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Medicaid Managed Care: Access To Primary Care Providers Who Prescribe Buprenorphine

ABSTRACT Medicaid managed care insurers play a crucial role in facilitating access to buprenorphine to treat opioid use disorder. Using a novel set of provider directory and prescription claims data, we examined variation in access to in-network buprenorphine-prescribing primary care providers among Medicaid managed care enrollees. Approximately 32.2 percent of enrollees had fewer than one in-network buprenorphine prescriber per 100,000 county residents. On average, there were a greater number of in-network buprenorphine-prescribing primary care providers in states with higher compared with lower overdose death rates. However, most enrollees lived in areas with a shortage of these providers. We found that a 25 percent higher network participation rate by prescribers compared with nonprescribers could improve the probability that enrollees see a prescriber by approximately 25 percent. Policies to improve access within Medicaid managed care include using primary care provider assignment algorithms to match patients with buprenorphine prescribers and requiring that networks include a minimum number of buprenorphine prescribers.

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The opioid crisis continues to be a major health policy priority in the United States, with nearly 70,000 opioid-related deaths in 2020—an increase of approximately 37 percent over 2019.¹ Buprenorphine is highly effective in treating opioid use disorder (OUD) and preventing overdoses.^{2–7} However, buprenorphine continues to be underused, as 70–80 percent of people with OUD do not receive any medication for it.^{8,9}

A significant barrier to utilization is the small total number (roughly 50,000) of physicians and advanced practitioners who actively prescribe buprenorphine.^{10–12} Primary care providers play a particularly important role in providing access to buprenorphine, representing more than 40 percent of all buprenorphine prescribers and more than 60 percent of high-volume prescribers.¹² Primary care providers, including

physicians, nurse practitioners, and physician assistants, have also driven recent increases in the uptake of buprenorphine for OUD.¹³

OUD is a chronic condition^{14,15} for which primary care providers serve as the main source of care for many enrollees and the first line of contact for many patients seeking help.^{16,17} Compared with specialists, primary care providers provide similar- or better-quality buprenorphine treatment.¹⁸ However, only a small percentage of these providers overall are waived to prescribe buprenorphine,¹⁹ and many do not view buprenorphine as an effective treatment for OUD²⁰ despite robust evidence to the contrary.^{2–7}

Medicaid plays a critical role in ensuring access to buprenorphine prescribers, as it covers almost 40 percent of nonelderly adults with OUD.²¹ The expansion of Medicaid after the implementation of the Affordable Care Act has increased the use of buprenorphine,^{22,23} but gains

have been limited by the local supply of buprenorphine prescribers.²⁴

Medicaid programs in forty states are managed through Medicaid managed care insurers that are awarded state contracts and paid per member/per month to manage care for beneficiaries who enroll in their plans.²⁵ A key aspect of Medicaid managed care is that insurers contract directly with a restricted network of providers who can accept patients enrolled in their plan. The management of networks within Medicaid managed care therefore represents an important factor in determining enrollee access to buprenorphine prescribers. Typically, enrollees who do not select their own primary care providers are automatically assigned to an in-network provider who serves as a gatekeeper to other providers, including specialists (referred to as “automatic assignment” throughout).²⁶ The state algorithms for automatic assignment do not consider whether the enrollee has OUD or whether the provider prescribes buprenorphine.

Despite the potential importance of provider network design to access and utilization, prior work has not investigated networks for the presence of buprenorphine prescribers in Medicaid managed care, in part because of data limitations. In this article we provide new evidence on how access to in-network buprenorphine-prescribing primary care providers in Medicaid managed care varied during 2019 across networks, states, and counties, using a novel data set linking Medicaid managed care provider networks, buprenorphine prescribing patterns, and provider locations and specialties. In addition, because the severity of the opioid crisis differs considerably across states,²⁷ we assess whether access to buprenorphine-prescribing primary care providers within Medicaid managed care varied by the rate of overdose deaths within a state. We then describe the likelihood that automatic assignment would match an enrollee with an in-network primary care physician who prescribes buprenorphine.

Study Data And Methods

DATA SOURCES We created a novel data set that overlays the availability of buprenorphine-prescribing primary care providers with detailed data on Medicaid managed care network plan participation, enabling the first analysis of network design for buprenorphine-prescribing primary care providers serving patients enrolled in Medicaid managed care.

