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Northeast Postacute Medical Facilities Disproportionately Reject Referrals For Patients With Opioid Use Disorder

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ABSTRACT Referrals of hospitalized patients with opioid use disorder (OUD) to postacute medical care facilities are commonly rejected. We linked all electronic referrals from a Boston safety-net hospital in 2018 to clinical data and used multivariable logistic regression to examine the association between OUD diagnosis and rejection from postacute medical care. Hospitalized patients with OUD were referred to more facilities than patients without OUD (8.2 versus 6.6 per hospitalization), were rejected a greater proportion of the time (83.3 percent versus 65.5 percent), and in adjusted analyses had greater odds of rejection from postacute care (adjusted odds ratio, 2.2). In addition, people with OUD were referred disproportionately to a small subset of facilities with a higher likelihood of acceptance. Our findings document disparities in postacute care admissions for people with OUD. Efforts to ensure equitable access to medically necessary postacute medical care for people with OUD are needed.

Hospitalizations for people with opioid use disorder (OUD) in the US rapidly increased between 2006 and 2016, going from 164 to 297 hospitalizations per 100,000 people.[1] Complications associated with opioid use, including systemic infections from drug injection, overdoses, physical and psychological traumas, strokes, or other acute conditions such as pneumonia and chronic obstructive lung disease, have contributed to the increase in hospitalizations.[2–6] People with OUD commonly require prolonged intravenous antibiotics, wound care, medication titration, and physical or occupational therapy after stabilization from an acute hospitalization. For many, these services can only be delivered in postacute medical care facilities (for example, medical rehabilitation or skilled nursing settings).

Massachusetts has the second-highest rate of opioid-related hospitalizations in the US, making discharge planning and postacute care access for patients with OUD an especially important issue in the state, as these patients tend to have longer hospitalizations than patients without OUD with the same conditions.[7,8] In 2016 the Massachusetts Department of Public Health issued guidance to all Massachusetts-licensed facilities that people with OUD should not be excluded from admission to postacute medical care because of treatment with medications for OUD (MOUD) such as methadone or buprenorphine.[9] Despite this, the US Attorney's Office for the District of Massachusetts has reached several settlements with postacute medical care facilities for violating the Americans with Disabilities Act of 1990 by screening out people with OUD or those treated with MOUD.[10,11] Several clinicians have described the challenge of finding postacute care for people with OUD, but few studies have systematically evaluated postacute care referral and admissions practices.[12,13] Previous

work has shown that facilities frequently reject referrals explicitly because of substance use or MOUD, in violation of state and federal policies.[10,14,15] In fact, in 2018 nearly four in ten patients with OUD referred for postacute care from a Massachusetts safety-net hospital were not able to be discharged to any postacute care facility.[14] These rejections thus limit access to medically necessary postacute care and likely contribute to longer hospitalizations for people with OUD. However, it is not known whether people with OUD are more likely to be rejected from postacute care facilities when compared to those without OUD or whether they experience distinct postacute care referral patterns.

In this study we used data from Boston Medical Center's electronic postacute care referral system to examine the association between OUD diagnosis and referrals to and rejection by postacute medical care facilities. We hypothesized that referrals for people with OUD would be more likely to be rejected than referrals for people without OUD and that people with OUD would be preferentially referred to a subset of postacute care facilities with a higher likelihood of accepting people with OUD, masking disparities in observed rejection rates. To test this hypothesis, we conducted a stratified analysis of acceptance rates by likelihood of facility to receive a referral for a patient with OUD.

Study Data And Methods

STUDY DESIGN AND DATA SOURCE In this retrospective cohort study of hospitalized patients with and without OUD diagnoses, we examined all electronic referrals to private postacute care facilities and the outcomes of these referrals (that is, rejected or accepted) from hospitalizations at Boston Medical Center, a safety-net hospital in Boston, Massachusetts, from January 1, 2018, to December 31, 2018. During the study period, referrals from Boston Medical Center to private postacute care facilities were placed using the Allscripts electronic referral system. We used medical record numbers to link the Allscripts referral data to the corresponding hospitalizations, using the Boston Medical Center Clinical Data Warehouse, which provides clinical, demographic, and insurance data from the electronic medical record and has been used in previous studies of Boston Medical Center addiction services.[14,16] Referrals to Massachusetts Department of Public Health–funded postacute care facilities or to respite facilities for people experiencing homelessness were not included, as these referrals occurred outside of the electronic referral system. Although complete data on these referrals were unavailable, disposition data included discharge to these facilities.

