

Discontinuity of Stroke Care in a Black Urban Cohort: Insight from EHR Data

Mohammad A FAYSEL^{a,1}, David KAUFMAN^a, Aimee AFABLE^b, Adiebonye JUMBO^a and Steven LEVINE^{c,d}

^aHealth Informatics Program, SUNY Downstate Health Sciences University, NY, USA

^bSchool of Public Health, SUNY Downstate Health Sciences University, NY, USA

^cThe Stroke Center, USA

^dDepartment of Neurology, SUNY Downstate College of Medicine and University Hospital of Downstate, NY, USA

ORCID ID: Mohammad Faysel <https://orcid.org/0000-0002-5584-9074>

Abstract. This poster describes the findings from a study that attempts to characterize an underserved Black stroke cohort who are at risk for discontinuities of care using electronic health record (EHR). Preliminary analysis revealed that 90.1% of the patients were Black. After being diagnosed with a stroke, 57% of the population did not return for follow-up. The objective is to understand the factors contributing to discontinuity of care in Black stroke patients.

Keywords. Discontinuity of care, lost to follow up, stroke disparity, datamining and stroke

1. Introduction

Patients lost to follow-up represents a problem that is most prevalent in medically underserved communities, especially urban underserved Black communities. The purpose of this pilot study is to characterize an urban, underserved predominantly Black stroke cohort in terms of continuity of care using EHR data.

2. Methods

We conducted a preliminary analysis of patient data from EHR databases (IRB approved) to provide specifics on stroke population across University Hospital at Downstate, NY and affiliated clinics. We analyzed two large data sets: a) stroke patients and b) a larger set of patients who have comorbidities. This poster only presents analysis of dataset that includes patients who already had a stroke to examine discontinuity of care among stroke patients. We performed a descriptive analysis using patient data from January 2016 to June 28, 2021 to identify characteristics of this stroke cohort. Using these characteristics, we plan to develop predictive models for discontinuity of care trajectories and profile of patients that are at highest risk for stroke and discontinuity of care.

¹ Corresponding Author: Mohammad A. Faysel, email: Mohammad.faysel@downstate.edu.

3. Results

There were 7,890 patient visits with a primary or secondary stroke diagnosis and a total of 3,977 unique patients with mean age of 69 (SD 14.5; range 19-105; male 42% and female 58%). Ninety percent were listed as Black or African American, 7% were White, and 1% Asian. Majority of the patients (~90%) relied on triage care for stroke related care and failed to follow up. The vast majority (69%) of patients were on Medicaid, Medicare, while four percent listed as self-pay (likely uninsured). Fifty-six percent of the patients were seen only for a single visit and identified as candidates for discontinuity of care (lost to follow up). The number of visits among the patient population ranges from 1-51. Table 1 shows the comparison of characteristics of the stroke cohort studied.

Table 1. Comparison of characteristics: single-visit stroke cohort Vs. stroke patients with multiple visits.

Characteristics	% with single-visit (Lost to Follow Up; n= 2230)	% with multiple-visit (n=1747)
Age Group		
<45	7	5
45-54	9	8
55-64	23	20
65-74	24	27
75-84	23	27
85-94	12	12
95+	2	1
Patient Gender		
Female	60	56
Male	40	44
Insurance		
Medicare	50	57
Medicaid	19	17
Self-pay/Uninsured	4	1
Other	27	25
Stroke Type Treated		
Cerebral infarction, unspecified	50	51
Transient ischemic attack and cerebral infarction w/o residual deficits	48	47
Stroke (ischemic + hemorrhagic)	2	2
Stroke (hemorrhagic only)	<1	0

4. Conclusion

This preliminary analysis provides insight into the socio-demographics of at risk patient population and informs the intervention's clinical dimensions. We plan to develop predictive models by using hierarchical logistic regression [1] and other machine learning [2] algorithms to predict discontinuity of care trajectories.

Acknowledgement

This project was supported by SUNY SEED Grant Program (RFP #20-02-RSG).

References

- [1] Vassar M, Holzmann M. The retrospective chart review: important methodological considerations. *J Educ Eval Health Prof.* 2013 Nov;10:12, doi: 10.3352/jeehp.2013.10.12.
- [2] Liu D, Shin WY, Sprecher E, Conroy K, Santiago O, Wachtel G, Santillana M. Machine learning approaches to predicting no-shows in pediatric medical appointment. *NPJ Digit Med.* 2022 Apr;5(1):50, doi: 10.1038/s41746-022-00594-w.