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Growth and Distribution of Buprenorphine-Waivered Providers in the United States, 2007–2017

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Background

Expanded access to medication treatment of opioid use disorder is a critical component of the national response to the opioid crisis. Large-scale efforts to increase the number of buprenorphine-waivered prescribers over the past decade have included increasing patient limits to 275 per physician (1) and allowing nurse practitioners and physician assistants to receive buprenorphine waivers (2). As a result, the number of buprenorphine-waivered clinicians has increased from approximately 17 000 in 2009 to approximately 68 000 in 2019 (3). However, how this growth has varied by community characteristics is unclear.

Objective

To examine county-level growth between 2007 and 2017 in number of buprenorphine-waivered prescribers and variation by county characteristics, including rurality, income, and rate of opioid-related overdose deaths in the past year.

Methods and Findings

Information on all waived prescribers, including location and patient limit, was obtained from the Substance Abuse and Mental Health Services Administration and the Drug Enforcement Administration; these data were augmented with information from the Pew Foundation and Deerfield Management. Using county population estimates from the 2010 U.S. Census and total physicians per capita, we calculated total number of waived

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Reproducible Research Statement: *Study protocol and statistical code:* Available from Dr. McBain (rmbain@rand.org). *Data set:* The Centers for Disease Control and U.S. Census Bureau data sets used in this analysis are publicly available.

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prescribers per 100 000 persons from 2007 to 2017, overall and by patient limit. Waivered prescribers were assigned to a county on the basis of U.S. Federal Information Processing Standards codes and categorized by discipline as a physician, nurse practitioner, or physician assistant. We used estimates from the Centers for Disease Control and Prevention to identify opioid-related overdose deaths in the past year. Counties were categorized by rurality as metropolitan, large nonmetropolitan (population >20 000), medium nonmetropolitan (population, 2500 to 19 999), or small nonmetropolitan (population <2500) using rural–urban continuum codes from the U.S. Department of Agriculture. We used Census Bureau data to calculate percentage of adults with 4 years of college education, percentage of adults younger than 65 years, percentages of adults of Hispanic and non-Hispanic black race/ethnicity, and per capita income quintiles.

We conducted multilevel, linear, mixed-effects multivariable regression, examining overall waived prescribers per 100 000 persons as a function of opioid-related overdose deaths per 100 000 persons, county characteristics, and time. The 3-level nested random intercept model contained individual nested within county and county nested within state. Standard errors were clustered at the state level. We interacted county rurality by year and opioid-related overdose death rate by year. We repeated all analyses replacing opioid-related overdose deaths with all overdose deaths, and results were not meaningfully different. To improve interpretability, we computed marginal effects using the margins command in Stata, version 15.0 SE (StataCorp).

From 2007 to 2017, number of waived prescribers increased from 3.80 to 17.29 per 100 000 persons. In 2017, 94.6% of waived prescribers were physicians, 4.2% were nurse practitioners, and 1.2% were physician assistants; 71.9% had waivers for 30 patients, 21.9% for 100 patients, and 6.2% for 275 patients.

Regression analyses indicated that growth in waived prescribers per 100 000 persons from 2007 to 2017 was faster in counties with higher rates of opioid-related overdose deaths in the preceding year ($\beta = 0.44$ [95% CI, 0.31 to 0.57]) (Figure, *left*) and faster in metropolitan (and large nonmetropolitan) counties than small nonmetropolitan counties ($\beta = 4.25$ [CI, 2.28 to 6.23]) and medium nonmetropolitan counties ($\beta = 2.29$ [CI, 0.44 to 4.14]) (Figure, *right*). Over the full period (2007 to 2017), more waived prescribers per 100 000 persons also practiced in counties with a larger percentage of college graduates ($\beta = 0.13$ [CI, 0.07 to 0.18]) and more physicians per capita ($\beta = 0.97$ [CI, 0.53 to 1.41]) (Table).

