

# Access to Office-Based Buprenorphine Treatment in Areas With High Rates of Opioid-Related Mortality

## An Audit Study

Tamara Beetham, BA; Brendan Saloner, PhD; Sarah E. Wakeman, MD; Marema Gaye, MA; and Michael L. Barnett, MD, MS

**Background:** Improving access to treatment for opioid use disorder is a national priority, but little is known about the barriers encountered by patients seeking buprenorphine-naloxone (“buprenorphine”) treatment.

**Objective:** To assess real-world access to buprenorphine treatment for uninsured or Medicaid-covered patients reporting current heroin use.

**Design:** Audit survey (“secret shopper” study).

**Setting:** 6 U.S. jurisdictions with a high burden of opioid-related mortality (Massachusetts, Maryland, New Hampshire, West Virginia, Ohio, and the District of Columbia).

**Participants:** From July to November 2018, callers contacted 546 publicly listed buprenorphine prescribers twice, posing as uninsured or Medicaid-covered patients seeking buprenorphine treatment.

**Measurements:** Rates of new appointments offered, whether buprenorphine prescription was possible at the first visit, and wait times.

**Results:** Among 1092 contacts with 546 clinicians, schedulers were reached for 849 calls (78% response rate). Clinicians offered new appointments to 54% of Medicaid contacts and 62%

of uninsured-self-pay contacts, whereas 27% of Medicaid and 41% of uninsured-self-pay contacts were offered an appointment with the possibility of buprenorphine prescription at the first visit. The median wait time to the first appointment was 6 days (interquartile range [IQR], 2 to 10 days) for Medicaid contacts and 5 days (IQR, 1 to 9 days) for uninsured-self-pay contacts. These wait times were similar regardless of clinician type or payer status. The median wait time from first contact to possible buprenorphine induction was 8 days (IQR, 4 to 15 days) for Medicaid and 7 days (IQR, 3 to 14 days) for uninsured-self-pay contacts.

**Limitation:** The survey sample included only publicly listed buprenorphine prescribers.

**Conclusion:** Many buprenorphine prescribers did not offer new appointments or rapid buprenorphine access to callers reporting active heroin use, particularly those with Medicaid coverage. Nevertheless, wait times were not long, implying that opportunities may exist to increase access by using the existing prescriber workforce.

**Primary Funding Source:** National Institute on Drug Abuse.

*Ann Intern Med.* 2019;171:1-9. doi:10.7326/M18-3457

Annals.org

For author affiliations, see end of text.

This article was published at Annals.org on 4 June 2019.

Opioid overdoses continue to increase in many areas across the United States, despite substantial attention from federal and state governments, public health authorities, and health care systems (1). Reversing this trend requires a robust mental health and addiction treatment infrastructure to provide access to evidence-based treatment, such as methadone or buprenorphine (2–4). However, the vast majority of persons with opioid use disorder (OUD) have not received treatment in the past year (5). Although access to OUD treatment is a challenge for many patients, little is understood about the diverse barriers they encounter in seeking treatment, which may include lack of appointment availability, long wait times, or high costs.

Outpatient treatment with different formulations of buprenorphine-naloxone (“buprenorphine”) is a particularly promising approach to expand access to OUD treatment. Buprenorphine may be prescribed in office-based settings or outpatient treatment programs and is associated with substantial reductions in overdose deaths and all-cause mortality and a greater likelihood of successful long-term recovery (6–8). Buprenorphine prescribed through an outpatient office has great capacity to serve the unmet demand for OUD treatment, but the availability of prescribers is limited. Many clinicians have little experience with buprenorphine, be-

cause training in addiction medicine in medical school and residency often is minimal (9). Further, to prescribe buprenorphine, providers must obtain a federal waiver, which requires hours of formal training: 8 for physicians and 24 for nurse practitioners and physician assistants. Even with a waiver, clinicians have a cap on the number of patients they can treat with buprenorphine at any time (10–13). Fewer than 6% of physicians, 2% of nurse practitioners, and 1% of physician assistants (14) nationally have a waiver (15), and many buprenorphine-waivered clinicians are not actively prescribing (16, 17).

Although the limited supply of prescribers contributes to the underutilization of buprenorphine, many other barriers may exist between a person’s decision to seek treatment and his or her success in obtaining an appointment. Understanding the nature of these patient-facing barriers is crucial to designing effective policy. For example, potential interventions might dif-

### See also:

Editorial comment . . . . . 58

Web-Only  
Supplement

fer, depending on whether a key barrier to treatment access is the percentage of clinicians taking new patients, long wait times, or lack of appointment acceptance for subgroups disproportionately affected by OUD, such as Medicaid enrollees and uninsured persons (18). Other practices charge substantial fees for uninsured patients paying cash or supplemental expenses for such services as urine drug tests (19), which may be an additional barrier for many.

Beyond acceptance of new patients, prompt initiation of buprenorphine (a clinically supervised process referred to as "induction" that may take place in the office or at home) (20, 21) is another important factor in accessing care, because every day without treatment carries an elevated risk for escalating opioid use and overdose (22–24). Patients must be in active opioid withdrawal to initiate buprenorphine treatment safely, which makes the timing of induction critical. Outcomes are better when induction is offered as soon as possible (24, 25), but many clinicians have specific requirements for patients to meet before offering them buprenorphine, such as active engagement in counseling, which may result in delays (26).

To examine buprenorphine treatment barriers from the patient perspective, we performed an audit ("secret shopper") study of publicly listed buprenorphine clinicians in states with the highest opioid overdose mortality rates nationally in 2016, posing as callers with either Medicaid coverage or without insurance and paying cash.

## METHODS

### Study Design

We used audit methods simulating a standard OUD presentation to minimize social desirability and recall biases common in traditional surveys (27). To assess access, wait times, and out-of-pocket costs, callers posed as 2 identical patients reporting active heroin use and seeking buprenorphine treatment: 1 with Medicaid coverage and the other without insurance and self-paying.

