

SUPPLEMENTAL MATERIAL

Table S1. Distribution of 2000 Decennial Census Variables by Neighborhood Disadvantage Quartile among the REasons for Geographic and Racial Differences in Stroke (REGARDS) Study Participants

	NEIGHBORHOOD DISADVANTAGE			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Number of census tracts	3242	3178	3166	3215
Number of participants	4425	5072	6505	7643
% Less than a high school education, median (IQR)	3.83 (2.52-5.23)	8.47 (6.74-10.39)	16.06 (13.05-19.23)	29.44 (24.92-36.17)
% Unemployed, median (IQR)	17.61 (11.95-22.39)	32.09 (27.31-36.66)	44.99 (39.56-49.79)	60.38 (54.49-67.05)
% Households earning <\$30,000 per year, median (IQR)	0.91 (0.48-1.43)	2.00 (1.27-2.74)	3.87 (2.76-5.15)	7.75 (5.26-11.2)
% Households in poverty, median (IQR)	2.73 (1.97-3.65)	4.51 (3.48-5.8)	7 (5.42-8.78)	12.26 (9.68-16.06)
% Households on public assistance, median (IQR)	2.56 (1.59-3.77)	5.05 (3.57-7.23)	10.16 (7.27-13.61)	21.76 (16.28-30.34)
% Households without a car, median (IQR)	7.25 (4.54-10.17)	15.49 (12.11-19.48)	24.63 (19.63-29.28)	35.11 (30.27-40.35)

* IQR-Interquartile range

Table S2. Reclassification of REGARDS Participants by Neighborhood Disadvantage Quartiles for years 2000 and 2010

Year 2000*	Year 2010*			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Quartile 1, n (row %)	3432 (77.6%)	932 (21.1%)	61 (1.4%)	0 (0%)
Quartile 2, n (row %)	923 (18.2%)	2866 (56.5%)	1242 (24.5%)	41 (0.8%)
Quartile 3, n (row %)	87 (1.3%)	1103 (17%)	3916 (60.2%)	1399 (21.5%)
Quartile 4, n (row %)	4 (0.1%)	53 (0.7%)	1326 (17.3%)	6260 (81.9%)

* Neighborhood Disadvantage Quartiles calculated using the Census Data for the years 2000 (rows) and 2 (columns)

Table S3. Participant Characteristics by Neighborhood Disadvantage and Diabetes Status, The REasons for Geographic and Racial Differences in Stroke (REGARDS) Study (2003-2007)

