

Identifying New Community Risk Factors for Opioid Mortality

Daniel Rivkin¹, Cecelia Hembrough¹, Alicia Richards¹, Jong Hyung Lee¹, Roy Sabo¹, Gabriela Villalobos¹, Alex Krist¹, Jacqueline Britz¹

Affiliations: ¹ Department of Family Medicine, Virginia Commonwealth University School of Medicine, Richmond, VA, USA

Background

- Opioid mortality spiked in 2020 with over 100,000 deaths related to drug overdoses, and most of these were related to the opioid epidemic.¹
- This increase in opioid mortality has resulted in an increase in research interest in associated community risk factors.
- The VCU Department of Family Medicine and Population Health identified community-level risk factors and protective factors for opioid mortality to predict community-level opioid mortality throughout Virginia.
- Using local risk factors between 2016 and 2019² a multivariate model was built.
- Data from 2020 has not yet been reviewed using this model.

Objective

- Our aim was to identify differences between high-performing and low-performing communities in the year 2020 using a multivariate model built using risk factor data from 2016 to 2019.

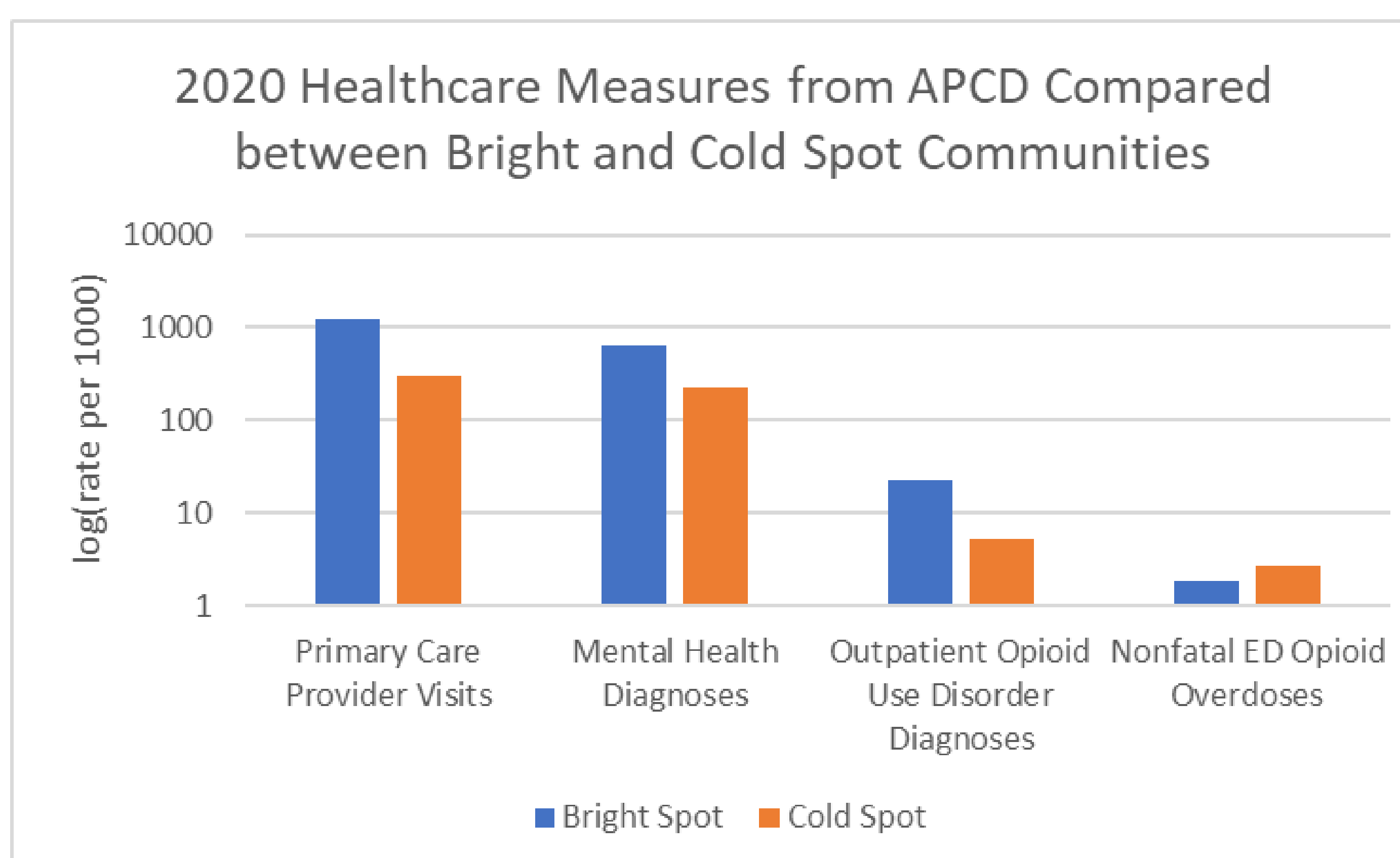
Methods

- Used 2020 data from the American Community Survey (ACS) and Virginia all-payer claims database (APCD) for each zip-code tabulation area (ZCTA) in Virginia.
- Leveraged the model developed by the VCU Department of Family Medicine and Population Health to predict mortality for each ZCTA and compared predicted mortality to actual mortality.
- Identified 30 communities with lower-than-predicted mortality (Bright Spots) and 30 communities with higher-than-predicted mortality (Cold Spots).
- Assessed community-level differences between Bright and Cold Spots using a variety of factors including demographics and several healthcare measures.

Key Findings

- Bright Spots were more likely than Cold Spots to have higher rate of primary care visits per 1000 residents (1260 vs. 301, $P < 0.01$), rate of mental health diagnoses (630 vs. 231, $p < 0.01$), and rate of outpatient diagnoses of opioid use disorder (22.5 vs. 5.31, $p < 0.01$).
- In contrast, Cold Spots were more likely to have a higher rate of Emergency Department visits for opioid overdose (2.71 vs. 1.84, $p = 0.02$).

Healthcare Measures	Community Type	Rank Mean	Rate Mean per 1000	P value
Primary Care Provider Visits	Bright Spot	41.5	1260	<0.01
	Cold Spot	20.9	301	