### Study Population and Sample Selection

To define the sample frame of buprenorphine-waivered clinicians for selection, we obtained all data available from the public Buprenorphine Practitioner Locator Web site (28), updated daily by the federal Substance Abuse and Mental Health Services Administration. Clinicians may opt to be publicly listed on this Web site after receiving a waiver: In the data used for this study, 54% of waivered clinicians nationally were listed (28, 29). We focused on sampling publicly listed clinicians, because they are the providers most easily found by real patients seeking treatment without a referral. The Practitioner Locator Web site lists buprenorphine clinicians by name, degree, clinic phone number, and address (28). We captured Practitioner Locator data in January 2018 (for physicians) and June 2018 (for nurse practitioners and physician assistants). In addition, we obtained the buprenorphine waiver patient

cap for each clinician (a maximum of 30, 100, or 275 patients certified for treatment at any time ["waiver capacity"]), as well as the year of his or her first waiver, through a Freedom of Information Act request to the Substance Abuse and Mental Health Services Administration. We classified clinics as urban or rural by using the Rural-Urban Commuting Area Code classification system from the University of Washington Rural Health Research Center (30).

From this national database, we sampled publicly listed clinicians from 6 jurisdictions (referred to as "states" going forward) with the highest opioid-related overdose mortality rate in 2016 (31): Massachusetts, Ohio, Maryland, West Virginia, New Hampshire, and the District of Columbia. We took random samples of buprenorphine clinicians with a unique phone number and address combination in each state to obtain a targeted sample of 1050 clinicians. In 3 states with fewer than 250 listed buprenorphine clinicians (West Virginia, New Hampshire, and the District of Columbia), we sampled all listed clinicians, whereas in states with more than 250 listed buprenorphine clinicians (Ohio, Massachusetts, and Maryland), we sampled 250 clinicians stratified by waiver capacity to evenly divide each state's sample between low-waiver capacity (30-patient cap) and high-waiver capacity (100- or 275-patient cap) clinicians.

The Harvard T.H. Chan School of Public Health Institutional Review Board did not deem our analysis to be human subjects research.

### Data Collection

Two trained female research assistants called clinicians at their publicly listed phone number from July through November 2018. The callers used a standardized script that simulated a 30-year-old, otherwise-healthy woman who was actively using heroin and seeking to start buprenorphine-naloxone treatment (for the full script, see the **Supplement**, available at [Annals.org](https://annals.org)). The script was designed to represent a plausible presentation of a person with OUD without comorbid psychiatric or medical conditions. Two different scripts were used to simulate patients with identical clinical histories and demographic characteristics: 1 insured by Medicaid and 1 uninsured and willing to pay with cash ("uninsured-self-pay"). These 2 scenarios were chosen because these 2 groups are disproportionately affected by OUD (32), and no clinical reason exists for them to receive different treatment.

Clinicians were included in the final sample for analysis if a caller could contact a live scheduler within 3 separate attempts during business hours. If the sampled clinician was unavailable or not taking patients, the caller would attempt to make an appointment with any other buprenorphine prescriber available at the same clinic. A clinician was classified as a nonrespondent if a live scheduler was unreachable after 3 contact attempts and the clinician was not otherwise excluded as out of sample.

Clinicians were defined as out of sample (that is, not eligible as a potential respondent) if any of the

following criteria were met: a wrong or nonworking phone number, no buprenorphine-prescribing clinicians at the number, or location in the wrong clinical or geographic setting for the script (such as a Veterans Affairs or out-of-state clinic). Some clinicians also were excluded from the sample if the caller was unable to provide verifiable information that real patients could provide, such as a Social Security number.

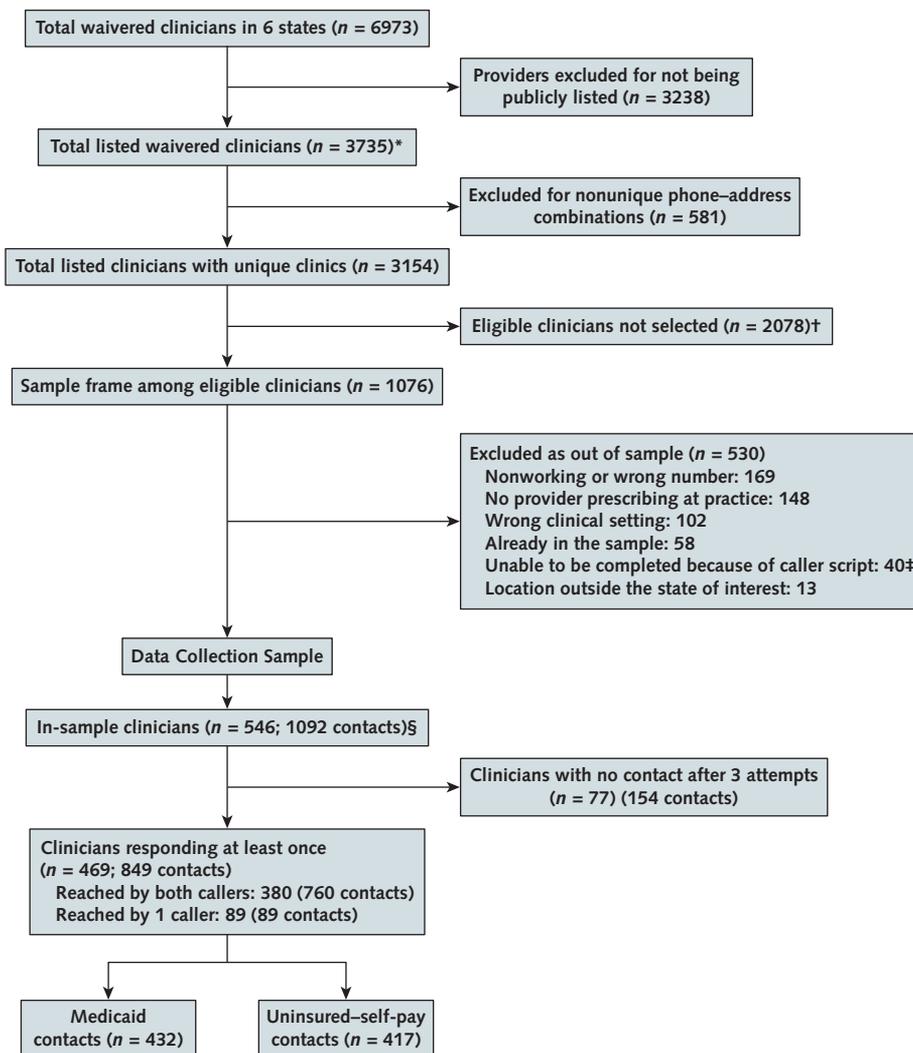
Each clinician in the sample was contacted by 2 separate callers using Medicaid or uninsured-self-pay scripts at least 4 weeks apart. Calls were made during normal business hours (9:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m. local time). If a voicemail greet-

ing on an unanswered call indicated that hours of operation deviated from the default, subsequent calls were made during the stated clinic hours and days of operation. For logistic reasons, the callers did not leave voicemail messages. All appointment requests were canceled before the end of each phone call.