Characteristics	With diabetes				Without diabetes			
	Quartile 1* (n=496)	Quartile 2* (n=772)	Quartile 3* (n=1238)	Quartile 4* (n=1929)	Quartile 1* (n=3929)	Quartile 2* (n=4300)	Quartile 3* (n=5267)	Quartile 4* (n=5714)
Neighborhood disadvantage measure, mean (SD) [†]	6.7 (1.8)	12.4 (1.8)	19.8 (2.6)	34.2 (8.2)	6.4 (1.9)	12.3 (1.8)	19.7 (2.7)	33.7 (7.8)
Neighborhood disadvantage measure, range	(2.1, 9.4)	(9.5, 15.5)	(15.5, 24.6)	(24.6, 84.9)	(0.0, 9.4)	(9.4, 15.5)	(15.5, 24.6)	(24.6, 74.8)
Age (years), Mean (SD)	65.7 (8.6)	65.2 (8.4)	64.9 (8.7)	65.2 (8.6)	64.4 (9.2)	64.1 (9.4)	64.3 (9.4)	64.3 (9.7)
Black Participants, n (%)	84 (16.9%)	251 (32.5%)	663 (53.6%)	1523 (79.0%)	367 (9.3%)	828 (19.3%)	1885 (35.8%)	3745 (65.5%)
Women, n (%)	182 (36.7%)	353 (45.7%)	671 (54.2%)	1124 (58.3%)	1938 (49.3%)	2277 (53.0%)	2980 (56.6%)	3450 (60.4%)
Less than high school education, n (%)	16 (3.2%)	84 (10.9%)	194 (15.7%)	501 (26.0%)	77 (2.0%)	257 (6.0%)	519 (9.9%)	990 (17.3%)
Annual household income, n (%)								
<= \$35,000	126 (25.4%)	330 (42.7%)	625 (50.5%)	1194 (61.9%)	718 (18.3%)	1374 (32.0%)	2067 (39.2%)	3086 (54.0%)
> \$35,000	312 (62.9%)	364 (47.2%)	466 (37.6%)	491 (25.5%)	2734 (69.6%)	2472 (57.5%)	2584 (49.1%)	1963 (34.4%)
Declined to report	58 (11.7%)	78 (10.1%)	147 (11.9%)	244 (12.6%)	477 (12.1%)	454 (10.6%)	616 (11.7%)	665 (11.6%)
Have health insurance, n (%)	485 (97.8%)	731 (94.7%)	1150 (92.9%)	1732 (89.8%)	3839 (97.7%)	4087 (95.0%)	4925 (93.5%)	5111 (89.4%)
Geographic region of residence, n (%)								
Stroke buckle	143 (28.8%)	275 (35.6%)	443 (35.8%)	696 (36.1%)	1071 (27.3%)	1499 (34.9%)	1836 (34.9%)	2179 (38.1%)
Stroke belt	70 (14.1%)	174 (22.5%)	344 (27.8%)	392 (20.3%)	562 (14.3%)	876 (20.4%)	1342 (25.5%)	1163 (20.4%)
Non-belt	283 (57.1%)	323 (41.8%)	451 (36.4%)	841 (43.6%)	2296 (58.4%)	1925 (44.8%)	2089 (39.7%)	2372 (41.5%)
Heavy alcohol consumption, n (%)	94 (19.0%)	108 (14.0%)	135 (10.9%)	164 (8.5%)	1434 (36.5%)	1137 (26.4%)	1075 (20.4%)	1014 (17.7%)
Current smoking, n (%)	53 (10.7%)	114 (14.8%)	153 (12.4%)	338 (17.5%)	342 (8.7%)	548 (12.7%)	814 (15.5%)	1093 (19.1%)
No regular physical activity, n (%)	332 (66.9%)	479 (62.0%)	763 (61.6%)	1160 (60.1%)	2909 (74.0%)	3016 (70.1%)	3616 (68.7%)	3750 (65.6%)
Body mass index >=30kg/m ² , n (%)	244 (49.2%)	413 (53.5%)	711 (57.4%)	1104 (57.2%)	944 (24.0%)	1228 (28.6%)	1713 (32.5%)	2152 (37.7%)
Has dyslipidemia, n (%)	380 (76.6%)	571 (74.0%)	848 (68.5%)	1264 (65.5%)	2106 (53.6%)	2306 (53.6%)	2818 (53.5%)	2952 (51.7%)
Has hypertension, n (%)	347 (70.0%)	567 (73.4%)	950 (76.7%)	1547 (80.2%)	1670 (42.5%)	2116 (49.2%)	2841 (53.9%)	3421 (59.9%)
Insulin use, n (%)	96 (19.4%)	135 (17.5%)	249 (20.1%)	473 (24.5%)	-	-	-	-

* Quartiles were created based on the number of unique census tracts where REGARDS participants lived (not participants). Quartile 1 is most advantaged and quartile 4 most disadvantaged.

[†] Neighborhood disadvantage measure calculated as sum of the z-score of 6 US Census variables: % population with < high school education; % population unemployed; % households with income <\$30,000 per year; % households on public assistance; % population living in poverty; and % households without a car, scaled to range between 0 and 100.

