



AMERICAN NURSES
CREDENTIALING CENTER

Factors Related to Stroke Awareness and Severity in an Underserved Urban Community

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Disclosures

None

Our Rankings & Honors



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Nation and 13
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20 by U.S. News &
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and Long Island



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#1
Pulmonology & Lung
Surgery



#1
Cardiology, Heart, &
Vascular Surgery



#1
Geriatric Medicine



#2
Urology



#2
Orthopedics



#4
Diabetes &
Endocrinology



#4
Gastroenterology &
GI Surgery



#5
Rehabilitation



#9
Rheumatology



#12
Obstetrics &
Gynecology



#16
Cancer



#20
Ear, Nose, & Throat






Overview

- Review a study on social determinants of health and stroke awareness and severity
- Discuss how this integrates into our work as stroke care providers

ORIGINAL ARTICLE

Factors Related to Stroke Awareness and Severity in an Underserved Urban Community

Joanna M. Marmo,  *Benjamin Bass,*  *Vincenza Coughlin,*  *and Kathleen Evanovich Zavotsky* 

Objectives

- Identify disparities present within the continuum of stroke care
- Identify resources that can be utilized to determine community-based needs

Study Team

Joanna M. Marmo, MBA, MSN, RN, SCRNP, ASC-BC, NE-BC – Principal Investigator
Stroke Program Coordinator & Nursing Science Fellow
NYU Langone Hospital – Brooklyn

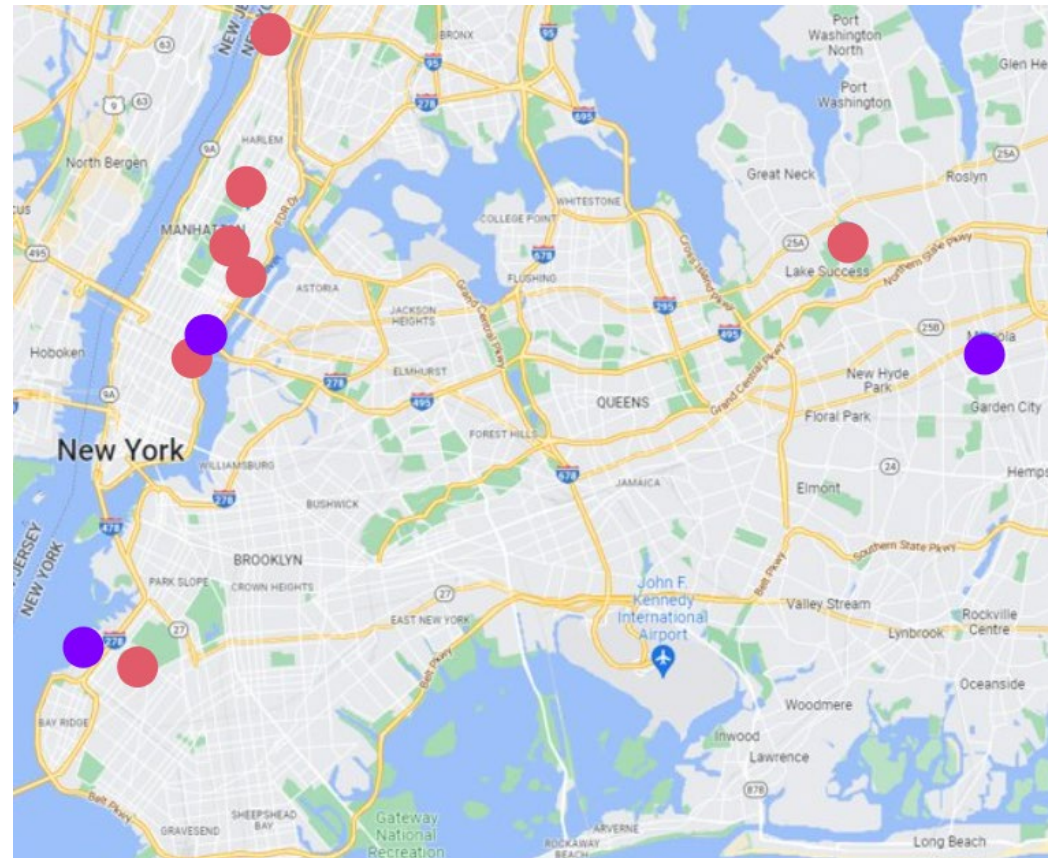
Kathleen Zavotsky, PhD, RN, CCRN, CEN, ACNS-BC, FCNS, FAEN – Co-Investigator
System Senior Director, Nursing Research and Program Evaluation
NYU Langone Health