**Study Outcomes**

The primary outcomes were appointment availability and wait time to initial appointment, with the key exposure of insurance type. Secondary outcomes were availability of an appointment with the possibility of in-

**Figure.** Cohort flow diagram.



\* Total listed waived clinician counts were obtained on 25 January 2018 for the physicians and 30 June 2018 for the physician assistants and nurse practitioners.

† Clinicians who were eligible to be in our sample for telephone contact but were randomly not selected.

‡ Includes situations in which a real-world patient may have been able to get an appointment but the study patient could not, such as when personal identifying information beyond a date of birth and name (such as a Medicaid plan number) or voicemail was required to inquire about appointment availability.

§ Each clinician was called under 2 scenarios—a patient covered by Medicaid and an uninsured patient who was self-paying—represented by “contacts,” such that there are 2 contacts for each clinician. We were able to contact 380 of the 546 in-sample clinicians twice, once by the Medicaid-insured caller and once by the uninsured-self-pay caller, and 89 clinics by only 1 of the callers (52 Medicaid, 37 uninsured-self-pay).

**Table 1.** Contacts With Response, by Clinician Characteristics

Clinician Characteristic	Clinicians, by Number of Contacts With Response, n (%)			Total
	0	1	2	
<b>Waiver capacity</b>				
30 patients				
NP or PA	19 (13)	22 (15)	109 (73)	150
Physician	27 (29)	11 (12)	55 (59)	93
100 patients	21 (11)	39 (20)	132 (69)	192
275 patients	10 (9)	17 (15)	84 (76)	111
<b>State</b>				
District of Columbia	12 (32)	8 (22)	17 (46)	37
Massachusetts	12 (11)	20 (19)	73 (70)	105
Maryland	20 (20)	13 (13)	69 (68)	102
New Hampshire	6 (8)	14 (19)	53 (73)	73
Ohio	16 (12)	23 (17)	98 (72)	137
West Virginia	11 (12)	11 (12)	70 (76)	92
<b>Urban/rural location*</b>				
Metropolitan (urban)	66 (16)	72 (17)	286 (67)	424
Nonmetropolitan (rural)	11 (9)	17 (14)	94 (77)	122
<b>Years since initial waiver for physicians</b>				
<6 (<median)	27 (15)	34 (19)	118 (66)	179
≥6 (≥median)	31 (14)	33 (15)	153 (71)	217
<b>Total</b>	77 (14)	89 (16)	380 (70)	546

NP = nurse practitioner; PA = physician assistant.

\* Each sampled clinic address was mapped to a Rural-Urban Commuting Area Code from the University of Washington Rural Health Research Center (<http://depts.washington.edu/uwruca/ruca-data.php>) and classified as urban or rural according to its system.

duction, overall wait time until induction, and the cost of treatment for the uninsured-self-pay patient.

We captured whether an appointment was offered at any time in the future and the earliest available date for an appointment. If an appointment was not offered, we captured the reason an appointment was not available. Offers to be put on a waitlist were defined as “no appointment offered,” because whether the patient could receive timely access to a clinician was uncertain. If an appointment was offered, we captured the number of days until the appointment from the date of the call and whether buprenorphine induction might be possible on the day of the first appointment. Clinicians who indicated that first-day induction was possible but contingent on the outcome of a clinical assessment were considered as “offering possible induction.” If buprenorphine induction or prescription on the initial visit was not permitted (for example, if clinic policy prohibited buprenorphine from being prescribed or dispensed on the first encounter), we captured the estimated number of days between the initial appointment and induction. When an exact date for any of the outcomes could not be given but a range was provided (for instance, “a week or 2”), then an estimated date in the middle of the range was recorded. For the uninsured-self-pay script, the callers also obtained the cost that the clinic would charge up to induction and assessed whether extra charges for laboratory work, such as urine drug tests, were also expected.

## Statistical Analysis

We stratified response rates at the clinician level by whether clinicians were never reached, reached by either the Medicaid or the uninsured-self-pay caller, or reached by both callers. Descriptive results were calculated for appointment and induction availability as well as wait time, stratified by the insurance status of contacts. In addition, we examined these outcomes across different clinician characteristics, including state and urban or rural location.

## Role of the Funding Source

This project was supported in part by the National Institute on Drug Abuse. The funding sources had no role in the design or conduct of the study; collection, management, analysis, or interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication.

## RESULTS

From the initial sample frame of 1076 clinicians in 6 states, 530 were excluded as out of sample (431 [81%] because they had invalid contact information or were inactive prescribers), leaving 546 clinicians, or 1092 paired contacts, in the sample (Figure). We reached scheduling staff at least once within 3 attempts for 469 clinicians in 849 calls, resulting in a clinician-level response rate of 86%, or a contact-level response rate of 78%. Most clinician respondents ( $n = 380$ ) had 2 paired contacts, whereas 89 clinicians could be reached only once (Figure). Contacts were less likely to have a response if the clinician carried a 30-patient capacity waiver versus a 100- or 275-patient capacity waiver and if the practice was in a rural versus an urban setting (Table 1). Overall, response rates for Medicaid and uninsured-self-pay contacts were similar (Table 2). In 210 of the 243 contacts (86%) that were classified as nonrespondents, every call attempt ended in the caller being sent to voicemail.

## Appointment Availability and Wait Time

An appointment was offered in 233 of 432 contacts (54%) by the Medicaid caller and 258 of 417 (62%) by the uninsured-self-pay caller (Table 3). Appointments were refused most commonly because the clinician was not accepting patients with the caller's insurance status (44% of contacts with no appointment), not accepting new patients (36% of contacts with no appointment), or waitlisting patients (17% of contacts with no appointment) (Appendix Table 1, available at [Annals.org](http://Annals.org)). However, these reasons varied by state; for example, 44% of denied appointments were because of waitlisting in West Virginia and 8% in Maryland (Appendix Table 2, available at [Annals.org](http://Annals.org)). Among the 380 clinics reached by both the Medicaid and uninsured-self-pay callers, 156 (41%) offered appointments to both callers, 88 (23%) to neither caller, 83 (22%) to the uninsured-self-pay but not the Medicaid caller, and 53 (14%) to the Medicaid but not the uninsured-self-pay caller (Appendix Table 3, available at [Annals.org](http://Annals.org)).

