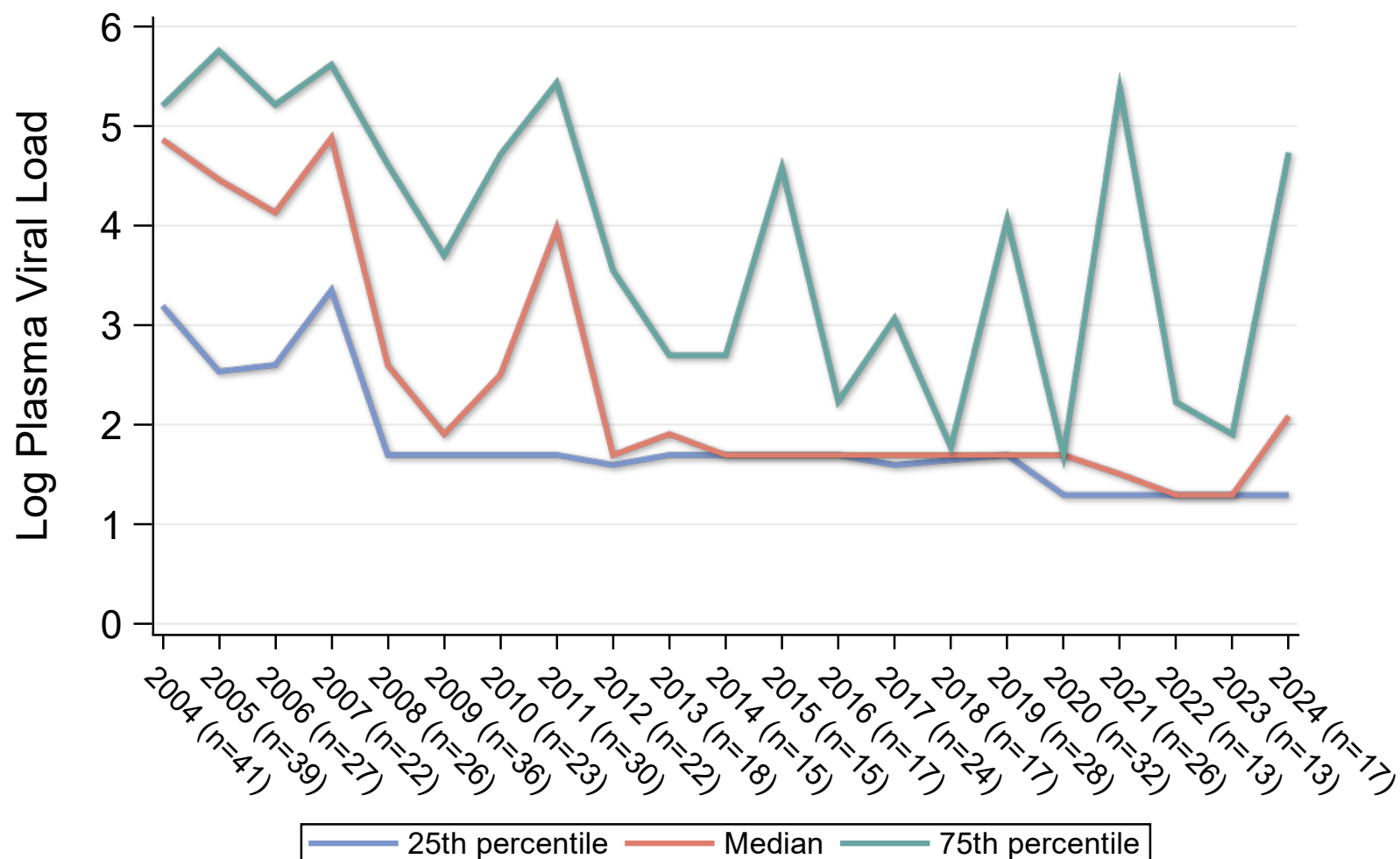
Log Plasma Viral Load** (log10 copies/mL, N=619)

