

# Letters

## RESEARCH LETTER

### Buprenorphine Treatment Divide by Race/Ethnicity and Payment

Opioid mortality rates continue to increase throughout the United States<sup>1</sup>; however, growth in buprenorphine hydrochloride treatment for opioid use disorder (OUD) might be limited to communities with higher income and low percentages of racial/ethnic minorities.<sup>2</sup> Buprenorphine, a partial opioid agonist, is 1 of 3 evidence-based medications for treating OUD and can legally be prescribed in office-based settings.

To our knowledge, no national studies have examined the differences in the receipt of buprenorphine prescription by race/ethnicity and payment in office-based settings, in which most patients with buprenorphine prescription receive care.<sup>3</sup> In this article, we present changes in buprenorphine treatment at office-based visits in the United States since 2004 as well as the race/ethnicity and payment characteristics currently associated with its receipt.

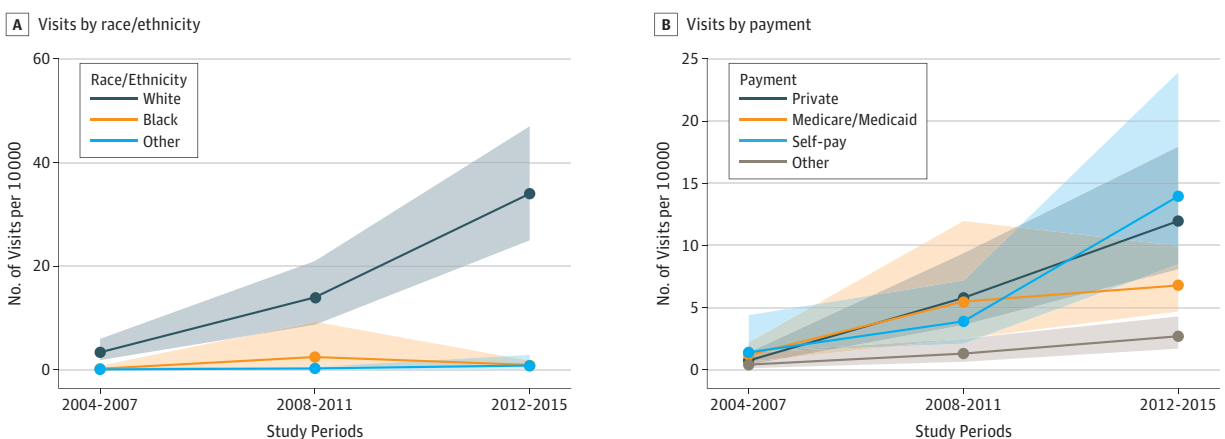
**Methods** | We combined data from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey outpatient department component from 2004 to 2015. The surveys, which provide nationally representative estimates of ambulatory care provided in the United States by non-federally employed physicians, capture physician-reported medications prescribed during each office visit as well as demographic characteristics and expected source of payment. The University of Michigan Institutional Review Board did not require approval for this study, given that secondary analysis of publicly available, nonidentifiable data set is not regulated. Informed consent was not applicable for this type of study.

We limited our sample to visits in which buprenorphine was prescribed, and we aggregated the sample into 4-year periods. We estimated buprenorphine prescription rates by race/ethnicity and payment. We chose the most recent period (2012-2015) to test the association of race/ethnicity with receipt of buprenorphine prescription using logistic regression adjusted for age, sex, and payment method. Analyses were completed in Stata, version 15.1 (StataCorp LLC), and accounted for complex survey design elements to generate nationally representative estimates.