Table S4. Association of Neighborhood Disadvantage and Risk of Heart Failure Hospitalization or Death, Overall and by Diabetes Status-The REasons for Geographic and Racial Differences in Stroke (REGARDS) Study

Neighborhood Disadvantage*	Number of HF events/Total of people	Model 1†	Model 2†	Model 3†	Model 4†	Competing risk analysis‡
Overall (n=23645)						
Quartile 1 (most advantaged)	108/4425	Ref	Ref	Ref	Ref	Ref
Quartile 2	161/5072	1.44 (1.18-1.77)	1.41 (1.14-1.73)	1.34 (1.09-1.65)	1.30 (1.06-1.60)	1.26 (1.02-1.55)
Quartile 3	208/6505	1.60 (1.32-1.94)	1.52 (1.24-1.86)	1.42 (1.16-1.74)	1.36 (1.11-1.66)	1.31 (1.07-1.61)
Quartile 4 (most disadvantaged)	225/7643	1.88 (1.56-2.27)	1.68 (1.36-2.08)	1.53 (1.24-1.90)	1.45 (1.18-1.79)	1.37 (1.11-1.70)
Adults with diabetes (n=4435)						
Quartile 1 (most advantaged)	42/496	Ref	Ref	Ref	Ref	Ref
Quartile 2	72/772	1.15 (0.78-1.69)	1.18 (0.80-1.76)	1.13 (0.76-1.67)	1.12 (0.75-1.65)	1.09 (0.74-1.62)
Quartile 3	115/1238	1.16 (0.81-1.66)	1.25 (0.86-1.81)	1.21 (0.83-1.75)	1.20 (0.83-1.75)	1.18 (0.82-1.71)
Quartile 4 (most disadvantaged)	194/1929	1.34 (0.95-1.88)	1.44 (0.99-2.11)	1.34 (0.92-1.96)	1.34 (0.92-1.96)	1.27 (0.87-1.86)
Adults without diabetes (n=19210)						
Quartile 1 (most advantaged)	108/3929	Ref	Ref	Ref	Ref	Ref
Quartile 2	161/4300	1.45 (1.14-1.84)	1.43 (1.12-1.83)	1.40 (1.09-1.78)	1.37 (1.07-1.75)	1.31 (1.02-1.67)
Quartile 3	208/5267	1.56 (1.23-1.97)	1.53 (1.20-1.96)	1.48 (1.16-1.89)	1.43 (1.12-1.83)	1.36 (1.07-1.75)
Quartile 4 (most disadvantaged)	225/5714	1.65 (1.31-2.07)	1.59 (1.23-2.06)	1.51 (1.17-1.96)	1.50 (1.16-1.94)	1.41 (1.08-1.83)

* Quartiles were created based on the number of unique census tracts where REGARDS participants lived and not the number of participants. Neighborhood disadvantage measure calculated as sum of the z-score of 6 US Census variables: % population with < high school education; % population unemployed; % households with income <\$30,000 per year; % households on public assistance; % population living in poverty; and % households without a car.

† Model 1 = Crude

Model 2 = Adjusted for age, race, sex, education, income, insurance, and geographic region