25th Percentile	1.70
Median	3.41
75th Percentile	5.10

*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

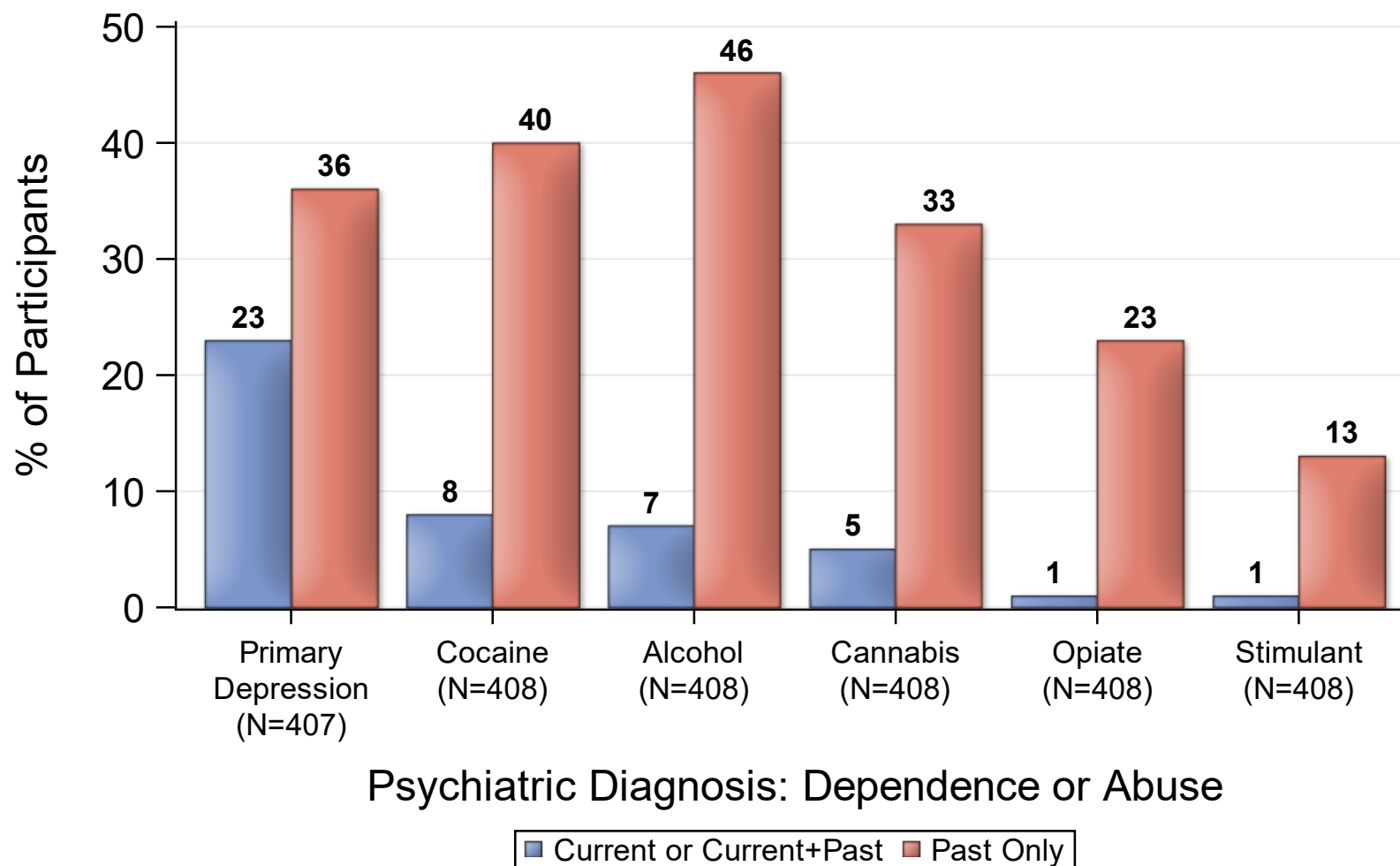


*Among those who have died during the cART era.

