SUPPLEMENTAL MATERIAL

Table S1: Specific Codes Used to Define Outcomes

Post-Stroke Complication	VA Class (description)	Additional medications	Procedure codes:	ICD-10 codes
Fatigue	CN801 (amphetamines) CN802 (Amphetamine like stimulants)	Amantadine Modafinil Armodafinil		
Spasticity		Baclofen Tizanidine Dantrolene botulinum toxin type A diazepam		
Mood	CN600 (Anti-depressants)			
Sleep	CV150 (alpha-blockers) GU200 (Urinary anti-spasmodic)	Suvorexant Zolpidem Ramelteon Melatonin trazodone		
Bladder	CV150 (alpha-blockers) GU200 (Urinary anti-spasmodic)			
Bowel	RS300 (Rectal laxative) GA200 (Laxative)			
Seizure	VA:CN400 (Anticonvulsants)			
Procedures/medications:				
tPA/Mechanical Thrombectomy Neurological surgery procedure	VA:BL115 (Thrombolytics)		CPT:1006783	
Ventilation or mechanical intubation			CPT:94002 CPT:94003 CPT:31500 SNOMED:447996002	
Stroke Manifestations				
Cerebral edema				G93.6 G93.5
Seizure				G40
Hemiparesis				G81
Aphasia				R47.01 I69.320 I69.920 I69.120 I69.820 I69.220

Abbreviations: VA: Department of Veterans Affairs, ICD-10: International Classification of Disease-10th edition, CPT: Current Procedure Codes, SNOMED: Systemized Nomenclature of Medicine Clinical Terms

Table S2: Differences in Patient Characteristics Among Propensity Score Matched Acute Stroke Patients

	NHW vs. Black (n= 63,722 PS Matched Pairs)			NHW vs. Hispanic (n=24,009 PS Matched Pairs)		
	NHW (%)	Black (%)	ASDs	NHW (%)	Hispanic (%)	ASDs
Age, years (std)	59.7 +/- 14.3	60.1 +/- 15.0	0.03	56.5 +/- 16.8	56.4 +/- 16.5	0.01
Female sex	46.1	47.3	0.02	40.9	42.5	0.03
Comorbidities						
Hypertensive diseases	29.5	30.1	0.01	23.4	23.1	0.01
Chronic ischemic heart disease	7.6	8.4	0.03	6.9	7.1	0.01
Acute myocardial infarction	2.6	2.7	0.01	2.1	2.2	0.01
Hyperlipidemia	14.7	15.7	0.03	12.9	12.9	<0.01
Atherosclerosis	2.3	2.2	0.01	1.9	1.9	0.01
Arterial thrombosis	0.7	0.7	0.00	0.6	0.6	0.01
Seizures	2.3	2.4	0.00	2.0	2.0	<0.01
Parkinson's disease	0.3	0.3	0.00	0.5	0.4	0.01
Multiple sclerosis	0.2	0.3	0.01	0.1	0.1	0.02
Alzheimer's disease	0.4	0.4	0.01	0.5	0.4	<0.01
Hemiplegia	0.5	0.6	<0.01	0.6	0.6	<0.01
Paraplegia	0.3	0.3	<0.01	0.2	0.2	<0.01
Peripheral neuropathy	2.0	2.2	0.01	2.1	2.2	0.01
Neurogenic bladder	0.3	0.3	0.01	0.3	0.4	0.01
Neurogenic bowel	0.0	0.1	<0.01	0.1	0.1	0.01
Constipation	4.9	5.0	<0.01	4.6	4.9	0.02
Type 1 diabetes mellitus	1.8	1.7	0.01	1.7	1.7	<0.01
Type 2 diabetes mellitus	15.8	16.0	0.01	15.9	15.8	<0.01
Obesity	6.1	6.4	0.02	5.9	6.0	0.01
Depression	5.1	5.4	0.02	5.9	6.0	0.01
Anxiety	4.9	4.3	0.02	5.4	5.4	<0.01
Sleep disorders	5.3	5.7	0.02	5.4	5.6	0.01
Chronic obstructive pulmonary disease	4.2	4.7	0.02	2.2	2.3	<0.01
Asthma	3.6	3.8	0.01	2.5	2.6	<0.01
Acute kidney failure	6.9	7.0	<0.01	5.2	5.2	<0.01
Chronic kidney disease	9.8	10.0	0.01	7.2	7.3	0.01
Benign prostatic hyperplasia	2.0	2.2	0.01	2.2	2.2	<0.01
Neoplasm	9.9	10.3	0.01	9.2	9.3	0.01
Prior Medication Use						
Anticonvulsants	10.5	10.9	0.01	10.5	10.6	<0.01