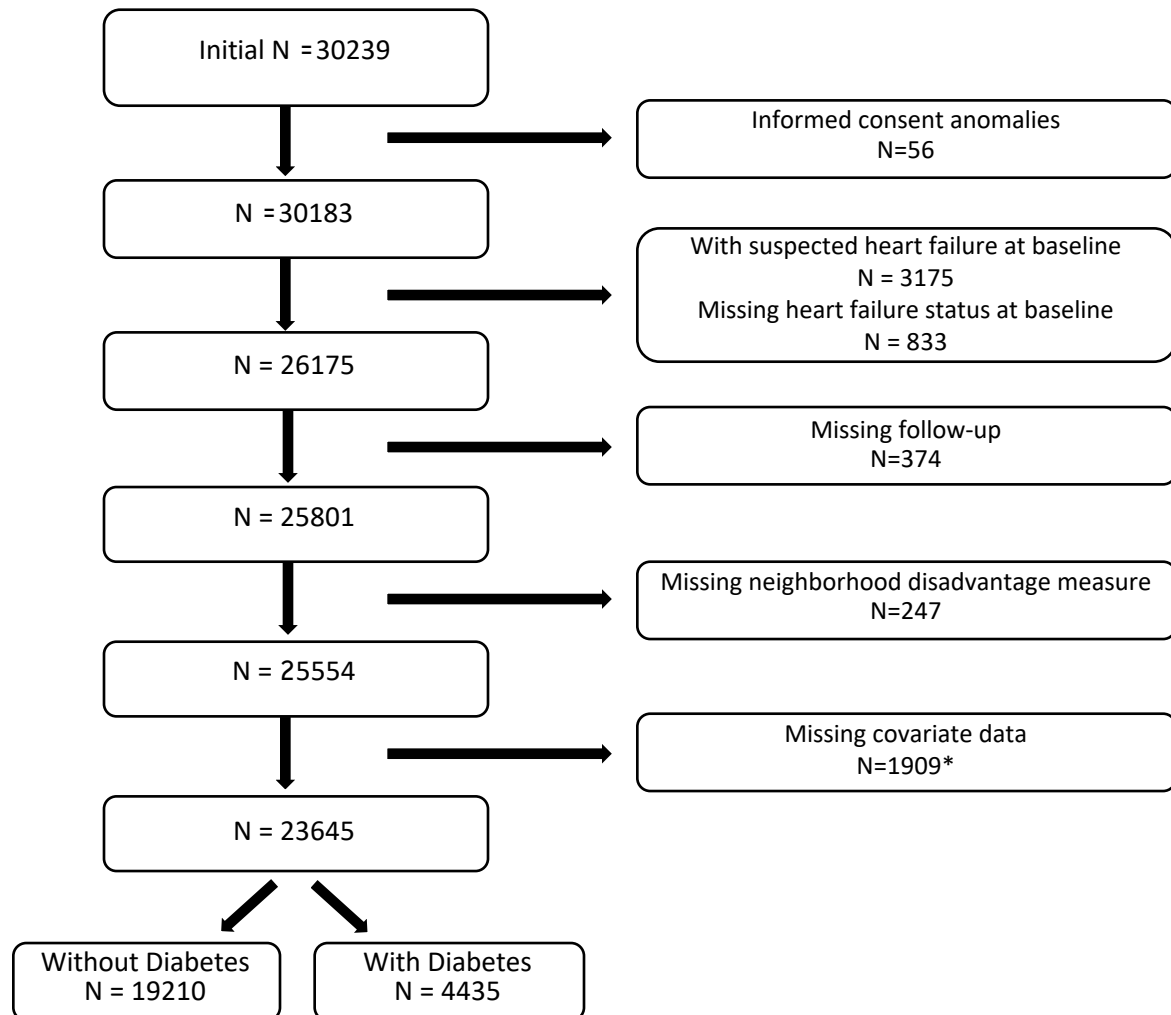
Model 3 = Adjusted for age, race, sex, education, income, insurance, geographic region, smoking, alcohol consumption, physical activity and body mass index

Model 4 = Adjusted for age, race, sex, education, income, insurance, geographic region, smoking, alcohol consumption, physical activity and body mass index, dyslipidemia, and hypertension. Diabetes was only included in the model with all REGARDS participants.

‡ Fine and Gray sub distribution hazard model with death from any cause as the competing event. Adjusted for all factors included in model 5.

Figure S1. Inclusion/Exclusion Flow-Chart of the REasons for Geographic and Racial Differences in Stroke (REGARDS) Study Participants

This figure depicts the participant selection into the study based on various inclusion and exclusion criteria.



* 48% of the missingness is due to missing diabetes status

Figure S2. Distribution of 2000 Decennial Census Variables by Neighborhood Disadvantage Quartile among the REasons for Geographic and Racial Differences in Stroke (REGARDS) Study Participants