First, we used the Kaiser Family Foundation’s Medicaid Managed Care Market Tracker,²⁸ derived from the Centers for Medicare and Medicaid Services (CMS) Medicaid Managed Care En-

rollment Report,²⁹ to identify Medicaid managed care plans serving adult beneficiaries. We excluded plans specific to special needs, dual coverage (Medicare and Medicaid), or child enrollees. We identified 232 eligible plans across thirty-seven states with more than 10 percent penetration of Medicaid managed care for the general adult population in the state. For each plan, we included only counties within the plan’s service area based on enrollment totals from the Decision Resources Group (now Clarivate DRG) Interstudy Enrollment data.³⁰ These data contain county-level enrollment for each insurer, collected through Clarivate DRG’s national proprietary Census,³⁰ and have been used in prior work to capture enrollment and define service areas in Medicaid managed care.³¹

Second, we used the 2019–20 Vericred Provider Networks data³² to identify in-network providers for plans in our sample. Vericred is a private company offering researchers access to provider network data that have been collected by scraping insurers’ online plan provider directories. Vericred imposes internal quality assurance processes to ensure that accurate information is provided to its commercial clients, working directly with insurance carriers to limit potential inaccuracies in the network directories. These data have been used in prior work on provider networks in managed care.^{31,33,34} We examined 174 of the eligible plans with robust provider network data in the Vericred database, covering 82.2 percent of total Medicaid managed care enrollment. We primarily used 2019 Vericred Provider Networks data; however, for ten plans in our sample that were added to the database in 2020, we used 2020 data.

Third, we used the IQVIA OneKey database of health care professionals³⁵ and linked this information to provider network lists by National Provider Identifier to identify the active in-network primary care providers and their practice locations. The OneKey database integrates data from IMS Health, SK&A, and Healthcare Data Solutions to identify more than 10.7 million health care professionals in the US. Active OneKey providers were defined as those active in the CMS National Plan and Provider Enumeration System who were born in 1940 or later; accept Medicare payments; and practice at an office, hospital, or residential facility. See online appendix exhibit 1 for details on the inclusion and exclusion of primary care providers.³⁶ A subset of providers who were primary care physicians, nurse practitioners, or physician assistants were included in the analysis, resulting in 224,616 eligible primary care physicians and 285,766 nurse practitioners and physician assistants.

Finally, among eligible primary care providers

There are policies that could expand access to buprenorphine prescribers within Medicaid managed care.

identified in the OneKey database, we used IQVIA's Real World Data Longitudinal Prescription Data to identify 11,587 primary care physicians (5.2 percent of those eligible) and 6,531 nurse practitioners and physician assistants (2.3 percent of those eligible) with at least one prescription for a buprenorphine formulation indicated for the treatment of OUD filled at a retail pharmacy during January–December 2018. Buprenorphine prescriptions with formulations indicated for the treatment of pain were not used to identify prescribers. The IQVIA prescription data capture about 90 percent of all prescriptions filled at retail pharmacies in all fifty states and Washington, D.C.³⁷ The data are collected directly from retail pharmacies and coding centers and have been used in prior work to identify buprenorphine prescribers.¹²

MEASURES AND ANALYSIS We sought to characterize enrollee access to buprenorphine-prescribing primary care providers within their Medicaid managed care network and county, so we set our unit of analysis at the level of a unique Medicaid managed care network and county and weighted all analyses by the number of enrollees in that network living in that county.

Our main measure of access was the number of in-network buprenorphine-prescribing primary care providers in a Medicaid managed care network per 100,000 county residents. The population of residents was measured using 2019 census data.³⁸ The access measure captured the supply of active buprenorphine prescribers available to Medicaid enrollees through different Medicaid managed care networks and counties. We normalized this measure by total population, as opposed to the number of Medicaid managed care enrollees, as prescribers that participate in Medicaid managed care may also treat patients outside of Medicaid managed care.