CNS stimulants	1.2	1.2	0.01	2.0	2.0	<0.01
SSRI/SNRIs	8.2	8.7	0.02	9.8	10.1	0.01
Laxatives	17.8	18.1	0.04	16.6	16.5	<0.01
Alpha blockers	3.5	3.5	<0.01	3.5	3.4	<0.01
Urinary Anti-spasmodic	1.4	1.3	0.01	0.9	0.8	<0.01
Melatonin	2.5	2.6	0.01	3.3	3.4	<0.01
Tizanidine	0.8	0.8	0.01	0.9	0.8	<0.01
Baclofen	0.8	1.0	0.02	0.8	1.0	0.02
Insulin	12.2	12.1	<0.01	12.4	12.2	0.01
Prior Laboratory Data						
Hemoglobin A1c						
0 – 5.70 %	3.8	3.9	0.01	3.1	3.1	0.01
5.70 – 6.50 %	5.4	5.4	<0.01	4.0	4.0	<0.01
6.50 – 9.0 %	5.7	5.6	<0.01	4.5	4.5	<0.01
> 9.0 %	3.1	3.2	<0.01	3.0	3.0	0.01
Systolic blood pressure (mm Hg)						
< 140	23.4	23.8	<0.01	18.1	18.0	<0.01
140 – 180	22.0	21.9	<0.01	13.1	13.2	<0.01
180 – 220	0.6	7.6	<0.01	3.9	3.8	0.01
> 220	1.2	1.2	0.01	0.6	0.6	<0.01
Cholesterol in LDL [Mass/volume] in Serum or Plasma						
0 - 70 mg/dL	3.4	3.6	0.01	3.1	3.3	0.01
71 - 189 mg/dL	9.6	10.0	0.01	6.7	6.8	<0.01
>190 mg/dL	0.5	0.5	<0.01	0.3	0.3	0.01
Prior Hospitalization	22.1	22.5	0.01	21.3	21.3	<0.01

Abbreviations: NHW: Non-Hispanic White, ASD: Absolute Standardized Difference. CNS: Central Nervous System, SSRI/SNRIs: Selective Serotonin or Serotonin Norepinephrine Reuptake Inhibitors

Data was collected for the year prior to the indexed stroke.

ASDs >0.10 were considered clinically important differences.

Matched pairs: Patients were matched using a multivariable propensity score. Separate propensity scores matches were performed for the NHW vs. Black and NHW vs. Hispanic comparisons.

Table S3: Relative Risk for Medical Treatment for Common Post-Stroke Complications Among Propensity Score Matched Patients