Benjamin Bass, MPH – Research Coordinator
Research Coordinator, Center for Innovations in the Advancement of Care
NYU Langone Health

Vincenza Coughlin, PhD, RNC-MNN, CNE, NPD-BC, NEA-BC – Sub-Investigator
Director, Nursing Professional Practice and Education
NYU Langone Hospital – Long Island, Mineola, NY.

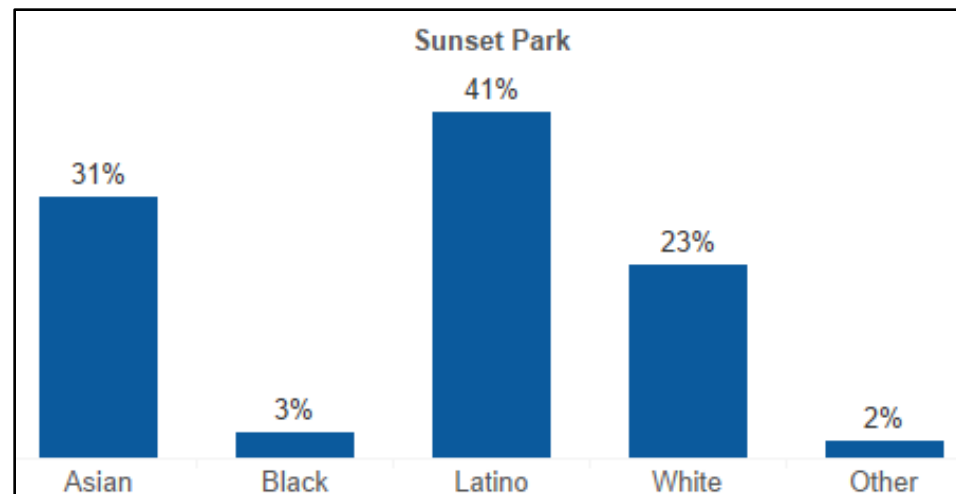
Background

- What prompted this project?
- Questions we had:
 - Who is our community? What is different here compared to our other campuses?
 - Why so little TNK compared to thrombectomy?
 - Why are 66% of our patients coming >24 hours after symptom discovery?



Background - Our Community:

Sunset Park/Windsor Terrace is the most vulnerable neighborhood for adverse health outcomes in Brooklyn. The CD has the highest percent of LEP and of those lacking a high school education.



45% of residents were born outside of the U.S., compared with 37% for all of NYC.

48% of residents have limited English proficiency, compared with 22% for NYC.

Purpose

- To explore relationships between social determinants of health and stroke awareness and severity in an underserved area located in a city borough in the Northeast

Methods

- IRB approved as an expedited study
- **Design:**
 - Exploratory descriptive retrospective secondary analysis
- **Sample:** 1162 patients
 - **Inclusion criteria:**
 - Adult patients (age 18+)
 - Arrived via the ED
 - Discharged with a principal dx of stroke (AIS, SAH, ICH, TIA) from January 2021 to July 2023
 - **Exclusion criteria:**
 - Pediatrics (under the age of 18)
 - Transfers
 - In-hospital stroke
 - Principal dx other than stroke

Methods

- **Data:**
 - Collected via GWTG
 - Demographics (age, sex, ethnicity, zip code, insurance)
 - Principal dx code
 - Initial NIHSS
 - LKW
 - Arrival time
 - Arrival method
 - Etiology
- **Analysis:**
 - Utilized SPSS
 - Bivariate associations and regression modeling (negative binomial regression with a log link)