Our second measure of access to buprenorphine prescribers in Medicaid managed care was the percentage of primary care physicians in a

Medicaid managed care network in a county who prescribed buprenorphine. A higher percentage of primary care physicians who prescribed buprenorphine could increase the chances that patients with OUD would be automatically assigned to a buprenorphine-prescribing clinician. In this measure, we focused on primary care physicians, whom we defined as active physicians in the OneKey data with a specialty of internal medicine, family medicine, or general medicine. Further, primary care physicians are most likely to be eligible for automatic assignment as primary care providers across all Medicaid managed care plans, as many plans do not allow nonphysicians to qualify as an enrollee's assigned primary care provider.^{39,40}

We summarized these two measures from the perspective of Medicaid managed care beneficiaries, weighting the measures by the number of enrollees in that network and county. We present the distribution of these summary measures overall, by state, and by whether the county was in a state above or below the median number of overdose deaths per 100,000 (that is, states with “high” versus “low” overdose death rates). State overdose death rates were based on a five-year average of state-level estimates of overdose deaths per 100,000 residents from 2015–19 Centers for Disease Control and Prevention data.²⁷

Finally, we examined how a plan's selection of provider networks might affect the probability of automatic assignment to a buprenorphine-prescribing primary care physician. We compared the percentage of primary care physicians within a network and county who prescribed buprenorphine with the percentage of primary care providers who prescribed buprenorphine in that county overall. For this comparison, we calculated the enrollment-weighted mean, median, and interquartile range of these measures. The Johns Hopkins Institutional Review Board approved this study with a waiver of consent.

LIMITATIONS This study was subject to limitations. First, there may have been inaccuracies in the provider network directory data. In addition to Vericred's quality assurance processes, described above, we assessed individual networks to ensure that there were no empty or implausibly small provider networks within the identified service areas for our included Medicaid managed care plans. See appendix exhibit 2 for details on inclusion and exclusion criteria for Medicaid managed care networks.³⁶

Second, we examined access to buprenorphine prescribers at the county level, recognizing that the size of the county and availability of transportation can often serve as barriers to access for people residing within a county. Although access measures constructed at the county level de-

scribe the average enrollee's experience,⁴¹ they may inaccurately describe a particular enrollee's access (for example, if they live at the border of a county).

Third, we were unable to distinguish whether network participation by buprenorphine-prescribing primary care providers in Medicaid managed care reflects selective contracting by insurers or provider preferences.

Fourth, we used state-level overdose death rates to stratify areas with high and low overdose death rates. However, there is geographic variation in the need for buprenorphine prescribers within states. State-level estimates were available for all thirty-seven states included in our analysis, whereas estimates at the county level were available in only thirteen states. In this subset of thirteen states, we found that the number of in-network prescribers was higher in high-overdose counties compared with in low-overdose counties, consistent with the findings described in this article.

Study Results

We found large variation in Medicaid managed care enrollees' access to buprenorphine-prescribing primary care providers across states (exhibit 1). Nearly one-third (32.2 percent) of Medicaid managed care enrollees, or roughly 17.4 million people, had fewer than one in-network buprenorphine-prescribing primary care provider in their county per 100,000 population, whereas 11.6 percent of enrollees (approximately 6.3 million enrollees) had more than five such providers in their county per 100,000 population. See appendix 3 for county-level enrollment estimates.³⁶ The average state had 3.2 in-network buprenorphine-prescribing primary care providers per 100,000 population, with rates ranging from 0.4 in Florida and 0.6 in Texas to 11.8 in New Hampshire. See appendix exhibits 4 and 5 for separate maps of primary care physician prescribers and nurse practitioner and physician assistant prescribers, respectively.³⁶

In exhibit 2 we describe enrollees' access to in-network buprenorphine-prescribing primary care providers. We show the cumulative percentage of enrollees with fewer than a certain number of in-network prescribers per 100,000 population. We found that in high- and low-overdose-death states, 25 percent of enrollees had access to fewer than 0.7 and 0.6 in-network buprenorphine prescribers per 100,000 population, respectively. In high-overdose-death states, however, there was a greater number of in-network prescribers for the remaining 75 percent of enrollees. In high-overdose-death states, 50 per-

Access to buprenorphine-prescribing primary care providers constitutes a significant barrier to opioid agonist treatment.