Post-Stroke Complication	NHW vs. Black: RR (95% CI) n=63,722 PS Matched Pairs			NHW vs. Hispanic: RR (95% CI) n= 24,009 PS Matched Pairs		
	14-days	90-days	365-days	14-days	90-days	365-days
Arousal/Fatigue	0.58 (0.54, 0.62)	0.72 (0.68, 0.76)	0.72 (0.68, 0.76)	0.77 (0.70, 0.85)	0.85 (0.79, 0.92)	0.83 (0.78, 0.90)
Spasticity	0.64 (0.62, 0.67)	0.73 (0.70, 0.75)	0.79 (0.77, 0.82)	0.67 (0.63, 0.72)	0.72 (0.70, 0.76)	0.77 (0.73, 0.81)
Mood disorder	0.72 (0.70, 0.74)	0.78 (0.76, 0.79)	0.81 (0.80, 0.82)	0.79 (0.77, 0.82)	0.82 (0.78, 0.85)	0.84 (0.82, 0.86)
Sleep disturbance	0.78 (0.76, 0.80)	0.81 (0.79, 0.83)	0.84 (0.82, 0.86)	0.92 (0.89, 0.96)	0.95 (0.91, 0.98)	0.96 (0.93, 0.98)
Neurogenic bladder	0.74 (0.72, 0.76)	0.78 (0.76, 0.80)	0.81 (0.79, 0.83)	1.12 (1.08, 1.16)	1.11 (1.08, 1.15)	1.11 (1.07, 1.14)
Neurogenic bowel	0.99 (0.97, 0.99)	1.00 (0.99, 1.01)	1.01 (1.01, 1.02)	1.04 (1.03, 1.05)	1.03 (1.02, 1.04)	1.03 (1.02, 1.04)
Seizure	0.89 (0.88, 0.90)	0.92 (0.91, 0.94)	0.95 (0.94, 0.96)	0.98 (0.96, 1.00)	0.98 (0.96, 1.01)	0.99 (0.97, 1.01)

Abbreviations: NHW: Non-Hispanic White, RR: Relative Risk, CI: Confidence Interval, PS: Propensity Score

Time starts on day one of the acute hospitalization from the indexed stroke.

Matched pairs: Patients were matched 1:1 based on a propensity score estimated from a multivariable logistic regression model. Separate propensity score matches were performed for the NHW vs. Black and NHW vs. Hispanic comparisons. Significance was set at $p<0.05$.

Table S4: Unadjusted results: Race/Ethnic Differences in the Medical Treatment of Post-Stroke Complications Among Patients Prior to Propensity Score Matching

Post-Stroke Complication	NHW (n=259,805) vs. Black (n=64,456): RR (95% CI)			NHW (n=259,809) vs. Hispanic (n=24,025) RR (95% CI)		
	14-days	90-days	365-days	14-days	90-days	365-days
Arousal/fatigue	0.57 (0.53,0.60)	0.73 (0.70, 0.76)	0.73 (0.70, 0.76)	0.95 (0.88, 1.02)	1.04 (0.98, 1.10)	1.01 (0.95, 1.07)
Spasticity	0.67 (0.65, 0.69)	0.77 (0.75, 0.79)	0.83 (0.81, 0.86)	0.72 (0.68, 0.75)	0.77 (0.74, 0.81)	0.82 (0.79, 0.86)
Mood disorder	0.64 (0.63, 0.65)	0.71 (0.70, 0.72)	0.76 (0.75, 0.77)	0.72 (0.70, 0.74)	0.77 (0.76, 0.79)	0.80 (0.79, 0.82)
Sleep disturbance	0.73 (0.71, 0.74)	0.78 (0.76, 0.79)	0.81 (0.80, 0.82)	0.89 (0.86, 0.91)	0.93 (0.90, 0.95)	0.93 (0.91, 0.95)
Neurogenic bladder	0.68 (0.66, 0.69)	0.72 (0.70, 0.73)	0.75 (0.73, 0.76)	1.04 (1.01, 1.06)	1.03 (1.01, 1.06)	1.02 (1.00, 1.04)
Neurogenic bowel	0.98 (0.97, 0.98)	0.99 (0.98, 1.00)	1.00 (0.99, 1.01)	1.04 (1.03, 1.04)	1.03 (1.02, 1.03)	1.02 (1.02, 1.03)
Seizure	0.91 (0.90, 0.92)	0.94 (0.93, 0.95)	0.97 (0.96, 0.98)	1.05 (1.04, 1.07)	1.05 (1.04, 1.07)	1.05 (1.04, 1.07)

Significance was set at $p<0.05$. Abbreviations: NHW: Non-Hispanic White, RR: Relative Risk, CI: Confidence Interval
Time starts on day one of the acute hospitalization from the indexed stroke.

