ABSTRACT FACE PAGE

1. **Presenting Author's name:** Michaela Rikard
2. **Presenting Author's affiliation:** University of Virginia
3. **Presenting Author's title:** Ph.D. Candidate
4. **Presenting Author's email:** smr2we@virginia.edu
5. **Presenting Author's gender (optional):** Female
6. **Presenting Author's race (optional):** White
7. **Presenting Author's ethnicity (optional):** Not Hispanic
8. **Presenting Author's affiliation sector: (check one or more)**
   - o Academia
   - o Industry
   - o Federal Employee/Contractor
   - o Private Foundation
   - o Other: _____
9. **Presenting Author's Career stage: (check one)**
   - o K-12 student
   - o Undergraduate student
   - o Graduate Student
   - o Post-doctoral Trainee
   - o Young employee (within first 3 year of post-training position)
   - o Mid-level employee (3-10 years of post-training position)
   - o Senior-level employee (10+ years of post-training position)
   - o Other: _____
10. **Website / twitter handle / other public links (optional):** @MichaelaRikard
11. **Is this the research presented in this abstract supported by IMAG MSM-related U01 funding? Yes or No**
12. **If the Presenting Author is a trainee, who is the trainee's primary research advisor?** Shayn Peirce-Cottler

---

TRAINEE POSTER AND ORAL PRESENTATION COMPETITONS:

New to the meeting this year, we are holding *both* a trainee poster competition and a trainee oral presentation competition! If the presenting author is a trainee (i.e., a student at any level or a post doctoral trainee), he/she may enter his/her abstract in the trainee poster competition, the trainee oral presentation competition, or both competitions. Trainees may also submit more than one abstract to the meeting and enter more than one abstract in these competitions. Prizes will be given to the presenters of the top-ranked trainee oral presentation and the top-ranked trainee poster (judged during the meeting by the Program Committee).

13. **If the Presenting author is a trainee, would the Presenting Author like to enter his/her abstract in the Trainee Poster Competition*? Yes or No**

*Note: Trainees who enter the poster competition are expected to stand by their poster during the scheduled poster sessions and present them to the judges.

14. **If the Presenting author is a trainee, would the Presenting Author like to enter his/her abstract in the Trainee Oral Presentation Competition**? Yes or No**

**Note: The Program Committee will select the top four abstracts from trainees who elect to enter their abstract into the trainee oral presentation competition, these four trainees will be notified by Feb. 17th, and they will deliver their oral presentations (which will be judged) on the second day of the meeting after lunch.

ASSESSING SOCIAL DETERMINANTS OF HEALTH AND IMPACT ON HEALTH OUTCOMES

[1]S. Michaela Rikard*, [2]Bommae Kim, Ph.D., [3,4]Michael D. Williams, M.D., and [1]Shayn M. Peirce, Ph.D.
[1]Department of Biomedical Engineering, University of Virginia, Charlottesville, VA, USA
[2]Quality and Performance Improvement, Senior Data Scientist, UVA Health System, Charlottesville, VA, USA
[3]General Surgery, UVA Health System, Charlottesville, VA, USA
[4]Center for Health Policy, University of Virginia, Charlottesville, VA, USA
email: smr2we@virginia.edu, website: https://www.peircecottlerlab.com/

BACKGROUND: Social determinants of health (SDOH) encompass the social and economic conditions that influence the health of individuals and communities, such as employment, education, housing, and food security. These conditions are shaped by policy choices that influence the distribution of money, power, infrastructure, and access to resources. Increasing evidence suggests that social determinants of health contribute to up to 40% of health outcomes including length and quality of life [1,2]. The goal of this study was to identify the prevalence of social and economic needs for an inpatient population at the University of Virginia Health System and the impact of those needs on unplanned inpatient admissions, emergency department admissions, and length of stay.

METHODS: This study consists of a retrospective analysis of electronic medical records for a cohort of nearly 16,000 patients who were admitted to the UVA Health System within a year time span. Text analysis of complete medical records identified if patients had a documented need for one or more SDOH needs within the 12 months preceding an inpatient admission. A nonlinear mixed effects logistic regression model was developed to describe the correlation and potential impacts of predictor variables (i.e. sex, age, severity of illness, location, discharge destination) on individual encounter-based outcomes. Specifically, we identified unplanned inpatient admissions or emergency department admissions within 30 days of an inpatient encounter, and whether the inpatient encounter was longer than the expected length of stay based on severity of illness at admission.

RESULTS: A logistic regression model was implemented for each of the three outcome variables measured (inpatient admissions, emergency department admissions, length of stay), where the fixed effects were associated with age, sex, severity of illness, resident location, and discharge destination and random effects were associated with unique patients in the data set. The model coefficients and log odds associated with each of the predictor variables are displayed in Figure 1. A patient with identified SDOH needs has an increased odds of 2.56, 2.95, and 1.38 when predicting outcomes of 30-day inpatient admission, 30-day emergency department admission, and extended length of stay, respectively.

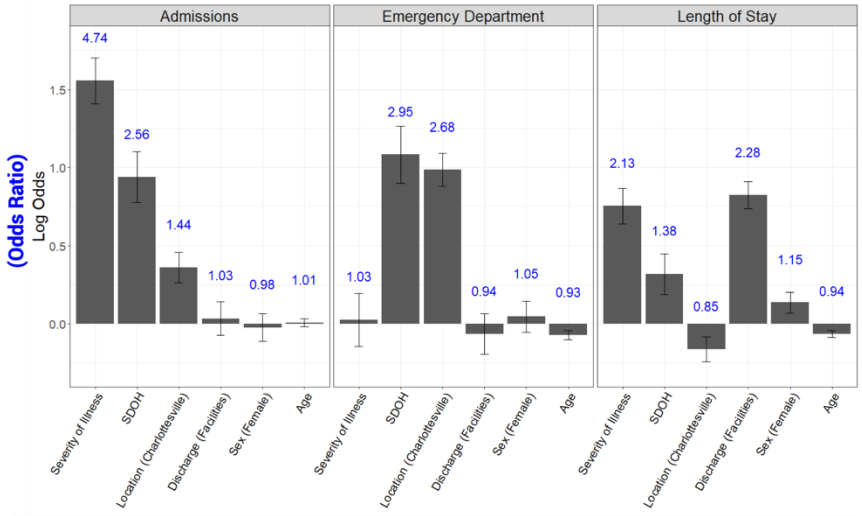

Figure 1: Logistic regression coefficients associated with predictor variables for model outcomes measured. Bars represent coefficient vales for log odds prediction. Error bars = 95% confidence interval. Blue labels indicate odds ratio.

CONCLUSIONS: Social determinants of health have significant impacts on individual health outcomes and are more predictive of all outcomes studied compared to sex, age, and location of residence. When considering emergency department admissions, SDOH is the single most important predictor, even more predictive than severity of illness.

REFERENCES:

1. Meddings et al. *J Gen Intern Med,* **32**, 71-80, 2017.
2. Givens et al. *University of Wisconsin Population Health Institute*. County Health Rankings Key Findings 2019.

ACKNOWLEDGEMENTS: The authors would like to acknowledge the Data Science Team in the Quality and Performance Improvement Department at UVA Health System who supported this work.