An appointment was offered to the Medicaid caller 70% of the time by advanced practice clinicians and 40%, 44%, and 59% of the time by physicians with 30-, 100-, and 275-patient waivers, respectively (Table 4). The uninsured-self-pay caller was offered an appointment 59% of the time by advanced practice physicians and 47%, 62%, and 72% of the time by physicians with 30-, 100-, and 275-patient waivers, respectively. Availability also varied between insurance categories in different states; for example, 31% of clinicians in Ohio and 10% in Massachusetts offered appointments to the uninsured-self-pay but not the Medicaid caller (Table 5). Appointment availability in urban areas was 56% and 64% for Medicaid and uninsured-self-pay contacts, respectively, and 48% and 54% in rural areas (Table 4).

The median wait time to an initial appointment was 6 days (interquartile range [IQR], 2 to 10 days) for Medicaid contacts and 5 days for uninsured-self-pay contacts (IQR, 1 to 9 days) (Table 4).

**Availability of Appointment With Possible Buprenorphine Induction**

An appointment with the possibility of buprenorphine induction on the first visit was offered for 117 contacts from the Medicaid caller (50% of contacts with an appointment offered or 27% of all contacts [Table 3]) and 169 from the uninsured-self-pay caller (66% of contacts with an appointment offered or 41% of all contacts).

Again, heterogeneity was found across states: 35% of clinicians in Ohio and 10% in Massachusetts offered an appointment with possible induction to the uninsured-self-pay but not the Medicaid caller (Table 5). Among the 380 clinics reached by both the Medicaid and uninsured-self-pay callers, 73 (19%) offered an appointment with possible induction to both callers, 191 (50%) to neither caller, 83 (22%) to the uninsured-self-pay but not the Medicaid caller, and 33 (9%) to the Medicaid but not the uninsured-self-pay caller (Appendix Table 3). Physicians with 30-patient waiver capacity offered appointments with possible induction to 15% and 18% of Medicaid and uninsured-self-pay callers, respectively. Physicians with 275-patient waiver capacity offered appointments with possible induction to

**Table 2. Completed Clinician Contacts, by Payer Status\***

Completed Contact by Uninsured-Self-Pay Caller	Completed Contact by Medicaid Caller		
	Yes	No	Total
Yes	380 (70)	37 (7)	417 (76)
No	52 (10)	77 (14)	129 (24)
Total	432 (79)	114 (21)	546

\* Values are numbers of contacts with a response (percentages of total). Percentages may not sum to 100 due to rounding.

40% and 60% of Medicaid and uninsured-self-pay callers, respectively (Table 4).

Among the clinicians contacted, the median wait time from first contact to possible induction was 8 days (IQR, 4 to 15 days) for Medicaid contacts and 7 days (IQR, 3 to 14 days) for uninsured-self-pay contacts (Table 4).

**Out-of-Pocket Costs**

Of 417 clinicians contacted by the uninsured-self-pay caller, 242 (58%) provided estimates for the out-of-pocket fees charged until induction. The median cost was \$250 (IQR, \$180 to \$350), with 19 providers (5%) estimating \$500 or more until induction. In addition, 131 (54%) of the clinicians who provided cost estimates to the uninsured caller reported that additional fees would be charged for urine drug testing or other laboratory tests before induction.

**DISCUSSION**

In 6 states with the highest burden of opioid overdose mortality in the United States, 38% to 46% of callers who reported current heroin use were denied an appointment from a buprenorphine prescriber, and only 50% to 66% of clinicians booking a new appointment allowed buprenorphine induction at the first visit. A smaller percentage of callers with Medicaid coverage than those paying with cash were offered appointments. The rate of Medicaid appointment availability fell within the range seen in previous audit surveys performed in various settings (34% to 66% offered) (33-35), as well as in recent, smaller, self-reported surveys

**Table 3. Offers of Any Appointment or Appointment With Possible Induction at First Visit, by Payer Status\***

Uninsured-Self-Pay Caller	Medicaid Caller			
	Yes	No	No Response	Total
<b>Any appointment offered</b>				
Yes	156	83	19	258/417 (62)
No	53	88	18	159/417 (38)
No response	24	28	77	129
Total	233/432 (54)	199/432 (46)	114	546
<b>Appointment with possible induction at first visit offered</b>				
Yes	73	83	13	169/417 (41)
No	33	191	24	248/417 (59)
No response	11	41	77	129
Total	117/432 (27)	315/432 (73)	114	546

\* Values are numbers (percentages) of contacts. Percentages may not sum to 100 due to rounding and are based on the number of contacts with a response.

**Table 4.** Appointment Availability, First-Day Inductions, and Wait to Induction, by Clinician Characteristics and Payer Status

Clinician Characteristics*	Medicaid Callers			Uninsured-Self-Pay Callers		
	Total, n†	With Appointment Offer, n (%)	Median Wait Time (IQR), d‡	Total, n†	With Appointment Offer, n (%)†	Median Wait Time (IQR), d‡
<b>Any appointment</b>						
Total	432	233 (54)	6 (2-10)	417	258 (62)	5 (1-9)
Waiver capacity						
30 patients						
NP or PA	114	80 (70)	4 (1-9)	111	65 (59)	4 (1-7)
Physician	62	25 (40)	3 (1-10)	55	26 (47)	4 (3-10)
100 patients	151	66 (44)	7 (2-11)	146	91 (62)	5 (2-11)
275 patients	105	62 (59)	7 (3-11)	105	76 (72)	5 (1-11)
Urban/rural location						
Metropolitan (urban)	328	183 (56)	6 (2-10)	316	203 (64)	5 (1-9)
Nonmetropolitan (rural)	104	50 (48)	6 (2-11)	101	55 (54)	5 (1-9)
Years since initial waiver§						
<6 (<median)	139	71 (51)	6 (2-11)	131	80 (61)	5 (2-8)
≥6 (≥median)	174	77 (44)	6 (2-10)	165	103 (62)	6 (2-13)
<b>Appointment with possible induction</b>						
Total	432	117 (27)	8 (4-15)	417	169 (41)	7 (3-14)
Waiver capacity						
30 patients						
NP or PA	114	38 (33)	7 (3-14)	111	37 (33)	6 (3-13)
Physician	62	9 (15)	9 (4-12)	55	10 (18)	8 (4-19)
100 patients	151	28 (19)	10 (5-19)	146	59 (40)	8 (3-15)
275 patients	105	42 (40)	7 (4-13)	105	63 (60)	6 (2-13)
Urban/rural location						
Metropolitan (urban)	328	94 (29)	7 (4-15)	316	127 (40)	7 (3-14)
Nonmetropolitan (rural)	104	23 (22)	10 (5-15)	101	42 (42)	7 (3-15)
Years since initial waiver§						
<6 (<median)	139	27 (19)	10 (6-16)	131	47 (36)	6 (3-14)
≥6 (≥median)	174	49 (28)	7 (3-14)	165	80 (48)	7 (2-15)

IQR = interquartile range; NP = nurse practitioner; PA = physician assistant.