Table S5: Risk Differences for Medical Treatment for Common Post-Stroke Complications Among Propensity Score Matched Patients

Post-Stroke Complication	NHW vs. Black: RD (95% CI) n=63,722 PS Matched Pairs			NHW vs. Hispanic: RD (95% CI) n= 24,009 PS Matched Pairs		
	14-days	90-days	365-days	14-days	90-days	365-days
Arousal/Fatigue	-1.3 (-1.5, -1.2)	-1.3 (-1.4, -1.1)	-1.5 (-1.7, -1.2)	-0.2 (- 0.4, -0.1)	-0.9 (-1.2, -0.45)	-1.0 (-1.5, -0.6)
Spasticity	-3.1 (-3.4, -2.8)	-2.5 (-2.7, -2.2)	-2.7 (-3.1, -2.4)	-2.4 (-2.7, -2.08)	-3.2 (-3.7, -2.7)	-3.1 (-3.7, -2.6)
Mood disorder	-6.9 (-7.4, -6.4)	-9.6 (-10.0, -9.3)	-6.7 (-7.2, -6.2)	-8.1 (-8.6, -7.5)	-5.7 (-6.5, -4.8)	-5.6 (-6.5, -4.8)
Sleep disturbance	-3.9 (-4.3, -3.4)	-5.4 (-5.8, -5.1)	-4.2 (-4.7, -3.7)	-2.3 (-2.8, -1.8)	-1.3 (-2.1, -0.6)	-1.2 (-2.0, -0.4)
Neurogenic bladder	-4.7 (-5.2, -4.3)	-6.5 (-6.8, -6.1)	-4.4 (-4.8, -3.9)	0.7 (0.2, 1.3)	2.3 (1.5, 3.1)	2.5 (1.7, 3.2)
Neurogenic bowel	-0.5 (-1.1, 0.1)	-0.7 (-1.1, -0.3)	0.9 (0.4, 1.4)	2.3 (1.7, 2.9)	2.0 (1.2, 2.8)	2.2 (1.4, 3.0)
Seizure	-4.1 (-4.7, -3.6)	-2.3 (-2.7 -1.9)	-2.1 (-2.7, -1.6)	2.0 (1.4, 2.7)	-0.7 (-1.6, 0.2)	-0.6 (-1.5, 0.3)

Abbreviations: NHW: Non-Hispanic White, RD: Risk Difference, CI: Confidence Interval, PS: Propensity Score
Time starts on day one of the acute hospitalization from the indexed stroke.
Matched pairs: Patients were matched 1:1 based on a propensity score estimated from a multivariable logistic regression model. Separate propensity score matches were performed for the NHW vs. Black and NHW vs. Hispanic comparisons. Significance was set at $p<0.05$.

Table S6: Proportion of Patients Receiving Medications for the Treatment of Common Post-Stroke Complications Among Propensity Score Matched Patients

	NHW vs. Black n=63,722 PS Matched Pairs				NHW vs. Hispanic: n= 24,009 PS Matched Pairs		
	14-days (%)	90-days (%)	365-days (%)		14-days (%)	90-days (%)	365-days (%)
Arousal/Fatigue							
NHW	3.2	4.6	5.2	NHW	3.2	5.6	6.3
Black	1.9	3.3	3.8	Hispanic	3.1	4.8	5.3
Spasticity							
NHW	8.9	10.5	13.3	NHW	8.5	11.4	13.6
Black	5.9	8.1	10.6	Hispanic	6.1	8.2	10.5
Mood disorder							
NHW	25.6	33.6	34.8	NHW	28.6	31.7	35.5
Black	18.7	24.0	28.2	Hispanic	20.6	26.0	22.8
Sleep disturbance							
NHW	18.9	24.3	25.9	NHW	20.2	23.8	26.4
Black	15.1	18.9	21.7	Hispanic	17.9	22.5	25.2
Neurogenic bladder							
NHW	18.7	22.7	22.9	NHW	20.0	21.0	22.9
Black	13.9	16.2	18.5	Hispanic	20.7	23.4	254
Neurogenic bowel							
NHW	67.4	69.5	71.2	NHW	66.4	69.1	71.5
Black	66.9	68.8	72.1	Hispanic	68.7	71.1	73.7
Seizure							
NHW	38.5	40.1	43.8	NHW	37.1	42.9	45.7
Black	34.4	37.8	41.7	Hispanic	39.2	42.3	45.2

Abbreviations: NHW: Non-Hispanic White, PS: Propensity Score

Time starts on day one of the acute hospitalization from the indexed stroke.