Pathological Conditions: Year of Autopsy

	Year of Autopsy			
Type:	1998-2004	2005-2011	2012-present	Total Cases
Total Fixed Specimens	396	219	310	925
Normal/minor neuropath changes	102 (26%)	71 (32%)	38 (12%)	211 (23%)
Other non-infectious pathology	75 (19%)	70 (32%)	108 (35%)	253 (27%)
Alzheimer's type 2 gliosis	71 (18%)	24 (11%)	31 (10%)	126 (14%)
Focal infarct	50 (13%)	38 (17%)	72 (23%)	160 (17%)
HIV encephalitis	58 (15%)	16 (7%)	4 (1%)	78 (8%)
Hypoxic/ischemic damage	32 (8%)	40 (18%)	62 (20%)	134 (14%)
Aseptic Leptomeningitis	28 (7%)	16 (7%)	31 (10%)	75 (8%)
Microglial nodule encephalitis	34 (9%)	6 (3%)	8 (3%)	48 (5%)
Hemorrhage-parenchymal	17 (4%)	10 (5%)	25 (8%)	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%)	20 (6%)	44 (5%)
Cytomegalovirus encephalitis	20 (5%)	3 (1%)	3 (1%)	26 (3%)

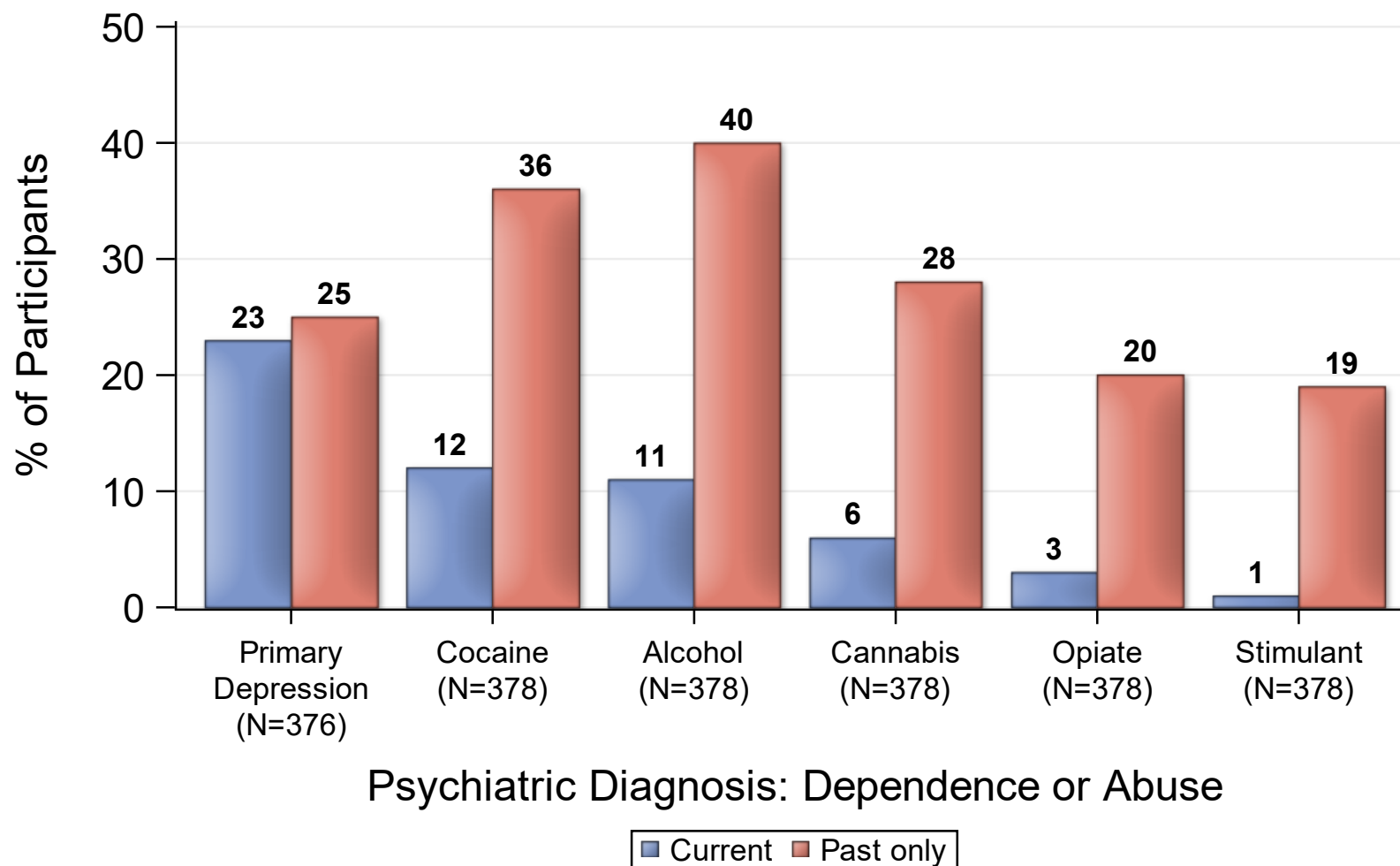
Last Psychiatric Diagnosis



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.