Results

TABLE 1. Demographics

	Mean ± SD or n (%)
Age	69.15 ± 14.70
Age group	
Under 65	413 (35.54)
65+	749 (64.46)
Sex	
Male	600 (51.64)
Female	562 (48.36)
Race	
White	466 (40.10)
Asian	206 (17.73)
Black	120 (10.33)
Hispanic/Latino	223 (19.19)
Zip code	
Neighborhood of interest	190 (16.35)
Surrounding neighborhoods	887 (76.33)
Insurance type	
Public	919 (79.09)
Private	227 (19.54)
Documented stroke etiology	
Cardio embolism	246 (21.17)
Cryptogenic stroke	225 (19.36)
Large artery atherosclerosis	168 (14.46)
Small vessel disease	125 (10.76)
Other/dissection/hypercoagable	65 (5.59)
Arrival method	
EMS	723 (62.22)
Private transport	435 (37.44)
NIHSS	7.06 ± 8.02
Discovery to arrival (h)	28.37 ± 74.45

Results

TABLE 2. Factors Influencing Time From Discovery of Stroke Symptoms to Hospital Arrival

	β	<i>SE</i>	<i>p</i>	95% CI
Age group				
Under 65 (ref.)				
65+	0.83	0.09	.03	0.69, 0.98
Sex				
Female (ref.)				
Male	1.03	0.07	.72	0.89, 1.19
Race				
White (ref.)				
Asian	1.22	0.10	.04	1.01, 1.48
Black	1.81	0.13	<.001	1.40, 2.33
Hispanic/Latino	1.03	0.10	.74	0.85, 1.26
Insurance type				
Private (ref.)				
Public	0.85	0.10	.11	0.70, 1.04
Arrival method				
EMS (ref.)				
Private transport	2.49	0.08	<.001	2.14, 2.89
Zip code				
Surrounding neighborhoods (ref.)				
Neighborhood of interest	0.93	0.10	.48	.76, 1.14

Note. β = standardized regression coefficient; *SE* = standard error; CI = confidence interval.

Results

TABLE 3. Factors Influencing NIHSS Scores

	β	<i>SE</i>	<i>p</i>	95% CI
Age group				
Under 65 (ref.)				
65+	1.27	0.09	0.01	1.07, 1.51
Sex				
Female (ref.)				
Male	0.86	0.07	0.04	0.74, 0.99
Race				
White (ref.)				
Asian	1.45	0.10	<.001	1.20, 1.77
Black	1.54	0.13	<.001	1.19, 1.99
Hispanic/Latino	1.09	0.10	0.39	0.89, 1.34
Insurance type				
Private (ref.)				
Public	1.26	0.10	0.02	1.03, 1.54
Arrival method				
EMS (ref.)				
Private transport	0.37	0.08	<.001	0.32, 0.44
Zip code				
Surrounding neighborhoods (ref.)				
Neighborhood of interest	1.05	0.10	0.66	0.85, 1.29

Note. β = standardized regression coefficient; *SE* = standard error; CI = confidence interval; NIHSS = National Institutes of Health Stroke Scale.

Summary of Findings

- Factors influencing **stroke awareness** include:
 - Age
 - Race
 - Arrival method
- Factors influencing **stroke severity** include:
 - Age
 - Sex
 - Race
 - Insurance type

Implications for Practice

Major Implications:

- Importance of providing culturally and linguistically tailored education
- Linking our practice to our community
- A call to action – *it's time to use our tools!*



Implications – *Culturally Competent Education*

- More than translating – are we tailoring education to cultural in linguistic needs?
- Partnering with community leaders
 - Finding the correct forums and presenters



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Implications – *Linking Practice & Community*

- What is it like “out there?”



FOOD ENVIRONMENT

It is easier to make healthy choices when healthy, affordable food is readily available. Bodegas are less likely to have healthy food options than supermarkets. For every one supermarket in **Sunset Park**, there are **19 bodegas**. The lowest ratio among NYC community districts is one supermarket for every three bodegas (healthier); the highest is one supermarket for every 19 bodegas (less healthy).

Implications – *Tapping into our Resources*

- We know our data, lets use it!
- Are we utilizing our organizational resources to the best of our ability?
- Using a range of resources adds meaning and value to our work

Stroke Coordinator Checklist

- Track daily census
- Track code and consult volume
- Review codes and consults for appropriateness
- Tracers to prepare staff
- Provide stroke education to staff
- 1 million other things

Nursing Implications – *Tapping into our Resources*



American Heart Association.
Get With The Guidelines.

Stroke



Conclusion

- Health disparities exist in stroke management – it is up to us to help bridge the gap
- Use available resources, datasets, etc. to better understand the needs of your community and patients
- Shift thinking from “this needs to get done” to “how can we best accomplish this?”



Thank you!



Contact Info

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