Matched pairs: Patients were matched 1:1 based on a propensity score estimated from a multivariable logistic regression model. Separate propensity score matches were performed for the NHW vs. Black and NHW vs. Hispanic comparisons.

Table S7: Subgroup Analysis: Relative Risk for Race/Ethnic Differences in the Medical Treatment of Post-Stroke Complications Among Propensity Score Matched Ischemic Stroke Patients

Post-Stroke Complication	NHW vs. Black: RR (95% CI) n=47,907 PS Matched Pairs			NHW vs. Hispanic: RR (95% CI) n= 18,569 PS Matched Pairs		
	14-days	90-days	365-days	14-days	90-days	365-days
Arousal/Fatigue	0.58 (0.53, 0.63)	0.73 (0.68, 0.78)	0.71 (0.67, 0.76)	0.76 (0.67, 0.85)	0.75 (0.68, 0.83)	0.74 (0.67, 0.80)
Spasticity	0.66 (0.63, 0.69)	0.78 (0.75, 0.81)	0.83 (0.81, 0.86)	0.67 (0.62, 0.72)	0.72 (0.67, 0.76)	0.76 (0.72, 0.80)
Mood disorder	0.77 (0.76, 0.79)	0.84 (0.82, 0.85)	0.87 (0.85, 0.88)	0.77 (0.74, 0.79)	0.81 (0.78, 0.83)	0.83 (0.81, 0.85)
Sleep disturbance	0.82 (0.80, 0.84)	0.87 (0.85, 0.89)	0.89 (0.88, 0.91)	0.86 (0.83, 0.90)	0.88 (0.85, 0.91)	0.89 (0.86, 0.92)
Neurogenic bladder	0.82 (0.80, 0.84)	0.88 (0.86, 0.91)	0.89 (0.87, 0.92)	1.06 (1.01, 1.11)	0.99 (0.95, 1.03)	0.98 (0.95, 1.02)
Neurogenic bowel	1.02 (1.01, 1.03)	1.01 (1.00, 1.02)	1.02 (1.01, 1.03)	1.07 1.05, 1.08)	1.04 (1.02, 1.05)	1.04 (1.02, 1.05)
Seizure	0.96 (0.94, 0.97)	0.98 (0.96, 1.00)	1.01 (0.99, 1.03)	0.92 (0.89, 0.95)	0.92 (0.90, 0.95)	0.93 (0.91, 0.96)

Abbreviations: NHW: Non-Hispanic White, RR: Relative Risk, CI: Confidence Interval, PS: Propensity Score
Time starts on day one of the acute hospitalization from the indexed stroke.
Matched pairs: Patients were matched 1:1 based on a propensity score estimated from a multivariable logistic regression model. Separate propensity score matches were performed for the NHW vs. Black and NHW vs. Hispanic comparisons. Significance was set at $p<0.05$.

Table S8: Subgroup Analysis: Relative Risk for Race/Ethnic Differences in the Management of Post-Stroke Complications Among Propensity Score Matched Patients <65 Years of Age