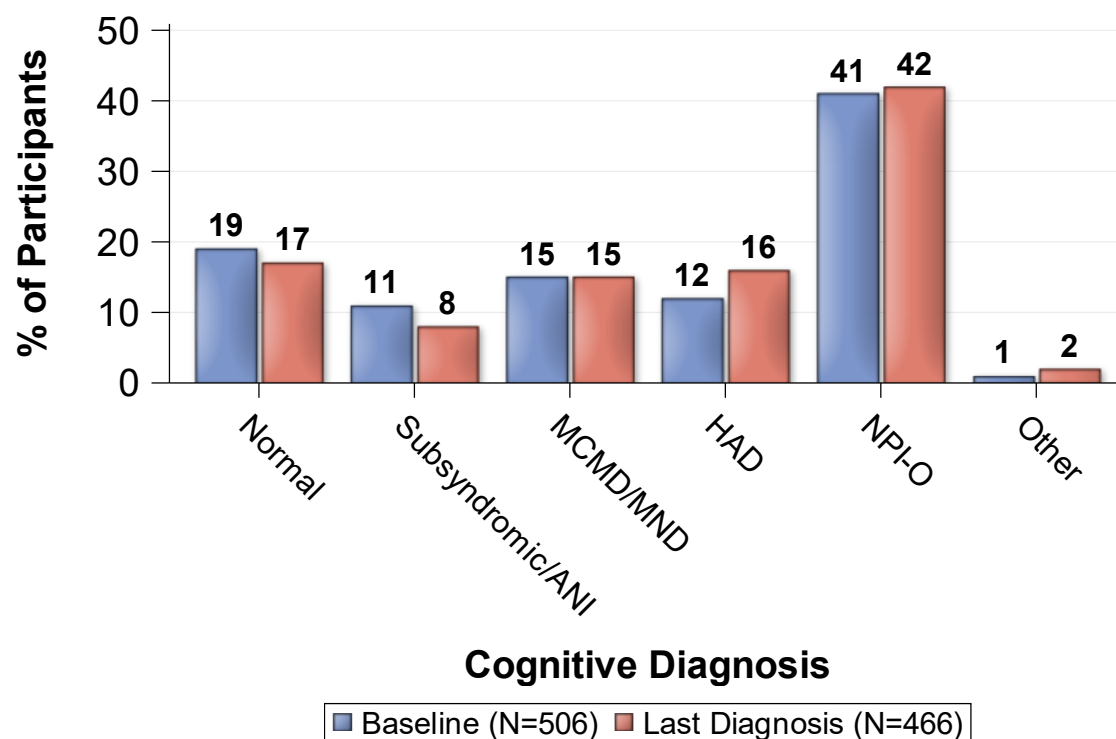
Baseline Psychiatric Diagnosis



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

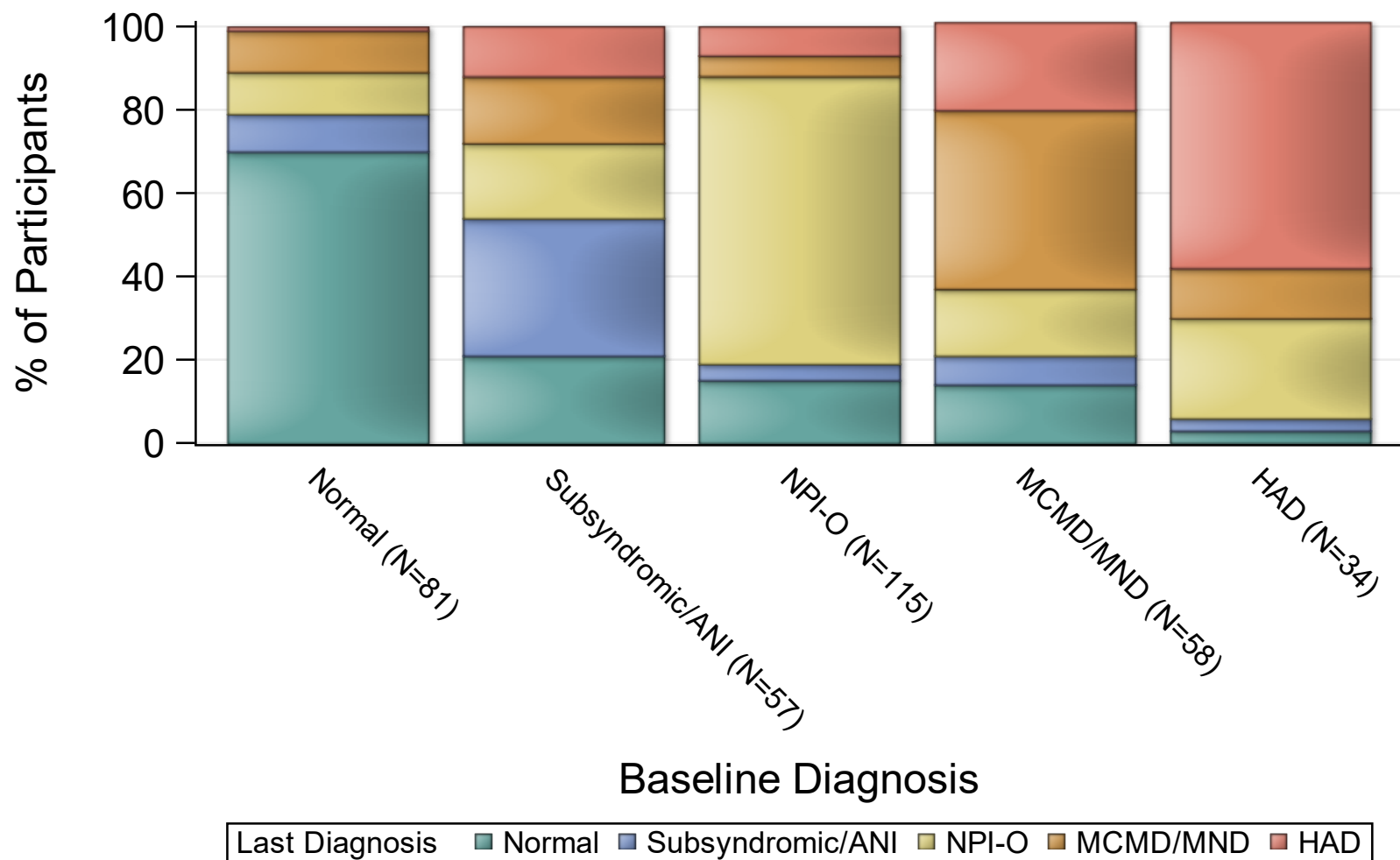
MND = Minor Neurocognitive Disorder

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=442)</u>		<u>(N=506)</u>	
HIV associated	50	11	57	11
Other	9	2	12	2
None	383	87	437	86
<u>Neuropathy</u>	<u>(N=377)</u>		<u>(N=436)</u>	
HIV associated DSP	175	46	172	39
Nucleoside associated	4	1	3	1
HIV/nucleoside	46	12	62	14
None	152	40	199	46

*Cases with a fixed brain specimen available.