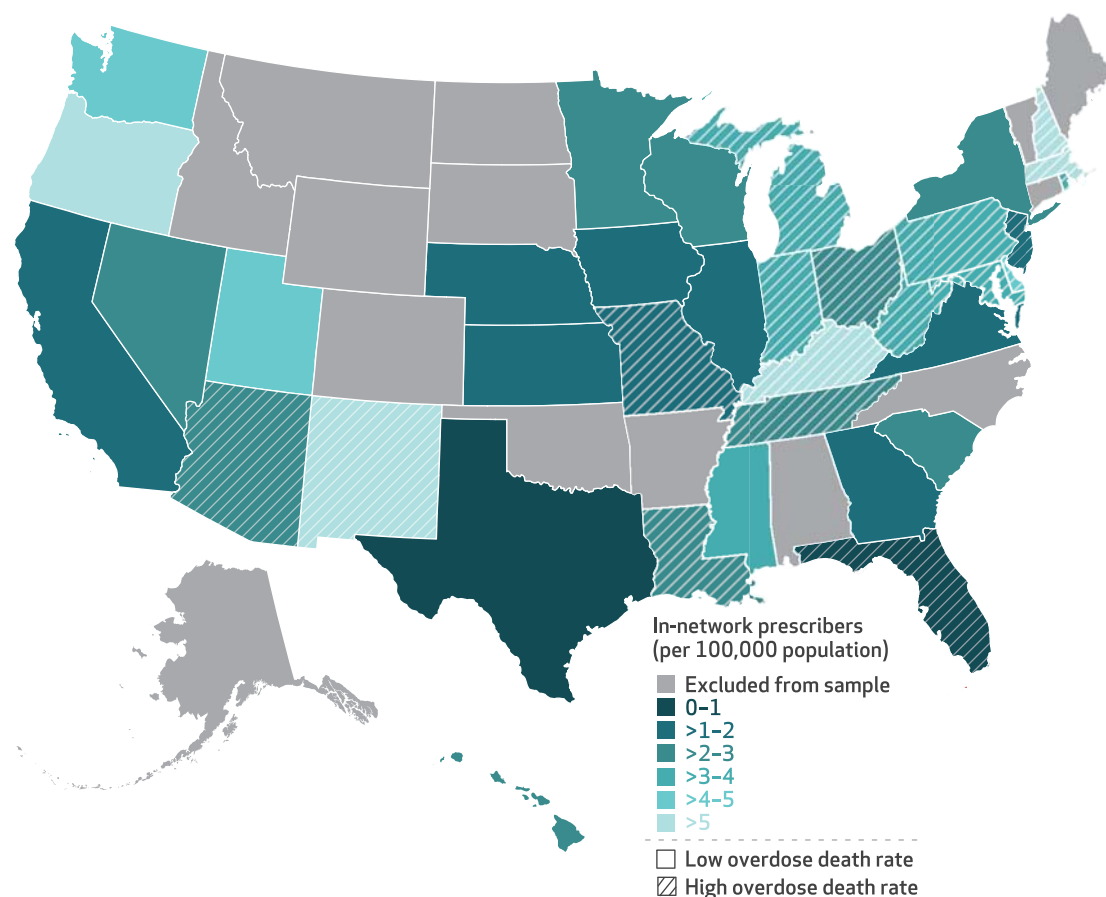
cent of enrollees had access to 1.9 or more prescribers per 100,000 population; in low-overdose-death states, 50 percent of enrollees had access to 1.2 or more prescribers per 100,000. For the 25 percent of enrollees with access to the greatest number of in-network prescribers, those in high-overdose-death states had at least 3.9 in-network prescribers per 100,000 population, compared with 2.3 in low-overdose-death states.

We also found substantial variation in the percentage of in-network primary care physicians who prescribed buprenorphine across states (exhibit 3). Overall, 49.5 percent of enrollees were enrolled in networks with 5 percent or less of primary care physicians who prescribed buprenorphine, whereas 28.1 percent of enrollees had networks with more than 10 percent of primary care physicians who did so. The state average percentage of in-network primary care physicians was 6.9 percent. The percentage of prescribers ranged from the lowest levels of 1.5 percent, found in Iowa, and 2.1 percent, found in Nebraska, to the highest levels of 17.0 percent, found in New Mexico, and 16.9 percent, found in Oregon.

The comparison between high- and low-overdose-death states using the measure of access based on the percentage of in-network primary care physicians who prescribed buprenorphine (exhibit 4) revealed patterns similar to those seen in exhibit 2. The median percentage of in-network primary care physicians prescribing buprenorphine was 5.2 percent in states with high numbers of overdose deaths and 5.0 percent in states with low numbers of overdose deaths. However, access was better in high-overdose-death states for enrollees at the seventy-fifth percentile (8.3 percent) compared with enrollees in

EXHIBIT 1

State variation in Medicaid managed care in-network buprenorphine-prescribing primary care providers per 100,000 population, 2019



SOURCES 2019–20 Vericred Provider Networks data containing network identifiers and provider National Provider Identifiers for Medicaid managed care plans, 2019 OneKey provider database containing provider characteristics including specialty and location, 2019 IQVIA prescription claims data containing buprenorphine prescription fills and prescribing provider National Provider Identifiers, 2019 American Community Survey containing population estimates, 2019 Decision Resources Group InterStudy enrollment data containing plan-county enrollment, and 2015–19 Centers for Disease Control and Prevention data containing state overdose deaths.