\* In 157 cases, we were told that the provider of interest was not available and an alternative provider at the clinic would see the caller. In 79 of these cases, the alternative provider was identified in the Substance Abuse and Mental Health Administration database of publicly listed providers and the alternative clinician's credentials, waiver capacity, and years since initial waiver were used. The sampled clinician's characteristics were used in cases in which the alternative provider could not be identified.

† Each of 469 clinicians was contacted at least once with Medicaid or uninsured-self-pay scripts; 380 clinicians had 2 responses, and 89 could be contacted only once. See Figure 1 for the cohort flow.

‡ Wait time is expressed as the number of days from the contact until the earliest anticipated first appointment for the "any appointment" outcome. For the "appointment with possible induction" rows, the wait time is the number of days from contact until the earliest anticipated date of possible induction with buprenorphine.

§ Includes physicians only, because advanced-level practitioners had been permitted to receive a waiver under the Comprehensive Addiction and Recovery Act of 2016 <2 y before the calls were made.

of buprenorphine-waivered providers, which found that more than half of buprenorphine prescribers did not accept any insurance (17, 36). This study builds on the existing literature on buprenorphine providers by using a multistate audit survey to directly assess access and by capturing the timing and availability of possible buprenorphine induction at the initial visit.

An unexpected finding was that wait times were generally less than 1 to 2 weeks, suggesting that the most prominent barrier to buprenorphine access in this sample was the scarcity of clinicians accepting new patients. Given the high burden of opioid-related mortality in the states we surveyed, 38% and 46% of prescribers declining new uninsured-self-pay or Medicaid patients, respectively, may represent a substantial barrier for patients hoping to find a clinician rapidly. However, the appointment availability and wait times we observed for buprenorphine treatment were no worse than recent estimates for general primary care in other settings. For example, a 10-state survey in 2016 found that 48.5% of clinics declined new Medicaid patients

(37), whereas a different 2017 study of private clinics in 30 metropolitan areas nationally found mean wait times of 40.7 days for new appointments (38). The coexistence of many clinicians declining new patients and providers offering appointments with short wait times may reflect poor retention of patients in buprenorphine treatment, leaving treatment slots open for new patients. Beyond the number of clinicians declining new appointments, a substantial proportion of publicly listed clinicians were no longer prescribing or no longer at the listed phone number, further increasing the number of calls and time necessary for a patient to find a prescriber.

One encouraging sign is that the highest appointment success rates for the Medicaid calls were for advanced practice clinicians and physicians with a 275-patient waiver capacity, who are perhaps more likely to work in settings with a high volume of patients receiving buprenorphine treatment. The higher appointment success among clinicians using waivers enabled by the Comprehensive Addiction and Recovery Act, passed

by Congress in 2016, suggests that the policy changes creating these new waiver categories (39, 40) have promise for expanding treatment access.

Few clinicians offered the possibility of buprenorphine induction at the first visit. Providers may have practical reasons for delaying induction; for example, they may want to complete a full assessment before prescribing buprenorphine to avoid adverse outcomes. However, many patients with active OUD might easily be lost to follow-up without rapid induction, exposing them to a higher risk for overdose and other adverse outcomes (22-25). This represents an additional barrier preventing patients with OUD from receiving treatment. Previous research found that the mortality risk for persons with OUD waiting to start methadone treatment is 10 times greater than for those who initiate treatment, highlighting potentially great risk for delay- ing medication initiation (41).

Regardless of clinician preference, no clinical justification exists for Medicaid patients to have less opportunity for rapid buprenorphine induction than persons with other types of coverage. The disparity we found with Medicaid callers might reflect poor coverage or additional administrative hurdles, such as the requirement by many Medicaid programs for prior authorization to prescribe buprenorphine (42). Our findings suggest that efforts to expand access to buprenorphine treatment should explicitly consider availability of and time to induction, as well as disparities in these measures across populations.

Patients without insurance also had cost barriers that were consistent across all 6 states in our sample. Half of the clinicians accepting uninsured patients charged \$250 or more, with several clinics asking over \$500. Perhaps even more important is that many clinicians required additional fees for laboratory or urine studies, which might accumulate into hundreds of additional dollars for testing (19). These costs may represent meaningful barriers for persons seeking treatment for substance use disorder, 60% of whom lived below 200% of the federal poverty limit in 2017 (43).

This study has several limitations. First, our survey included only 5 states and the District of Columbia, all

of which have large numbers of buprenorphine providers per capita and expanded Medicaid eligibility after the Patient Protection and Affordable Care Act was passed. Therefore, our results may not generalize to U.S. regions without these characteristics. However, we chose these 6 states because they arguably have the greatest urgency to address access nationally, given their elevated opioid-related mortality rates. Second, we could survey only publicly listed outpatient buprenorphine clinicians; including nonlisted clinicians may have changed our estimates. Approximately half of buprenorphine prescribers were not listed (28), which limits the generalizability of our sample. In addition, many patients probably seek buprenorphine prescribers through informal channels, such as word of mouth. Therefore, this study should be interpreted as an audit of the publicly listed subset of providers, not all buprenorphine prescribers. We also lacked detailed information on the nature of the practices of buprenorphine providers (for example, primary care clinic vs. specialized addiction treatment), which might influence the interpretation of our results. Our measures of access also may have been biased by the nature of our survey methods and script, which necessarily could capture only 1 common clinical scenario. We could not leave voicemail messages, which excluded from our sample some clinicians who otherwise may have offered appointments. In addition, schedulers may not have known exactly when induction would take place, because several factors may be involved in making this decision; therefore, induction wait times should be interpreted as estimates. Finally, our sample size may have limited our ability to capture small but clinically relevant differences in outcomes among subgroups, particularly across states. However, to our knowledge, this is the largest audit study to date focused on OUD treatment.

