

The Relationship Between Hepatitis C Virus Rates and Office-Based Buprenorphine Prescribing in Ohio

Daniel L. Brook, BS^{1,2}, Shibani R. Chettri, MPH¹, Angela T. Hetrick, MPH¹, Christine A. Schalkoff, MSPH⁴, Adams L. Sibley, MPH⁴, Kathryn E. Lancaster, PhD¹, Vivian R. Go, PhD⁴, William C. Miller, MD, PhD¹, David M. Kline, PhD³

¹The Ohio State University College of Medicine Medical Scientist Training Program, Columbus, Ohio, ²The Ohio State University College of Public Health Division of Epidemiology, Columbus, Ohio, ³The Ohio State University College of Medicine Department of Biomedical Informatics, Center for Biostatistics Columbus, Ohio, ⁴The University of North Carolina at Chapel Hill Gillings Department of Health Behavior School of Global Public Health, Chapel Hill, North Carolina



THE OHIO STATE UNIVERSITY
COLLEGE OF MEDICINE

Background

The United States is experiencing an epidemic of hepatitis C virus (HCV) infections due to injection drug use, especially in rural areas and primarily of opioids¹.

Access to office-based buprenorphine, a medication for opioid use disorder (OUD), may be related to HCV rates².

We assessed the urban versus rural county-level relationship of HCV rates in 2013-2015 and office-based buprenorphine prescribing in 2018 in Ohio.

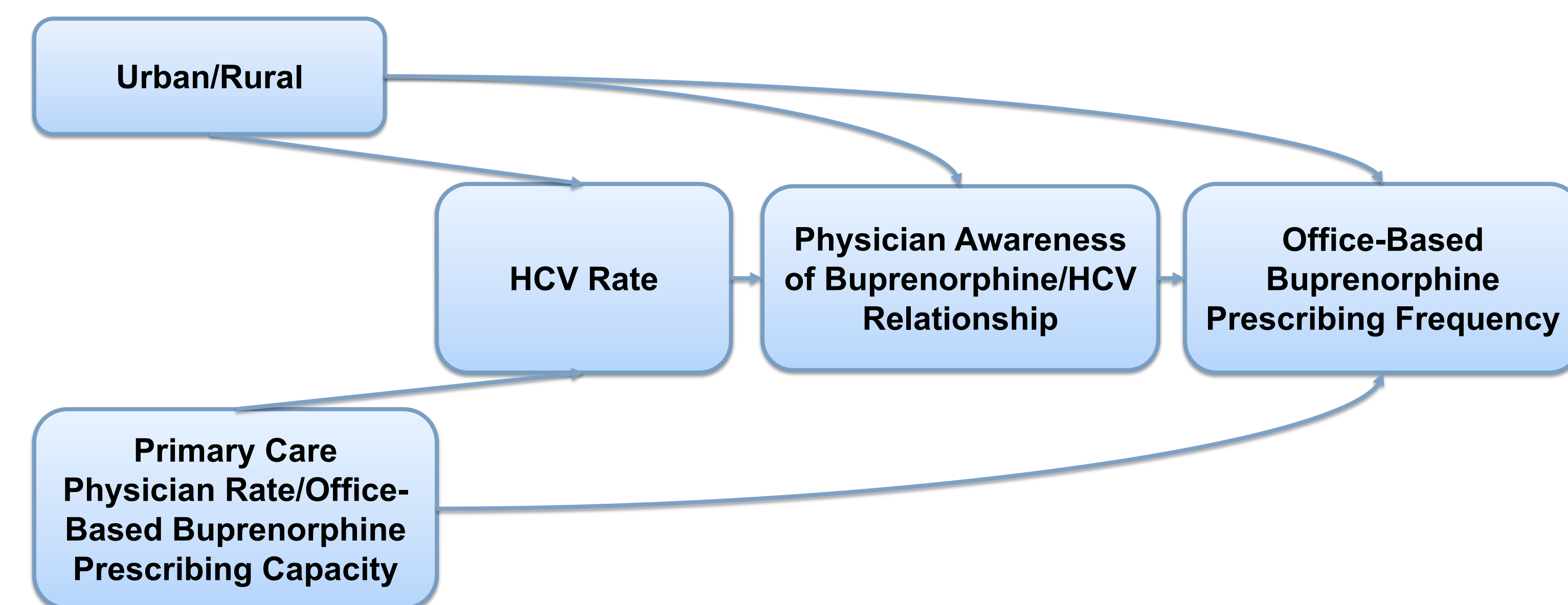


Figure 1. A theoretical model of the county-level ecological relationship between HCV rate during 2013-2015 and subsequent office-based buprenorphine prescribing access in 2018 in Ohio.