Mental Health Diagnoses	Bright Spot	41.9	630	<0.01
	Cold Spot	21.5	231	
Outpatient Opioid Use Disorder Diagnoses	Bright Spot	38.3	22.5	<0.01
	Cold Spot	23.9	5.31	
Nonfatal ED Opioid Overdose Rate	Bright Spot	26.1	1.84	0.02
	Cold Spot	35.8	2.71	



Discussion

- Bright Spot communities were more likely to have higher metrics of healthcare access such as higher numbers of primary care visits, mental health diagnoses, and outpatient opioid use disorder diagnoses compared to the Cold Spots. **Healthcare access may be a protective factor with respect to opioid mortality.**
- These results are consistent with findings from 2016-2019. Notably, the rate of diagnosis of mental health conditions in Bright Spot communities is over double that of Cold Spot communities, highlighting an important connection between access to mental health care and substance use outcomes.
- Cold Spots were more likely to have elevated non-fatal overdose rates compared to Bright Spots. **Residents of these communities may benefit from earlier linkage to care** to prevent overdoses.
- There are many possible factors contributing to the elevated ED opioid rate in Cold Spot communities, including barriers to earlier access to care. However, given inadequate access to earlier healthcare, improving access to medication-assisted therapy supplies in the hospital setting, and bridging to adequate services in the community, may improve longitudinal care for these patients.³

Future Directions

- Interview key community members of Bright Spot and Cold Spot communities to explore community-level differences not readily apparent in census and APCD data.
- Conduct geospatial analysis to examine neighboring zip code differences in important community-level risk factors for opioid mortality.

References

- U.S. Overdose Deaths in 2021 Increased Half as Much as in 2020 - But Are Still Up 15%. Published May 11, 2022. Accessed September 1, 2023. https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2022/202205.htm
- Britz JB, O'Loughlin KM, Henry TL, et al. Rising Racial Disparities in Opioid Mortality and Undertreatment of Opioid Use Disorder and Mental Health Comorbidities in Virginia. *AJPM Focus*. 2023;2(3). doi:10.1016/j.focus.2023.100102
- Pham S, Haigh A, Barrett E. Statewide Availability of Buprenorphine/Naloxone in Acute Care Hospitals. *Journal of Addiction Medicine*. 2022;16(1):e48. doi:10.1097/ADM.0000000000000833