In conclusion, our audit study found that many publicly listed buprenorphine prescribers in states with a high OUD-related mortality rate were not accepting new patients. Nevertheless, among those who were accepting new patients, wait times were not long, suggesting an underused capacity for buprenorphine

**Table 5.** Appointment Availability Outcomes, by State and Insurance Status, for Clinicians Who Responded to Both Contacts (n = 380)\*

Caller Offered an Appointment	Clinicians Offering an Appointment, by State, %					
	Maryland (n = 69)	Massachusetts (n = 73)	New Hampshire (n = 53)	Ohio (n = 98)	District of Columbia (n = 17)	West Virginia (n = 70)
<b>Any appointment</b>						
Neither the Medicaid nor the uninsured caller	20	27	26	15	29	29
The Medicaid but not the uninsured caller	14	19	6	12	12	17
The uninsured but not the Medicaid caller	26	10	19	31	18	21
Both the Medicaid and uninsured callers	39	44	49	42	41	33
<b>Appointment with possible induction</b>						
Neither the Medicaid nor the uninsured caller	39	66	45	42	65	57
The Medicaid but not the uninsured caller	14	15	4	3	6	9
The uninsured but not the Medicaid caller	25	10	19	35	18	17
Both the Medicaid and uninsured callers	22	10	32	20	12	17

\* Percentages may not sum to 100 due to rounding.

treatment in areas with great need. Efforts to improve treatment access may be successful by focusing on interventions to better connect patients to the existing supply of prescribers. On the clinician side, increasing reimbursement for services related to OUD treatment and reducing administrative barriers to prescribing might encourage more providers to treat Medicaid enrollees. Future audit studies may be a powerful tool to monitor the effectiveness of policies like these for improving patient access.

From Harvard T.H. Chan School of Public Health, Boston, Massachusetts (T.B.); Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland (B.S.); Massachusetts General Hospital, Boston, Massachusetts (S.E.W.); Brigham and Women's Hospital, Boston, Massachusetts (M.G.); and Harvard T.H. Chan School of Public Health and Brigham and Women's Hospital, Boston, Massachusetts (M.L.B.).

**Grant Support:** By National Institute on Drug Abuse grant K01 DA042139 to Dr. Saloner.

**Disclosures:** Dr. Barnett reports personal fees from Greylock McKinnon Associates outside the submitted work and is retained as an expert witness for litigation against opioid manufacturers and distributors. Authors not named here have disclosed no conflicts of interest. Disclosures can also be viewed at [www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M18-3457](http://www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M18-3457).

**Reproducible Research Statement:** *Study protocol:* Available from Dr. Barnett (e-mail, [mbarnett@hsph.harvard.edu](mailto:mbarnett@hsph.harvard.edu)). *Statistical code:* Not available. *Data set:* Available at the Buprenorphine Practitioner Locator ([www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator](http://www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator)) and by Freedom of Information Act request to the Substance Abuse and Mental Health Services Administration.

**Corresponding Author:** Michael L. Barnett, MD, MS, Harvard T.H. Chan School of Public Health, Department of Health Policy and Management, 677 Huntington Avenue, Kresge 411, Boston, MA 02115; e-mail, [mbarnett@hsph.harvard.edu](mailto:mbarnett@hsph.harvard.edu).

Current author addresses and author contributions are available at [Annals.org](http://Annals.org).

## References

- Centers for Disease Control and Prevention. CDC WONDER. Underlying Cause of Death, 1999–2016. Accessed at <https://wonder.cdc.gov> on 25 October 2018.
- Schuckit MA. Treatment of opioid-use disorders. *N Engl J Med*. 2016;375:357–68. [PMID: 27464203] doi:10.1056/NEJMra1604339
- Sandoe E, Fry CE, Frank RG. Policy levers that states can use to improve opioid addiction treatment and address the opioid epidemic. *Health Affairs Blog*. Accessed at [www.healthaffairs.org/do/10.1377/hblog20180927.51221/full](http://www.healthaffairs.org/do/10.1377/hblog20180927.51221/full) on 29 October 2018.
- Williams AR, Nunes E, Olfson M. To battle the opioid overdose epidemic, deploy the 'cascade of care' model. *Health Affairs Blog*. Accessed at [www.healthaffairs.org/do/10.1377/hblog20170313.059163/full](http://www.healthaffairs.org/do/10.1377/hblog20170313.059163/full) on 29 October 2018.
- Creedon TB, Cook BL. Access to mental health care increased but not for substance use, while disparities remain. *Health Aff (Millwood)*. 2016;35:1017–21. [PMID: 27269017] doi:10.1377/hlthaff.2016.0098