COHORT SELECTION We included all patients age eighteen or older hospitalized at Boston Medical Center who received an electronic referral in the Allscripts system to one or more included private postacute medical care facilities in 2018. Patients who were medically appropriate for discharge directly to home and those whose discharges were self-directed before discharge planning were not included. To decrease heterogeneity among referred patients and facilities in the study cohort, we included referrals to skilled nursing or subacute nursing facilities only. We excluded referrals to other acute care hospitals, acute rehabilitation facilities, long-term acute care facilities, and rest homes, as differences in the clinical needs of patients referred to these facilities or in facilities' admission criteria could confound the relationship between OUD status and admission decisions, which was this study's focus. We use the general term "postacute medical care facilities" to refer to the facilities in our cohort. To ensure adequate data to observe variation in admissions decisions, we included only referrals to facilities that received at least five total referrals and at least one referral for a person with OUD. The Boston University Medical Campus Institutional Review Board approved this study.

VARIABLES OF INTEREST The primary outcome was postacute care referral rejection as transmitted in the electronic referral system. We used data from the Clinical Data Warehouse to extract several individual characteristics from the hospitalization associated with the referral. Our primary exposure was OUD status, defined by the presence of International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), codes for opioid use, abuse, or dependence (F11.10, F11.11, F11.21, F11.221, F11.23, F11.90) or receipt of buprenorphine or methadone during the hospitalization or at the time of discharge. Methadone was used to designate OUD status only if it was administered in liquid form, to prevent misclassification of people receiving methadone in pill form for chronic pain. Naltrexone was not used to designate OUD status, as it is more commonly used to treat alcohol use disorder during an acute hospitalization. Other covariates ascertained from the Clinical Data Warehouse included age, sex, race, ethnicity, language, insurance, homelessness status, receipt of psychiatric or addiction consult, clinical diagnoses including alcohol use disorder, contact precaution status, and severity of illness as determined by the Charlson Comorbidity Index.[17] To describe the cohort, we categorized the primary admission diagnosis into system-based categories, using the Agency for

Healthcare Research and Quality Clinical Classifications Software.[18]

In addition, we categorized postacute care facilities based on the proportion of referrals received that were for people with OUD, reviewing the distribution of these OUD referral proportions across the facilities to define high, medium, and low OUD referral facility groups. We defined the medium OUD referral facility group by the mean proportion of OUD referrals in the full sample plus or minus 5 percent. We defined facilities receiving more than the mean plus 5 percent as high OUD referral facilities and those receiving less than the mean minus 5 percent as low OUD referral facilities.

For descriptive purposes, we examined facility characteristics by OUD referral category. We used data from the Brown University School of Public Health and the National Institute on Aging LTCFocus database[19,20] and included the following facility variables from LTCFocus data from 2017, the most recent year available: acuity index (measure of residents' need for assistance with activities of daily living); resource utilization index (measure of staff time needed to care for residents); average patient age; and proportions of residents younger than age sixty-five, those who were female, by race and ethnicity, those with bipolar disorder or schizophrenia, and those with daily pain. We also included number of beds, occupancy rate, whether the facility was part of a multifacility chain, proportion of residents with Medicaid or Medicare insurance, nurse practitioner or physician assistant on staff, for-profit status, and number of direct care hours per resident per day. We also included 2018 star ratings from the Centers for Medicare and Medicaid Services, which categorizes facilities on a scale from one to five, where five is defined as quality much better than average. The rating system includes data on health inspection, staffing, and quality measures and is designed to help consumers compare nursing homes.[21]

STATISTICAL ANALYSES We compared referral characteristics among hospitalizations for people with and without OUD, using Fisher's exact or chi-square testing based on sample size. We compared facility characteristics between low, medium, and high OUD referral hospitalizations using the Kruskal-Wallis tests for continuous variables and chi-square or Fisher's exact test for categorical variables. Facilities with missing data from LTCFocus were excluded from OUD referral category comparisons. We used multivariable logistic regression to estimate the association between OUD status and referral rejection. To control for potential confounding variables, we included in our model all descriptive variables for referrals previously noted except for addiction consult status because it was highly correlated with our primary exposure, OUD status. Based on our a priori hypothesis, we further examined the interaction between OUD and facility OUD referral category (high, medium, and low). We adjusted for clustering at the individual level in all models. All tests of significance were performed with a p value of 0.05. Analyses were performed in SAS, version 9.4.

Case managers may preferentially refer patients with OUD to specific facilities where such referrals are less likely to be rejected.

LIMITATIONS Results from this study must be interpreted in the context of its limitations. First, these data are from a safety-net hospital in Massachusetts in 2018 and might not be generalizable to other locations or times (that is, there may be differences in insurance coverage, access to inpatient or ambulatory OUD care, or scrutiny of OUD postacute care admissions). Second, although our analytic approach included facility categories based on proportion of referrals associated with an OUD diagnosis, we could not fully account for decisions made by case managers or patients about which facilities receive referrals. Although we adjusted for clustering at the individual level in our models, some patients may request facilities in specific geographic areas or have had prior experience with specific facilities that could affect referral selection in ways that we could not observe in our data.