Discussion

From 2007 to 2017, the prevalence of buprenorphine-waivered prescribers in the United States increased from 3.8 to 17.3 per 100 000 persons, but in 2017, the total number of waived prescribers still represented fewer than 10% of primary care providers (4). The rate of waiver expansion has been fastest in hardest-hit areas, as represented by counties in the top quintile of opioid overdose deaths in the previous year. Despite evidence that the opioid crisis has disproportionately affected rural counties that are socioeconomically disadvantaged (5), we found that waived prescriber growth was markedly slower in small

nonmetropolitan counties than urban counties, as well as slower in communities with lower levels of education, even after adjusting for the severity of the crisis.

Our study has limitations. We had no information on whether waived prescribers were actively prescribing, how many patients they treated, quality of care, or patient use of prescribed buprenorphine. Furthermore, prescribers were assigned to a single county but could see patients from multiple counties.

This study sheds light on the evolution of the distribution of buprenorphine-waivered prescribers over the past decade. Given the importance of access to effective medication treatment in responding to the opioid crisis, that growth has been most rapid in communities substantially affected by the crisis is reassuring. However, it is concerning that growth has been disproportionately slower in rural communities and those with lower levels of education, which suggests the need for ongoing efforts to enhance medication treatment availability in such communities.

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References

1. Substance Abuse and Mental Health Services Administration (SAMHSA), HHS. Medication assisted treatment for opioid use disorders reporting requirements. Final rule. Fed Regist. 2016;81:66191–6. [PubMed: 27726319]
2. Jones CM, McCance-Katz EF. Characteristics and prescribing practices of clinicians recently waived to prescribe buprenorphine for the treatment of opioid use disorder. Addiction. 2019;114:471–82. doi:10.1111/add.14436 [PubMed: 30194876]
3. Substance Abuse and Mental Health Services Administration. Practitioner and program data. 2019 Accessed at www.samhsa.gov/medication-assisted-treatment/training-materials-resources/practitioner-program-data on 17 June 2019.
4. Kaiser Family Foundation. Professionally active physicians. March 2019. Accessed at www.kff.org/other/state-indicator/total-active-physicians on 17 June 2019.
5. Palombi LC, St Hill CA, Lipsky MS, et al. A scoping review of opioid misuse in the rural United States. Ann Epidemiol. 2018;28:641–52. doi:10.1016/j.annepidem.2018.05.008 [PubMed: 29921551]

Figure. Waivered providers, by overdose death rate (left) and rurality (right).

Left. Error bars represent 95% CIs. Quintiles represent rate of opioid overdose deaths per 100 000 persons in the previous year. Estimates are based on conditional standardization from regression analysis, with covariates set to median values within respective quintiles.

Right. Estimates are based on conditional standardization from regression analysis, with covariates set to median values within respective rurality classifications.

Table.

Expected Waivered Providers per 100 000 Persons, 2007–2017

Variable	Expected Waivered Providers per 100 000 Persons (95% CI), <i>n</i> *	
	For Bottom Quintile of Variable	For Top Quintile of Variable
Health-related		
Number of physicians per capita	5.83 (4.52–7.14)	7.39 (5.77–9.02)
Percentage uninsured	6.97 (5.16–8.78)	6.34 (3.82–8.86)
Socioeconomic		
Percentage college graduates	5.50 (4.16–6.83)	8.54 (6.61–10.47)
Percentage unemployed	6.42 (4.90–7.94)	7.03 (5.43–8.64)
Income per capita	6.36 (4.90–7.82)	6.71 (5.16–8.25)
Race/ethnicity		
Percentage Hispanic	6.98 (5.41–8.56)	5.83 (4.33–7.33)
Percentage non-Hispanic black	6.63 (5.19–8.07)	6.79 (5.03–8.55)

* Reported as predictive margins calculated over the covariate distribution of the data set within quintile of interest (bottom or top) for the characteristic specified (e.g., percentage unemployed). The underlying regression model from which predictive margins were calculated also contained main effects for opioid overdose death rate and county rurality classification, as well as their interactions with year (not shown here); these results are shown in the Figure.