- Hser YI, Evans E, Huang D, Weiss R, Saxon A, Carroll KM, et al. Long-term outcomes after randomization to buprenorphine/naloxone versus methadone in a multi-site trial. *Addiction*. 2016;111:695–705. [PMID: 26599131] doi:10.1111/add.13238
- Connerly HS. Medication-assisted treatment of opioid use disorder: review of the evidence and future directions. *Harv Rev Psychiatry*. 2015;23:63–75. [PMID: 25747920] doi:10.1097/HRP.0000000000000075
- Sordo L, Barrio G, Bravo MJ, Indave BI, Degenhardt L, Wiessing L, et al. Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies. *BMJ*. 2017;357:j1550. [PMID: 28446428] doi:10.1136/bmj.j1550
- Tesema L, Marshall J, Hathaway R, Pham C, Clarke C, Bergeron G, et al. Training in office-based opioid treatment with buprenorphine in US residency programs: a national survey of residency program directors. *Subst Abus*. 2018;39:434–440. [PMID: 29513136] doi:10.1080/08897077.2018.1449047
- Volkow ND, Frieden TR, Hyde PS, Cha SS. Medication-assisted therapies—tackling the opioid-overdose epidemic. *N Engl J Med*. 2014;370:2063–6. [PMID: 24758595] doi:10.1056/NEJMp1402780
- American Society of Addiction Medicine. Public Policy Statement on the Regulation of Office-Based Opioid Treatment. Accessed at [www.asam.org/docs/default-source/public-policy-statements/statement-on-regulation-of-obot.pdf?sfvrsn=df8540c2\\_2](http://www.asam.org/docs/default-source/public-policy-statements/statement-on-regulation-of-obot.pdf?sfvrsn=df8540c2_2) on 12 March 2019.
- The National Alliance of Advocates for Buprenorphine Treatment. DATA-2000. Law 30/100. Patient limit on prescribing suboxone (buprenorphine/naloxone) for the treatment of opioid addiction. Accessed at [www.naabt.org/30\\_patient\\_limit.cfm](http://www.naabt.org/30_patient_limit.cfm) on 12 March 2019.
- Wakeman SE, Barnett ML. Primary care and the opioid-overdose crisis—buprenorphine myths and realities. *N Engl J Med*. 2018;379:1–4. [PMID: 29972748] doi:10.1056/NEJMp1802741
- Andrilla CHA, Moore TE, Patterson DG, Larson EH. Geographic distribution of providers with a DEA waiver to prescribe buprenorphine for the treatment of opioid use disorder: a 5-year update. *J Rural Health*. 2019;35:108–112. [PMID: 29923637] doi:10.1111/jrh.12307
- George J. Why do so few docs have buprenorphine waivers? *Medpage Today*. Accessed at [www.medpagetoday.com/psychiatry/addictions/71169](http://www.medpagetoday.com/psychiatry/addictions/71169) on 12 March 2019.
- Simon CB, Tsui JI, Merrill JO, Adwell A, Tamru E, Klein JW. Linking patients with buprenorphine treatment in primary care: predictors of engagement. *Drug Alcohol Depend*. 2017;181:58–62. [PMID: 29035705] doi:10.1016/j.drugalcdep.2017.09.017
- Patrick SW, Buntin MB, Martin PR, Scott TA, Dupont W, Richards M, et al. Barriers to accessing treatment for pregnant women with opioid use disorder in Appalachian states. *Subst Abus*. 2018;1-7. [PMID: 29949454] doi:10.1080/08897077.2018.1488336
- Henry J. Kaiser Family Foundation. The opioid epidemic and Medicaid's role in facilitating access to treatment. Accessed at [www.kff.org/medicaid/issue-brief/the-opioid-epidemic-and-medicaids-role-in-facilitating-access-to-treatment](http://www.kff.org/medicaid/issue-brief/the-opioid-epidemic-and-medicaids-role-in-facilitating-access-to-treatment) on 12 March 2019.
- Schulte F, Lucas E. Liquid gold: pain doctors soak up profits by screening urine for drugs. *Kaiser Health News*. Accessed at <https://khn.org/news/liquid-gold-pain-doctors-soak-up-profits-by-screening-urine-for-drugs> on 7 November 2018.
- U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. Buprenorphine. Accessed at [www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine](http://www.samhsa.gov/medication-assisted-treatment/treatment/buprenorphine) on 12 March 2019.
- Lee JD, Grossman E, DiRocco D, Gourevitch MN. Home buprenorphine/naloxone induction in primary care. *J Gen Intern Med*. 2009;24:226–32. [PMID: 19089508] doi:10.1007/s11606-008-0866-8
- Schwartz RP, Highfield DA, Jaffe JH, Brady JV, Butler CB, Rouse CO, et al. A randomized controlled trial of interim methadone maintenance. *Arch Gen Psychiatry*. 2006;63:102–9. [PMID: 16389204]
- Larochelle MR, Bernson D, Land T, Stopka TJ, Wang N, Xuan Z, et al. Medication for opioid use disorder after nonfatal opioid overdose and association with mortality: a cohort study. *Ann Intern Med*. 2018;169:137–145. [PMID: 29913516] doi:10.7326/M17-3107

24. Sigmon SC, Ochalek TA, Meyer AC, Hruska B, Heil SH, Badger GJ, et al. Interim buprenorphine vs. waiting list for opioid dependence [Letter]. *N Engl J Med*. 2016;375:2504-2505. [PMID: 28002704] doi:10.1056/NEJMc1610047
25. Clausen T, Anchersen K, Waal H. Mortality prior to, during and after opioid maintenance treatment (OMT): a national prospective cross-registry study. *Drug Alcohol Depend*. 2008;94:151-7. [PMID: 18155364]
26. Martin SA, Chiodo LM, Bosse JD, Wilson A. The next stage of buprenorphine care for opioid use disorder. *Ann Intern Med*. 2018;169:628-35. [PMID: 30357262] doi:10.7326/M18-1652
27. Rhodes K. Taking the mystery out of "mystery shopper" studies. *N Engl J Med*. 2011;365:484-6. [PMID: 21793739] doi:10.1056/NEJMp1107779
28. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. Buprenorphine practitioner locator. Accessed at [www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator](http://www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator) on 12 March 2019.
29. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. Practitioner and program data. Accessed at [www.samhsa.gov/medication-assisted-treatment/training-materials-resources/physician-program-data](http://www.samhsa.gov/medication-assisted-treatment/training-materials-resources/physician-program-data) on 12 March 2019.
30. Morrill R, Cromartie J, Hart G. Rural-urban commuting code database. Accessed at <http://depts.washington.edu/uwruca/index.php> on 28 June 2018.
31. Henry J. Kaiser Family Foundation. Opioid overdose death rates and all drug overdose death rates per 100,000 population (age-adjusted). Accessed at [www.kff.org/other/state-indicator/opioid-overdose-death-rates](http://www.kff.org/other/state-indicator/opioid-overdose-death-rates) on 12 March 2019.
32. Medicaid and CHIP Payment and Access Commission. June 2017 Report to Congress on Medicaid and CHIP. Accessed at [www.macpac.gov/publication/june-2017-report-to-congress-on-medicare-and-chip](http://www.macpac.gov/publication/june-2017-report-to-congress-on-medicare-and-chip) on 12 March 2019.
33. Polsky D, Richards M, Basseyn S, Wissoker D, Kenney GM, Zuckerman S, et al. Appointment availability after increases in Medicaid payments for primary care. *N Engl J Med*. 2015;372:537-45. [PMID: 25607243] doi:10.1056/NEJMsa1413299
34. Bisgaier J, Rhodes KV. Auditing access to specialty care for children with public insurance. *N Engl J Med*. 2011;364:2324-33. [PMID: 21675891] doi:10.1056/NEJMsa1013285
35. Tipirneni R, Rhodes KV, Hayward RA, Lichtenstein RL, Reamer EN, Davis MM. Primary care appointment availability for new Medicaid patients increased after Medicaid expansion in Michigan. *Health Aff (Millwood)*. 2015;34:1399-406. [PMID: 26202057] doi:10.1377/hlthaff.2014.1425
36. Parran TV, Muller JZ, Chernyak E, Adelman C, Delos Reyes CM, Rowland D, et al. Access to and payment for office-based buprenorphine treatment in ohio. *Subst Abuse*. 2017;11:1178221817699247. [PMID: 28642642] doi:10.1177/1178221817699247
37. Candon M, Zuckerman S, Wissoker D, Saloner B, Kenney GM, Rhodes K, et al. Declining Medicaid fees and primary care appointment availability for new Medicaid patients. *JAMA Intern Med*. 2018;178:145-46. [PMID: 29131904] doi:10.1001/jamainternmed.2017.6302
38. Penn M, Bhatnagar S, Kuy S, Lieberman S, Elnahal S, Clancy C, et al. Comparison of wait times for new patients between the private sector and United States Department of Veterans Affairs medical centers. *JAMA Netw Open*. 2019;2:e187096. [PMID: 30657532] doi:10.1001/jamanetworkopen.2018.7096
39. American Society of Addiction Medicine. Summary of the Comprehensive Addiction and Recovery Act. Accessed at [www.asam.org/advocacy/issues/opioids/summary-of-the-comprehensive-addiction-and-recovery-act](http://www.asam.org/advocacy/issues/opioids/summary-of-the-comprehensive-addiction-and-recovery-act) on 13 November 2018.
40. American Society of Addiction Medicine. Summary of the Final Rule to Raise Buprenorphine Patient Limit. Accessed at [www.asam.org/resources/practice-resources/data-2000-patient-limit/summary-of-the-final-rule-to-raise-buprenorphine-patient-limit](http://www.asam.org/resources/practice-resources/data-2000-patient-limit/summary-of-the-final-rule-to-raise-buprenorphine-patient-limit) on 13 November 2018.
41. Peles E, Schreiber S, Adelson M. Opiate-dependent patients on a waiting list for methadone maintenance treatment are at high risk for mortality until treatment entry. *J Addict Med*. 2013;7:177-82. [PMID: 23519049] doi:10.1097/ADM.0b013e318287cfc9
42. Rinaldo SG, Rinaldo DW. Availability Without Accessibility? State Medicaid Coverage and Authorization Requirements for Opioid Dependence Medications. Accessed at [www.asam.org/docs/default-source/advocacy/aaam\\_implications-for-opioid-addiction-treatment\\_final.pdf?sfvrsn=cee262c2\\_25](http://www.asam.org/docs/default-source/advocacy/aaam_implications-for-opioid-addiction-treatment_final.pdf?sfvrsn=cee262c2_25) on 6 January 2018.
43. U.S. Department of Health and Human Services, 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. Table 5.9A and 5.15A. Accessed at [www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUH-DetailedTabs2017/NSDUHDetailedTabs2017.htm#tab5-9B](http://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUH-DetailedTabs2017/NSDUHDetailedTabs2017.htm#tab5-9B) on 8 November 2018.