Participants Reporting Concomitant Medications

Medication	# of Pts (N=678)	%
Central Nervous System Agents	589	86.9
Anti-infective Agents	524	77.3
Gastrointestinal Drugs	462	68.1
Cardiovascular Drugs	357	52.7
Vitamins	335	49.4
Hormones and Synthetic Substitutes	327	48.2
Electrolytic, Caloric, and Water Balance	291	42.9
Autonomic Drugs	269	39.7
Blood Formation, Coagulation, and Thrombosis Agents	227	33.5
Skin and Mucous Membrane Agents	153	22.6
Antihistamine Drugs	148	21.8
Miscellaneous Therapeutic Agents	139	20.5
Antineoplastic Agents	117	17.3
Eye, Ear, Nose, and Throat (EENT) Preparations	94	13.9
Respiratory Tract Agents	70	10.3
Local Anesthetics	44	6.5
Pharmaceutical Aids	27	4
Smooth Muscle Relaxants	26	3.8
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	2191	20	160	8
Mean Corpuscular Hemoglobin (MCH)	2183	20	161	9
Mean Corpuscular Volume (MCV)	4940	58	508	23
Mean Corpuscular Hemoglobin Concentration (MCHC)	2178	20	161	9
Blood Red cell Distribution Width (RDW)	2076	13	98	6
Blood Rapid Plasma Reagin (RPR)	438	22	152	4
Blood Neutrophil Percent	4582	50	432	20
Blood Lymphocyte Percent	4812	56	491	22
Blood Monocyte Percent	4688	56	490	22
Blood Eosinophil Percent	4654	56	488	22
Blood Basophil Percent	4648	55	483	21
Blood Mean Platelet Volume (MPV)	1587	10	74	5
Blood CD3 Percent	173	9	75	3
Blood CD3 Absolute	60	2	11	0
<u>Miscellaneous Serology & virealogy</u>				
Blood Hepatitis B Surface Antigens	536	35	280	5
Blood Hepatitis B Surface Antibodies	505	33	259	5
Blood Hepatitis B Core Antibodies	452	31	242	4
Blood Hepatitis B Viral Load	56	3	20	0
Blood Hepatitis C Antibodies (HCV)	716	45	318	7
Blood Hepatitis C Viral Load	290	19	107	2
<u>Miscellaneous Serology & virealogy</u>				
COVID-19 Test Results (qualitative)	74	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
<u>Miscellaneous Blood Chemistries</u>				
Glucose	4800	59	516	23
Hemoglobin A1c	510	15	65	2
Sodium	4365	61	520	23
Calcium	4136	58	500	21
Chloride	4167	57	484	20
Potassium	4270	58	486	21
Total Protein	3093	54	453	19
Alkaline Phosphatase	3201	56	481	21
AST	3123	54	454	19
ALT	3207	54	464	19
Total Bilirubin	3391	60	511	23
Direct Bilirubin	514	14	97	3
Creatinine	4402	61	527	23
BUN	4339	61	522	22
CO2	4316	56	476	20
PT	1630	37	286	13
INR	1611	35	271	12
Urate	127	8	56	1
Triglycerides	998	29	192	7
Cholesterol	995	29	189	7
LDL	821	21	118	5
HDL	872	23	127	6
Phosphorus	1055	15	116	4
LDH	308	11	84	2
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	5	37	2
<u>Miscellaneous Urine values</u>				
Urinalysis: Glucose	1428	36	303	14
Urinalysis: Protein	1454	37	307	14
Urinalysis: pH	1435	37	305	13
Urinalysis: Specific Gravity	1435	37	306	14
Urinalysis: Ketones	1427	36	304	14
Urinalysis: Bilirubin	1427	36	302	13
Urine Toxicology; Methamphetamine	567	15	110	8
Urinalysis: Red Blood Cells	941	30	219	8
Urinalysis: White Blood Cells	933	30	216	8