**Results** | From 2004 to 2015, the number of buprenorphine visits rose from 0.04% to 0.36% of all ambulatory visits, representing 13.4 million visits between 2012 and 2015. From 2012 to 2015, buprenorphine prescription was received at considerably more visits by white patients than patients of other races/ethnicities (12.7 million [95% CI, 8.6 million-16.8 million] vs 363 000 [95% CI, 134 000-594 000]) (Figure). Self-pay and private insurance were the most common payment methods across all years (Table). The number of buprenorphine visits by self-pay patients dramatically increased from 585 568 (95% CI, 0-1.3 million) visits in 2004 to 2007 to 5.3 million (95% CI, 2.5 million-8.5 million) visits in 2012 to 2015, accounting for 39.6% of the visits. After accounting for payment method, sex, and age, we found that black patients had statistically significantly lower odds of receiving buprenorphine prescription at their visits (adjusted odds ratio, 0.23; 95% CI, 0.13-0.44).

**Discussion** | This study demonstrates that buprenorphine treatment is concentrated among white persons and those with private insurance or use self-pay. This finding in nationally representative data builds on a previous study that reported buprenorphine treatment disparities on the basis of race/

Figure. Buprenorphine Visits by Race/Ethnicity and Payment Type, 2004-2015



Buprenorphine visits (n = 1369) and 95% CIs per 10 000 visits (shaded areas), grouped by year and stratified by race/ethnicity and payment type. Estimates account for complex survey design elements and are nationally representative.

**Table. Demographic Characteristics Associated With Buprenorphine Prescribing in Outpatient Care in the United States in 2004-2007 and 2012-2015**

Variable	2004-2007		2012-2015		Adjusted OR (95% CI) <sup>b</sup>
	Visits Without Buprenorphine (n = 244 274), % <sup>a</sup>	Visits With Buprenorphine (n = 183), % <sup>a</sup>	Visits Without Buprenorphine (n = 204 527), % <sup>a</sup>	Visits With Buprenorphine (n = 718), % <sup>a</sup>	
Race/ethnicity <sup>c</sup>					
White	83.5	90.5	83.1	94.9	1.00
Black	11.5	6.5	10.6	2.7	0.23 (0.13-0.44)
Other	5.0	3.0	6.3	2.4	0.27 (0.08-0.90)
Payment method					
Private insurance	52.0	19.8	49.2	33.9	1.00
Medicare/Medicaid	35.1	31.5	38.1	18.9	1.16 (0.74-1.82)
Self-pay	4.5	37.8	4.5	39.6	12.27 (6.86-21.91)
Other or unknown	8.5	11.0	8.2	7.5	1.35 (0.78-2.35)
Sex					
Female	58.8	47.5	58.3	39.7	1.00
Male	41.2	52.5	41.7	60.3	2.22 (1.82-2.70)
Age, y					
<30	29.9	40.0	25.4	30.3	1.00
30-50	23.8	47.5	21.4	47.2	1.68 (1.33-2.12)
>50	46.3	12.5	53.2	22.4	0.38 (0.27-0.52)

Abbreviation: OR, odds ratio.

<sup>a</sup> Analyses were completed using survey design elements accounting for visit weight, clustering, and stratification to generate nationally representative estimates.

<sup>b</sup> Adjusted odds ratios (AOR) were generated using logistic regression (1 = buprenorphine prescribed; 0 = no buprenorphine), including the variables reported in the Table. The AOR reflects the OR for buprenorphine treatment

for a given visit characteristic during 2012 to 2015. The 2004 to 2007 visit characteristics are provided for comparison; they are not included in the logistic regression.

<sup>c</sup> White (Hispanic and non-Hispanic), black (Hispanic and non-Hispanic), and other (Asian, native Hawaiian/Pacific Islander, American Indian/Alaskan native, and multiple race, both Hispanic and non-Hispanic).

ethnicity and income in New York City.<sup>2</sup> It is unclear whether the appearance of a treatment disparity may reflect different prevalence in OUD by race/ethnicity. We did not restrict the analysis to individuals with OUD because the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey are unlikely to accurately capture OUD prevalence, but a recent analysis of the National Survey on Drug Use and Health suggests that the prevalence of opioid misuse is similar for black (3.5%) and white (4.7%) adults.<sup>4</sup>

Despite the enactment of both mental health parity legislation and Medicaid expansion, the proportion of self-pay buprenorphine visits remained relatively steady across the study period.<sup>5</sup> A recent study demonstrated that half of the physicians prescribing buprenorphine in Ohio accepted cash alone,<sup>6</sup> and our findings suggest that this practice may be widespread and may be associated with additional financial barriers for low-income populations.