**Current Author Addresses:** Ms. Beetham: Harvard T.H. Chan School of Public Health, Department of Social and Behavioral Sciences, 677 Huntington Avenue, Boston, MA 02115.  
 Dr. Saloner: Johns Hopkins Bloomberg School of Public Health, Department of Health Policy and Management, 624 North Broadway, Room 344, Baltimore, MD 21205.  
 Dr. Wakeman: Massachusetts General Hospital, Department of Medicine, 55 Fruit Street, Boston, MA 02114.  
 Ms. Gaye: Harvard T.H. Chan School of Public Health, Department of Health Policy and Management, 677 Huntington Avenue, Boston, MA 02115.  
 Dr. Barnett: Harvard T.H. Chan School of Public Health, Department of Health Policy and Management, 677 Huntington Avenue, Kresge 411, Boston, MA 02115.

**Author Contributions:** Conception and design: T. Beetham, B. Saloner, S.E. Wakeman, M.L. Barnett.  
 Analysis and interpretation of the data: T. Beetham, B. Saloner, S.E. Wakeman, M.L. Barnett.  
 Drafting of the article: T. Beetham, B. Saloner, S.E. Wakeman, M.L. Barnett.  
 Critical revision for important intellectual content: T. Beetham, B. Saloner, M.L. Barnett.  
 Final approval of the article: T. Beetham, B. Saloner, S.E. Wakeman, M. Gaye, M.L. Barnett.  
 Statistical expertise: B. Saloner, M.L. Barnett, B. Saloner.  
 Administrative, technical, or logistic support: M. Gaye.  
 Collection and assembly of data: T. Beetham, B. Saloner, M. Gaye.

**Appendix Table 1.** Reasons Given for No Appointment, by Payer Status\*

Payer Status	Payer Status Not Accepted	Not Accepting New Patients	Waitlist	Other	Total
Medicaid	93 (47)	70 (35)	32 (16)	4 (2)	199 (100)
Uninsured-self-pay	65 (41)	60 (38)	29 (18)	5 (3)	159 (100)
Total	158 (44)	130 (36)	61 (17)	9 (3)	358 (100)

\* Values are numbers (percentages) of clinician contacts. Only 1 reason was given per contact.

**Appendix Table 2.** Reasons Given for No Appointment, by State\*

State	Payer Status Not Accepted	Not Accepting New Patients	Waitlist	Other	Total
District of Columbia	5 (29)	12 (71)	0 (0)	0 (0)	17
Massachusetts	31 (43)	30 (42)	8 (11)	3 (4)	72
Maryland	35 (55)	23 (36)	5 (8)	1 (2)	64
New Hampshire	14 (28)	25 (50)	7 (14)	4 (8)	50
Ohio	50 (60)	23 (28)	9 (11)	1 (1)	83
West Virginia	23 (32)	17 (24)	32 (44)	0 (0)	72
Total	158 (44)	130 (36)	61 (17)	9 (3)	358

\* Values are numbers (percentages) of clinician contacts. Only 1 reason was given per contact.

**Appendix Table 3.** Appointments Offered by Clinics Reached by Both Medicaid and Uninsured-Self-Pay Callers, by Payer Status\*

	Appointment Offered to Uninsured-Self-Pay Caller		Appointment Offered to Medicaid Caller		Total
	Yes	No	Yes	No	
<b>Any appointment</b>					
Yes	156 (41)	83 (22)	191 (50)	83 (22)	239 (63)
No	53 (14)	88 (23)	33 (9)	171 (45)	141 (37)
Total	209 (55)	171 (45)	224 (59)	274 (72)	380
<b>Appointment with possible induction</b>					
Yes	73 (19)	83 (22)	156 (41)	83 (22)	156 (41)
No	33 (9)	191 (50)	33 (9)	171 (45)	224 (59)
Total	106 (28)	274 (72)	189 (49)	254 (67)	380

\* Values are numbers (percentages) of clinics. Percentages may not sum to 100 due to rounding.