

## SUPPLEMENTAL MATERIAL

### **Residential proximity to major roadways and risk of incident ischemic stroke in the Northern Manhattan Study**

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#### Supplemental Statistical Methods

We used time to event analyses using Cox proportional hazards modeling to assess the risk of cardiovascular event (incident ischemic stroke, incident myocardial infarction, all-cause mortality, vascular mortality) associated with residential proximity to roadway (Equation below). The base model is:

$$h(t; x_1) = \lambda_0(t)e^{\beta_1x_1+\dots+\beta_kx_k}$$

where :

$h(t)$  = instantaneous rate per year at which events are occurring

$\lambda_0(t)$  = semi-parametric hazard function

$x_1$  = residential proximity to major roadway

$x_k$  = additional model dependent covariates

We verified the proportional hazards assumption using log-log plots and Martingale residuals, and determined that based on the resulting p-values which were all above 0.05, there was little evidence to suspect that the proportional hazards assumption was not appropriate in this population. We will conclude that there is variation in event rates at the  $p < 0.05$  level if the adjusted hazard ratios and 95% CI exclude 1. The dependent variables are time to stroke in days. If there is more than one cardiovascular event, then we will select the first event for analysis.

**Supplemental Table I. Individual Components of Census Derived Socioeconomic Status Z-Score, United States 2000 Census**

Description	Census 2000 Variable(s)
Median household income in 1999 dollars	P53_1
Median value of all owner-occupied housing units	H18_1
Percent of households with interest, dividends, or net rent income in 1999 households	P61_2/P61_1
Percent of adults 25+ with a high school degree	$\frac{(P37\_11 + P37\_12 + P37\_13 + P37\_14 + P37\_15 + P37\_16 + P37\_17 + P37\_18 + P37\_28 + P37\_29 + P37\_30 + P37\_31 + P37\_32 + P37\_33 + P37\_34 + P37\_35)}{P37\_1}$
Percent of adults 25+ with a college degree	$\frac{(P37\_14 + P37\_15 + P37\_16 + P37\_17 + P37\_18 + P37\_31 + P37\_32 + P37\_33 + P37\_34 + P37\_35)}{P37\_1}$
Percent of employed civilian population 16+ with professional, managerial, or executive occupations	$(P50\_3 + P50\_50) / P50\_1$

**Supplemental Table II. Cohort Characteristics by Exposure Category (n=3,287)**

Sociodemographic Characteristics (Mean [IQR] or n (%))	Overall	Distance from Roadway (m)			
		<100 m (n=565)	100- <200 (n=739)	200- <400 (n=1201)	≥400 (n=784)
Age at baseline, y	69.3 [14.0]	69.2 [14.0]	69.4 [15.0]	68.7 [15.0]	70.0 [14.0]
Men	1,222 (37.2)	213 (37.8)	290 (39.2)	440 (36.6)	279 (35.6)
Race-ethnicity					
White non-Hispanic	688 (20.9)	211 (37.5)	248 (36.1)	201 (16.7)	28 (3.6)
Black non-Hispanic	797 (24.3)	79 (14.0)	100 (16.4)	214 (17.8)	404 (51.5)
Hispanic	1,725 (52.5)	258 (45.8)	370 (50.1)	761 (63.4)	336 (42.9)
Other	77 (2.3)	15 (2.7)	21 (2.8)	25 (2.1)	16 (2.0)
Completed High School	1,502 (45.7)	329 (58.4)	389 (52.6)	459 (38.2)	325 (41.5)
Medicaid or Uninsured	1,434 (43.9)	201 (35.9)	289 (39.3)	588 (49.2)	356(45.9)
<b>Cardiovascular Risk Factors</b>					
Current Smoker	559 (17)	87 (15.5)	98 (13.3)	213 (17.7)	161 (20.6)
Any Physical Activity	1,901 (57.8)	339 (60.0)	448(60.6)	667 (55.5)	448 (57.1)
Moderate Alcohol Intake*	1,080 (32.9)	208 (36.9)	261 (35.3)	376 (31.3)	235 (30.0)
Hypertension†	2,420 (73.6)	391 (69.5)	525 (71.0)	899 (74.9)	605 (77.2)
Diabetes‡	716 (21.8)	106 (18.8)	162 (22.0)	279 (23.3)	169 (21.7)
Any Cardiac Disease	789 (24.0)	145 (25.8)	183 (24.8)	288 (24.0)	173 (22.1)
Mean Body Mass Index§	27.1 [6.2]	27.9 [7.0]	27.4 [5.7]	28.0 [5.9]	28.1 [6.6]
Mean High-Density Lipoprotein Cholesterol§	44.0 [19.0]	46.5 [18.0]	46.2 [17.0]	46.6 [18.0]	47.8 [19.0]
<b>Outcomes</b>					
Incident Ischemic Stroke	361 (11.0)	68 (12.1)	75 (10.2)	130 (10.8)	88 (11.2)
Incident Myocardial Infarction	368 (11.2)	70 (12.4)	80 (10.8)	141 (11.7)	77 (9.8)
All-cause death	1854 (56.4)	295 (52.4)	412 (55.8)	670 (55.8)	477 (60.8)
Vascular Death	803 (24.4)	130 (23.1)	175 (23.7)	290 (24.2)	208 (26.5)
IQR indicates interquartile range.					
*Moderate alcohol use ≤ 2 servings/day, †Hypertension = systolic blood pressure > 140 mm/Hg, diastolic blood pressure recording >90 mm/Hg (based on the average of two measurements), physician diagnosis, or self-report, ‡Diabetes=fasting blood glucose ≥ 126 mg/dL, self-report, insulin, or hypoglycemic use, §Standardized					