NOTES The average number of in-network buprenorphine-prescribing providers per 100,000 population was calculated by taking the within-state enrollment-weighted average number of in-network buprenorphine-prescribing providers across all networks in the state and dividing by the state total population. States were then categorized into access categories on the basis of the average number of providers. Buprenorphine-prescribing primary care providers were primary care physicians, nurse practitioners, and physician assistants with a prescription of buprenorphine to treat opioid use disorder. States were excluded from the analytic sample if they did not have greater than 10 percent Medicaid managed care penetration for the general adult population in the state.

low-overdose-death states (7.4 percent).

We further compared the percentage of in-network primary care physicians who prescribed buprenorphine with the percentage of all primary care physicians in a county who did so, regardless of network participation. For the average Medicaid managed care enrollee, only 5.2 percent of primary care physicians in their county prescribed buprenorphine, but 6.6 percent of primary care physicians included in their Medicaid managed care network in their county did so. See appendix exhibit 6 for graphical representation of these data.³⁶ In other words, the probability that an in-network primary care phy-

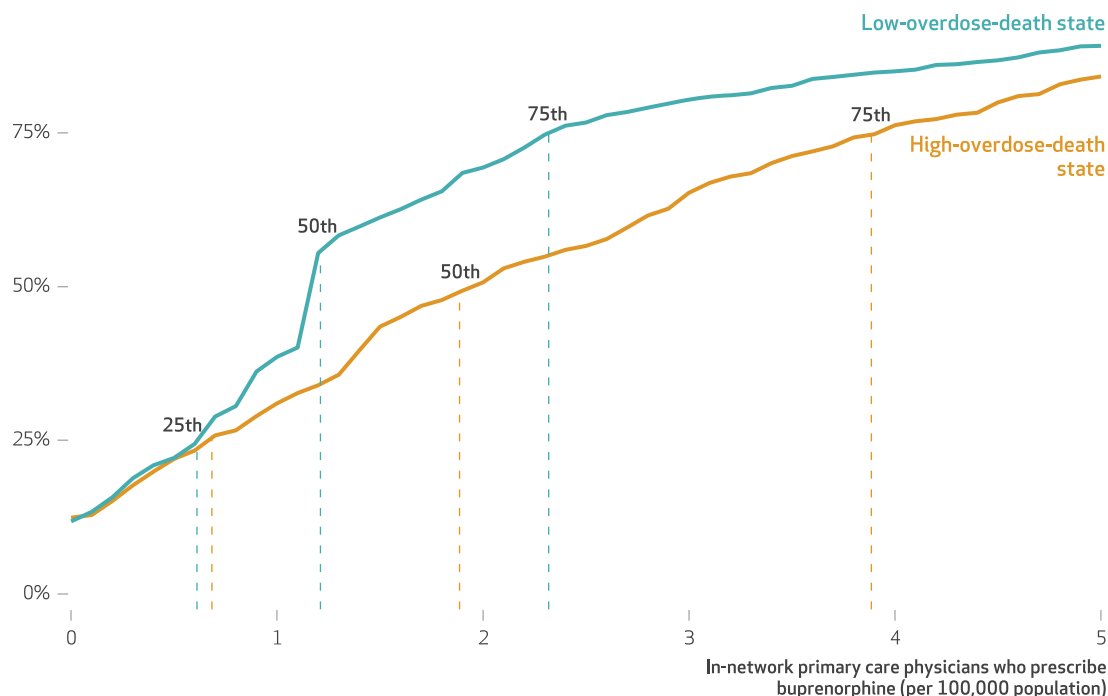
sician in an enrollee's county prescribed buprenorphine was approximately 25 percent higher than the probability that any primary care physician in their county overall prescribed buprenorphine. For the median enrollee, the percentage of primary care physicians in their county who prescribed buprenorphine was 3.9 percent (twenty-fifth percentile: 2.8 percent; seventy-fifth percentile: 6.1 percent) compared with 5.1 percent (twenty-fifth percentile: 2.6 percent; seventy-fifth percentile: 7.8 percent) within their Medicaid managed care network and county (appendix exhibit 6).³⁶