This study provides a snapshot of the national differences in buprenorphine treatment for OUD. With rising rates of opioid overdoses, it is imperative that policy and research efforts specifically address racial/ethnic and economic differences in treatment access and engagement.

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**Accepted for Publication:** March 12, 2019.

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**Published Online:** May 8, 2019. doi:10.1001/jamapsychiatry.2019.0876

**Author Contributions:** Dr Lagisetty and Mr Ross had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

*Concept and design:* Lagisetty.

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*Drafting of the manuscript:* Lagisetty, Ross, Maust.

*Critical revision of the manuscript for important intellectual content:* All authors.

*Statistical analysis:* Ross.

*Administrative, technical, or material support:* Lagisetty, Clay.

*Supervision:* Lagisetty, Maust.

*Other - mentoring:* Bohnert.

**Conflict of Interest Disclosures:** None reported.

1. Alexander MJ, Kiang MV, Barbieri M. Trends in black and white opioid mortality in the United States, 1979-2015. *Epidemiology*. 2018;29(5):707-715. doi:10.1097/EDE.0000000000000858

2. Hansen H, Siegel C, Wanderling J, DiRocco D. Buprenorphine and methadone treatment for opioid dependence by income, ethnicity and race of neighborhoods in New York City. *Drug Alcohol Depend*. 2016;164:14-21. doi:10.1016/j.drugalcdep.2016.03.028

3. Breen CT, Fiellin DA. Buprenorphine supply, access, and quality: where we have come and the path forward. *J Law Med Ethics*. 2018;46(2):272-278. doi:10.1177/1073110518782934
4. Substance Abuse and Mental Health Services Administration Center for Behavioral Health Statistics and Quality. Results from the 2017 National Survey on Drug Use and Health: Detailed Tables. <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHDetailedTabs2017/NSDUHDetailedTabs2017.pdf>. Published September 7, 2018. Accessed April 2, 2019.
5. Andrews CM, Grogan CM, Smith BT, et al. Medicaid benefits for addiction treatment expanded after implementation of the Affordable Care Act. *Health Aff (Millwood)*. 2018;37(8):1216-1222. doi:10.1377/hlthaff.2018.0272
6. Parran TV, Muller JZ, Chernyak E, et al. Access to and payment for office-based buprenorphine treatment in Ohio. *Subst Abuse*. 2017;11:1178221817699247.

### Medicaid Acceptance by Psychiatrists Before and After Medicaid Expansion

Medicaid is the principal payer of behavioral health services in the United States and has been expected to play an increasing role in financing behavioral health services after states' implementation of Medicaid expansions.<sup>1,2</sup> Little is known about recent trends in psychiatrists' acceptance of Medicaid, including before and after 2014, when most Medicaid expansions under the Affordable Care Act went into effect. Without adequate participation in Medicaid among psychiatrists, Medicaid enrollees with behavioral health needs may be unable to find a local psychiatrist who accepts new patients with Medicaid or have to wait a long time for an intake appointment.<sup>3,4</sup>

**Methods** | We used the 2010-2015 National Ambulatory Medical Care Survey (NAMCS), a nationally representative survey of physicians who were not federally employed, were based in offices, and were primarily engaged in direct patient care.<sup>5</sup> Medicaid acceptance was created based on 2 questions. The NAMCS first asked, "Are you currently accepting new patients into your practice?" and then asked, "From those new patients, which of the following types of payment do you accept?" (with answer choices of payment via private insurance, Medicare, Medicaid or the Children's Health Insurance Program, worker's compensation, self-payment, and/or no charge/charity care). We limited the study sample to physicians who reported accepting new patients.