Methods

We calculated number of patients per county that were served by office-based buprenorphine prescribing (*frequency*) and the number that could potentially be served by office-based buprenorphine prescribing (*capacity*) through August 2018.

Averaged and log transformed the values of the total and acute HCV incidence rates separately for 2013-2015.

Adjusted for the 2015 county-level primary care provider rate.

Included an interaction term for county rural/urban status.

We fit negative binomial models to assess the relationship between:

- Acute HCV incidence rates in 2013-2015 and office-based buprenorphine prescribing capacity in Ohio in 2018
- Total HCV incidence rates in 2013-2015 and office-based buprenorphine prescribing capacity in Ohio in 2018
- Acute HCV incidence rates in 2013-2015 and office-based buprenorphine prescribing frequency in Ohio in 2018
- Total HCV incidence rates in 2013-2015 and office-based buprenorphine prescribing frequency in Ohio in 2018

Results

Table 1. County-Level Summary Statistics of Hepatitis C Virus (HCV) Incidence during 2013-2015 and Office-Based Buprenorphine Prescribing in Ohio in 2018.

	Median (Interquartile Range)		
	Total (n=88)	Rural (n=50)	Urban (n=38)
Mean Acute HCV Rate per 100,000 population, 2013-2015	2.30 (0.53, 7.03)	4.07 (1.27, 8.57)	1.40 (0.47, 2.60)
Mean Total HCV Rate per 100,000 population, 2013-2015	194.80 (132.67, 290.10)	204.00 (121.83, 377.73)	189.71 (149.17, 274.77)
Office-Based Buprenorphine Prescribing Capacity per 1,000 population, 2018	6.78 (2.32, 11.83)	3.95 (0.74, 9.30)	10.25 (5.98, 13.77)
Office-Based Buprenorphine Prescribing Frequency per 1,000 population, 2018	5.06 (0.29, 9.33)	1.76 (0, 7.16)	6.63 (4.21, 10.22)

Table 2a. Crude and Adjusted Relationship Between the County-Level HCV Rate in 2013-2015 and Office-Based Buprenorphine Prescribing Capacity in Ohio in 2018.

	Urban Adjusted*** PR* (95% CI**)	Rural Adjusted PR (95% CI)
Acute HCV Rate, 2013-2015	1.00 (0.98, 1.02)	1.05 (1.02, 1.08)
Total HCV Rate, 2013-2015	1.05 (1.01, 1.10)	1.10 (1.06, 1.14)

***Adjusted for the primary care physician rate in 2015.

Table 2b. Crude and Adjusted Relationship Between the County-Level HCV Rate in 2013-2015 and Office-Based Buprenorphine Prescribing Frequency in Ohio in 2018.

	Urban Adjusted*** PR (95% CI)	Rural Adjusted PR (95% CI)
Acute HCV Rate, 2013-2015	1.00 (0.98, 1.01)	1.05 (1.00, 1.11)
Total HCV Rate, 2013-2015	1.02 (0.98, 1.06)	1.12 (1.06, 1.19)

*PR = Prevalence Ratio per 10% increase in the HCV rate

**CI = Confidence Interval

***Adjusted for the office-based buprenorphine prescribing capacity in 2018.

Discussion

In this investigation, we observed that:

- Urban and rural Ohio counties have greater access to office-based buprenorphine in locations with higher HCV case rates
- The relationship between HCV case rates and office-based buprenorphine prescribing is stronger in rural counties

Based on these results:

- Rural counties in Ohio, where the OUD epidemic is the worst, appear to have more targeted access to office-based buprenorphine
- Rural areas may have more need-based access, whereas urban areas appear to have more ubiquitous access to office-based buprenorphine

Conclusion

People with HCV and OUD in rural and urban counties may have differential access to office-based buprenorphine:

- Rural counties may have more access to office-based buprenorphine where the HCV rates are highest
- Urban counties may more ubiquitously provide access to office-based buprenorphine

References

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