EXHIBIT 2

Medicaid managed care enrollees' access to in-network buprenorphine-prescribing primary care providers in states with high and low numbers of overdose deaths, 2019

Cumulative percent of Medicaid managed care enrollees

100% —



SOURCES 2019–20 Vericred Provider Networks data containing network identifiers and provider National Provider Identifiers for Medicaid managed care plans, 2019 OneKey provider database containing provider characteristics including specialty and location, 2019 IQVIA prescription claims data containing buprenorphine prescription fills and prescribing provider National Provider Identifiers, 2019 American Community Survey containing population estimates, 2019 Decision Resources Group InterStudy Enrollment data containing plan-county enrollment, and 2015–19 Centers for Disease Control and Prevention data containing state overdose deaths.

NOTES Network counties were divided into states with high and low numbers of overdose deaths, based on whether their state overdose death rate was at or above the state median overdose deaths per 100,000 population. Within each stratification, we then calculated the number of in-network buprenorphine-prescribing primary care providers per 100,000 population. The percentage of enrollees at each level of access was calculated, and cumulative percentages are displayed. Buprenorphine-prescribing primary care providers are defined in the exhibit 1 notes.

Discussion

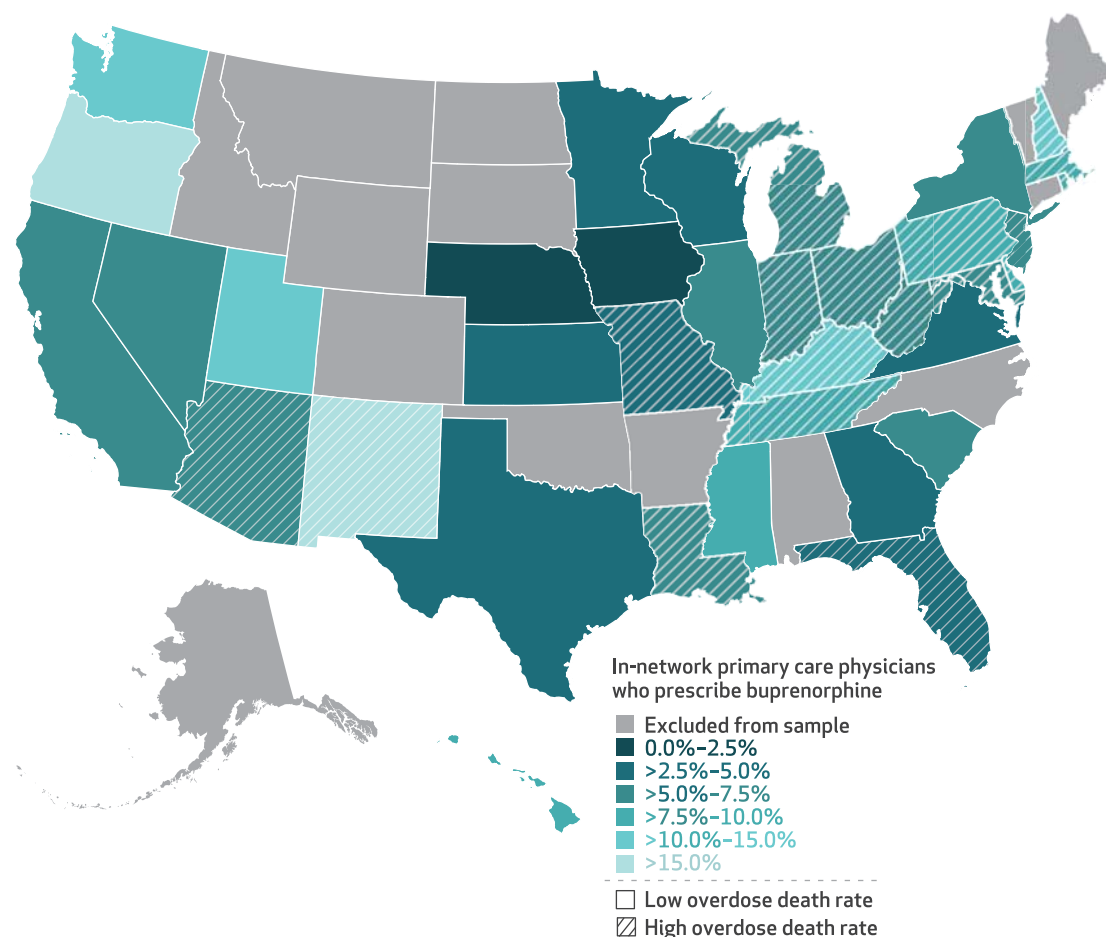
This study was the first to measure access to in-network buprenorphine prescribers in Medicaid managed care, the most common form of health insurance for people with OUD. We found that in 2019, 50 percent of enrollees in states with high overdose death rates had access to fewer than 1.9 buprenorphine prescribers per 100,000 population; in low-overdose-death states, 50 percent of enrollees had fewer than 1.2 prescriber per 100,000 population. When we adjusted the Health Resources and Services Administration's definition of a Health Professional Shortage Area for primary care providers by the prevalence of OUD, our findings indicate that more than half of Medicaid managed care enrollees lived in areas with a shortage of buprenorphine prescribers in both high- and low-overdose-