We compared the trend differences in physician acceptance of new patients with Medicaid across 2-year spans (2010-2011, 2012-2013, and 2014-2015) by physician specialty, grouping physician specialties into 3 broad categories: (1) psychiatry; (2) primary care, including general and family practice, internal medicine, and pediatrics; and (3) other nonpsychiatry specialties. We also examined differences in Medicaid acceptance before and after expansion between expansion and nonexpansion states by physician specialty, which is analogous to a stratified difference-in-differences analysis. Geographic identifiers that allowed for the classification of Medicaid expansion were only available after 2012 and for 18 large states (Arizona, California, Florida, Georgia, Illinois, Indiana, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas,

Virginia, Washington, and Wisconsin), which collectively represented 60% of the physician sample (or 73%, weighted) between 2012 and 2015. For most expansion states and all nonexpansion states, the preexpansion period was 2012 through 2013 and the postexpansion period was 2014 through 2015; exceptions were Indiana and Pennsylvania, for which the preexpansion data were for 2012 through 2014 and the postexpansion period was 2015. Analyses were weighted using NAMCS national weights. The trend analysis from 2010 through 2015 was adjusted for individual-level covariates, including ownership status, practice size, practice region, and metropolitan statistical area status. The difference-in-differences analysis from 2012 to 2015 was also adjusted for state-level managed care penetration rate, unemployment rate, poverty rate, and median household income, as well as 2-way fixed effects for state and year. Standard errors were clustered at the state level.

This study used deidentified data from publicly available sources, which removed the need to implement an informed consent procedure. It was deemed an exempt human research study by the University of Kentucky institutional review board.

Data analysis occurred from July 2018 to September 2018 using Stata/SE version 15 (StataCorp). Statistical significance was assessed with significance set at  $P < .05$ , using 2-sided tests.

**Results** | A total of 11 521 NAMCS respondents (95% of the total sample) reported seeing new patients, including 584 psychiatrists, 4400 primary care physicians, and 6537 other specialists. During each period we examined, psychiatrists were less likely than primary care physicians and other specialists to accept new patients with Medicaid (psychiatrists: 2010-2011, 47.93% [95% CI, 40.81%-55.05%]; 2012-2013, 44.94% [95% CI, 37.63%-52.24%]; 2014-2015, 35.43% [95% CI, 27.26%-43.59%]; primary care physicians: 2010-2011, 75.78% [95% CI, 72.11%-79.45%]; 2012-2013, 71.73% [95% CI, 69.11%-74.35%]; 2014-2015, 71.29% [95% CI, 67.53%-75.05%]; other specialists: 2010-2011, 76.99% [95% CI, 73.94%-80.04%]; 2012-2013, 73.22% [95% CI, 69.75%-76.69%]; 2014-2015, 73.33% [95% CI, 71.11%-75.55%]; all comparisons,  $P < .001$ ; **Figure 1**). Furthermore, there was a significant decline in the likelihood of psychiatrists accepting new patients with Medicaid. The likelihood of psychiatrists accepting Medicaid declined from 47.9% from 2010 through 2011 to 44.9% from 2012 through 2013 (**Figure 1**;  $P = .04$ ) and to 35.4% in 2014 through 2015 ( $P = .01$ ). In contrast with these declines, no significant change in Medicaid acceptance was found among primary care physicians or other specialists.

The adjusted difference-in-differences estimates suggest Medicaid expansion was not associated with a discernable change in the likelihood of accepting new patients with Medicaid among psychiatrists (**Figure 2**;  $-7.89\%$  [95% CI,  $-40.03$  to  $24.24$ ];  $P = .63$ ). Furthermore, Medicaid expansion was associated with an increase in Medicaid acceptance among other specialists ( $14.0\%$  [95% CI,  $7.12$ - $20.89$ ];  $P < .001$ ) but not with a change in Medicaid acceptance among primary care physicians ( $-1.82\%$  [95% CI,  $-13.38$  to  $9.74$ ];  $P = .76$ ).