Post-Stroke Complication	NHW vs. Black: RR (95% CI) n=42,963 PS Matched Pairs			NHW vs. Hispanic: RR (95% CI) n= 17,156 PS Matched Pairs		
	14-days	90-days	365-days	14-days	90-days	365-days
Arousal/Fatigue	0.74 (0.69,0.81)	0.85 (0.78, 0.90)	0.82 (0.77, 0.87)	0.81 (0.72, 0.90)	0.83 (0.76, 0.90)	0.82 (0.75, 0.89)
Spasticity	0.68 (0.65, 0.72)	0.78 (0.75, 0.81)	0.85 (0.82, 0.87)	0.63 (0.59, 0.68)	0.74 (0.69, 0.79)	0.78 (0.74, 0.82)
Mood disorder	0.79 (0.77, 0.81)	0.84 (0.83, 0.86)	0.87 (0.86, 0.89)	0.75 (0.72, 0.78)	0.76 (0.73, 0.78)	0.79 (0.77, 0.81)
Sleep disturbance	0.89 (0.86, 0.91)	0.91 (0.89, 0.94)	0.94 (0.92, 0.96)	0.91 (0.87, 0.95)	0.85 (0.82, 0.88)	0.86 (0.83, 0.89)
Neurogenic bladder	0.79 (0.76, 0.81)	0.82 (0.79, 0.84)	0.85 (0.82, 0.87)	1.19 (1.13, 1.24)	1.12 (1.07, 1.16)	1.11 (1.07, 1.16)
Neurogenic bowel	0.97 (0.96, 0.98)	0.98 (0.98, 0.99)	1.00 (0.99, 1.01)	1.04 (1.02, 1.05)	1.02 (1.01, 1.04)	1.03 (1.01, 1.04)
Seizure	0.87 (0.86, 0.89)	0.90 (0.89, 0.91)	0.93 (0.92, 0.94)	1.00 (0.98, 1.03)	1.00 (0.98, 1.02)	0.99 (0.97, 1.01)

Significance was set at $p<0.05$. Abbreviations: NHW: Non-Hispanic White, RR: Relative Risk, CI: Confidence Interval, PS: Propensity Score
Time starts on day one of the acute hospitalization from the indexed stroke.
Matched pairs: Patients were matched 1:1 based on a propensity score estimated from a multivariable logistic regression model. Separate propensity scores matches were performed for the NHW vs. Black and NHW vs. Hispanic comparisons.

Table S9: Subgroup Analysis: Relative Risk for Race/Ethnic Differences in the Medical Treatment of Post-Stroke Complications at 90 days Stratified by Decade

Post-Stroke Complication	NHW vs. Black: RR (95% CI)		NHW vs. Hispanic: RR (95% CI)	
	2003-2012 (n=5,674 PS Matched Pairs)	2013-2022 (n=57,973 PS Matched Pairs)	2003-2012 (n=2,292 PS Matched Pairs)	2013-2022 (n=21,693 PS Matched Pairs)
Arousal/Fatigue	0.69 (0.54, 0.88)	0.74 (0.70, 0.78)	0.67 (0.48, 0.94)	0.88 (0.81, 0.95)
Spasticity	0.49 (0.43, 0.57)	0.75 (0.72, 0.78)	0.50 (0.40, 0.63)	0.72 (0.68, 0.76)
Mood disorder	0.69 (0.64, 0.74)	0.79 (0.77, 0.80)	0.72 (0.64, 0.82)	0.84 (0.82, 0.86)
Sleep disturbance	0.89 (0.81, 0.99)	0.82 (0.80, 0.84)	0.83 (0.70, 0.98)	0.97 (0.94, 1.00)
Neurogenic bladder	0.60 (0.54, 0.66)	0.80 (0.78, 0.82)	0.76 (0.66, 0.88)	1.14 (1.10, 1.18)
Neurogenic bowel	0.97 (0.93, 1.00)	1.01 (01.00, 1.01)	0.84 (0.78, 0.89)	1.05 (1.04, 1.06)
Seizure	0.77 (0.72, 0.82)	0.94 (0.92, 0.95)	0.74 (0.67, 0.82)	1.01 (0.99, 1.03)

Abbreviations: NHW: Non-Hispanic White, RR: Relative Risk, CI: Confidence Interval, PS: Propensity Score

Time starts on day one of the acute hospitalization from the indexed stroke.

Matched pairs: Patients were matched 1:1 based on a propensity score estimated from a multivariable logistic regression model. Separate propensity score matches were performed by decade and for each NHW vs. Black and NHW vs. Hispanic comparison. Significance was set at $p<0.05$.