death states. In comparison, roughly a quarter of the total population lived in areas designated as primary care Health Professional Shortage Areas.^{42,43}

We found evidence that Medicaid managed care networks could play an important role in improving enrollees' access to buprenorphine prescribers by targeting providers for participation in their networks. A 25 percent higher rate of participation in Medicaid managed care networks among buprenorphine prescribers increases the probability that an enrollee would be assigned to a buprenorphine-prescribing primary care provider by approximately 25 percent. However, even within networks, the probability of automatic assignment to a buprenorphine-prescribing provider is approximately 6.6 percent, highlighting that most enrollees with

EXHIBIT 3

State variation in percent of Medicaid managed care in-network primary care physicians who prescribe buprenorphine, 2019



SOURCES 2019–20 Vericred Provider Networks data containing network identifiers and provider National Provider Identifiers for Medicaid managed care plans, 2019 OneKey provider database containing provider characteristics including specialty and location, 2019 IQVIA prescription claims data containing buprenorphine prescription fills and prescribing provider National Provider Identifiers, 2019 Decision Resources Group InterStudy Enrollment data containing plan-county enrollment, and 2015–19 Centers for Disease Control and Prevention data containing state overdose deaths. **NOTES** The percent of in-network primary care physicians who prescribe buprenorphine was calculated by taking the within-state enrollment-weighted percentage of in-network primary care physicians who prescribed buprenorphine across all networks in the state. States were then categorized into access categories on the basis of this measure. Buprenorphine-prescribing primary care physicians were those with a prescription of buprenorphine to treat opioid use disorder. States were excluded from the analytic sample if they did not have greater than 10 percent Medicaid managed care penetration for the general adult population in the state.

OUD will not be automatically assigned to a prescriber.

Collectively, our findings highlight how Medicaid managed care provider networks can be managed to improve access to buprenorphine prescribers by focusing on including these providers in the networks. This strategy could improve access to an in-network prescriber overall and also increase the likelihood that Medicaid enrollees get matched with a primary care provider who prescribes buprenorphine. This is important, as the provider to whom a beneficiary is automatically assigned may have a substantial influence on the treatments they receive.^{44,45}

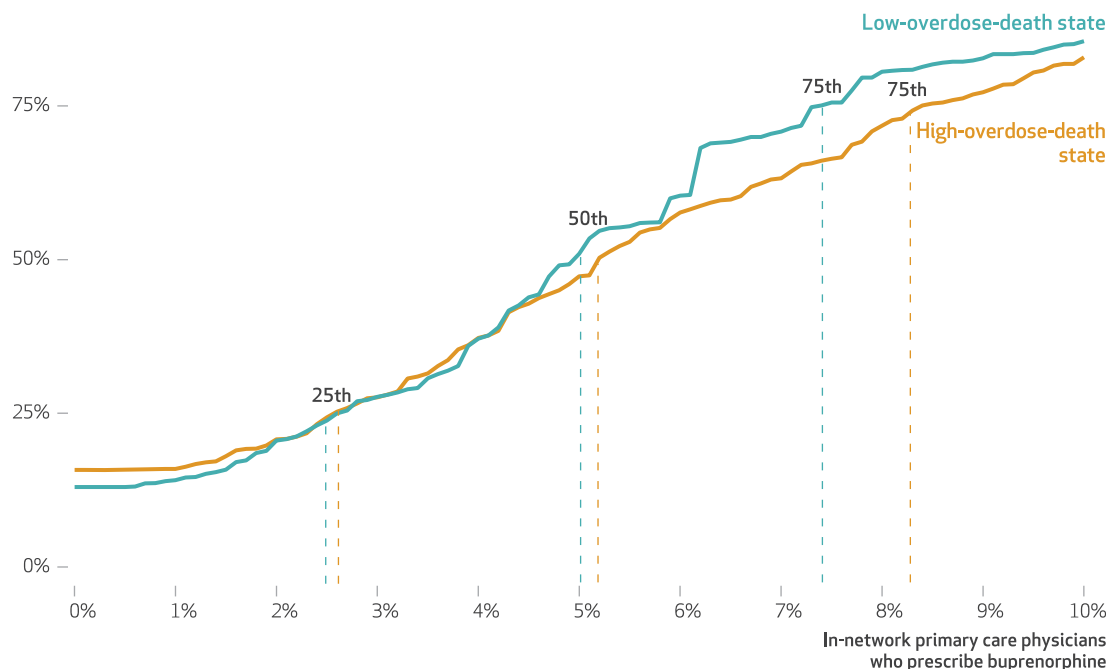
Our findings have several important policy implications. States with high overdose death rates could implement a number of policies to increase access to buprenorphine-prescribing primary care providers for residents with OUD. For example, states may increase Medicaid reimbursement for office-based buprenorphine treatment or issue clinical guidance to encourage buprenorphine use.¹⁰ In addition, Medicaid managed care networks may target buprenorphine prescribers in these states for inclusion in their networks to meet the clinical needs of their patient population. Future work should seek to disentangle the relative contributions of

EXHIBIT 4

Percentage of in-network primary care physicians who prescribe buprenorphine for Medicaid managed care enrollees in states with high and low numbers of overdose deaths, 2019

Cumulative percent of Medicaid managed care enrollees

100% —



SOURCES 2019–20 Vericred Provider Networks data containing network identifiers and provider National Provider Identifiers for Medicaid managed care plans, 2019 OneKey provider database containing provider characteristics including specialty and location, 2019 IQVIA prescription claims data containing buprenorphine prescription fills and prescribing provider National Provider Identifiers, 2019 Decision Resources Group InterStudy Enrollment data containing plan-county enrollment, and 2015–19 Centers for Disease Control and Prevention data containing state overdose deaths. **NOTES** Network counties were divided into states with high and low numbers of overdose deaths on the basis of whether their state overdose rate was at or above the state median overdose deaths per 100,000 population. Within each stratification, we calculated the percentage of in-network primary care physicians who prescribed buprenorphine. The percentage of enrollees at each level of access within either stratification was calculated, and the cumulative percentages are shown. Buprenorphine-prescribing primary care physicians were those with a prescription of buprenorphine to treat opioid use disorder.

policy and insurers' decision making.

For counties with the lowest levels of access across all states, there are policies that could expand access to buprenorphine prescribers within Medicaid managed care. In addition to broad-based strategies that could increase the supply of prescribers overall, such as eliminating the X waiver for prescribing buprenorphine, more targeted strategies could be used to expand access. Expanding telehealth access within Medicaid managed care networks while maintaining expansions of telehealth that occurred during the COVID-19 pandemic could help enrollees in underserved areas receive treatment from buprenorphine prescribers.⁴⁶ Network adequacy regulations could also be used to ensure that all Medicaid managed care networks include a minimum number of buprenorphine prescribers.

Finally, although we found that Medicaid managed care enrollees had a greater probability than nonenrollees of seeing primary care providers who prescribed buprenorphine, that probability remained low. Medicaid policy makers could assign enrollees with OUD to buprenorphine-prescribing primary care providers instead of continuing the current practice of automatically assigning enrollees without regard to opioid use.

Conclusion

Access to buprenorphine-prescribing primary care providers in Medicaid managed care constitutes a significant barrier to opioid agonist treatment for Medicaid enrollees with OUD. Despite the higher potential need for buprenorphine,

many enrollees in states with high overdose death rates have low levels of access similar to those in states with lower overdose death rates. Although a higher concentration of providers in Medicaid managed care networks prescribe buprenorphine compared with providers who do not participate in these networks, the majority of enrollees live in counties with a small supply of

prescribers who are unable to meet the demand for treatment. Alongside implementing policies to increase the supply of buprenorphine prescribers, policy makers should leverage Medicaid managed care networks to expose enrollees with OUD to primary care providers who prescribe buprenorphine. ■

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