Third, our study was subject to exposure misclassification, as we determined OUD status at the hospitalization level, using diagnosis codes and receipt of medications for OUD, rather than through chart review. Given the high rates of MOUD receipt in the OUD cohort, we were not able to differentiate between rejections resulting from OUD or MOUD, nor were we able to classify the severity or current status of a person's OUD. Fourth, we were able to report only referrals to private facilities. Referrals to two state-run facilities and a respite facility for people experiencing homelessness—which in our

These pervasive referral and rejection patterns provide further evidence of the inequities in postacute care access faced by people with OUD.

clinical experience have been more open to accepting patients with OUD—are not processed through the online referral system we used to gather data, resulting in a selected sample of people with OUD. This may have biased our findings toward the null hypothesis. Notably, the data do include ultimate disposition type (that is, home, facility, or "against medical advice" discharge), but facility discharge includes both private and public facilities, and the data did not allow us to differentiate between them. Further, some people with OUD may receive referrals to these specific facilities only and would not be included in our data. Thus, we were not able to examine characteristics, such as racial and ethnic inequities, in referral patterns between private and public facilities.

Study Results

We identified 2,523 hospitalizations resulting in 18,584 referrals to 686 private postacute medical care facilities in the electronic referral system. After we excluded facilities that only received referrals for acute care, acute rehabilitation, long-term acute care, or rest home services ($n = 42$) and those that received fewer than five total referrals ($n = 286$) or one OUD referral ($n = 114$), the final study cohort included 2,463 hospitalizations of patients who were referred 16,503 times to 244 postacute care facilities (that is, skilled nursing facilities or subacute care facilities) (online appendix exhibit A1).[22]

Of people identified with OUD, the majority received MOUD: Eighty-six people received only methadone, forty-seven received only buprenorphine, and eleven received more than one type of MOUD during the hospitalization or at discharge (that is, at least one dose of methadone and buprenorphine) (data not shown). Compared to hospitalized patients without OUD ($n = 2,297$), those with OUD ($n = 166$) were significantly ($p < 0.001$) younger (mean age 51.7 versus 69.1 years) and were more likely to be male (69.3 percent versus 49.4 percent), non-Hispanic White (47.0 percent versus 35.7 percent) or Hispanic (16.9 percent versus 10.6 percent), English speakers (92.2 percent versus 78.8 percent), and insured by Medicaid (55.4 percent versus 20.9 percent) rather than Medicare (22.8 percent versus 53.6 percent) or private insurance (9.0 percent versus 9.5 percent) (exhibit 1).

In addition, significantly more hospitalized patients with OUD than without OUD experienced homelessness (42.2 percent versus 10.3 percent), received an inpatient psychiatry (27.1 percent versus 18.2 percent) or addiction (66.3 percent versus 4.6 percent) consult, and required infection control precautions during the hospitalization (airborne: 7.8 percent versus 1.9 percent; contact: 49.4 percent versus 24.6 percent; droplet: 10.8 percent versus 4.4 percent) (exhibit 1). There were no significant differences in the distribution of the Charlson Comorbidity Index scores, but people with OUD were more likely to have an infection-related (19.9 percent versus 10.3 percent) diagnosis (appendix exhibit A2).[22]

REFERRALS AND REJECTIONS Hospitalized patients with OUD were referred to significantly ($p < 0.001$) more postacute care facilities than patients without OUD (8.2 versus 6.6). A significantly greater proportion of referrals for those with OUD were rejected than for those without OUD (83.3 percent versus 65.5 percent) (exhibit 1). Hospitalized patients with OUD experienced at least five rejections 44.5 percent of the time compared to 21.6 percent among those without OUD (data not shown). Finally, there were significant differences in discharge location: 62.0 percent of patients with OUD were discharged to any postacute care facility (including public and respite) compared to 81.0 percent of patients without OUD. In addition, patients with OUD were more likely to have patient-directed discharges (13.3 percent versus 1.0 percent) and to be discharged home without any services (13.9 percent versus 5.6 percent) (exhibit 1).

FACILITY CHARACTERISTICS The mean proportion of referrals received by postacute care facilities that were associated with OUD was 12.6 percent (interquartile range: 5.7, 14.3) (exhibit 2). There were forty-one high OUD referral facilities, eighty-three medium OUD referral facilities, and ninety-seven low OUD referral facilities (exhibit 3). High OUD referral facilities had sig-

EXHIBIT 1

Characteristics of hospitalized patients without and with opioid use disorder (OUD) referred by Boston Medical Center to postacute medical care facilities, 2018

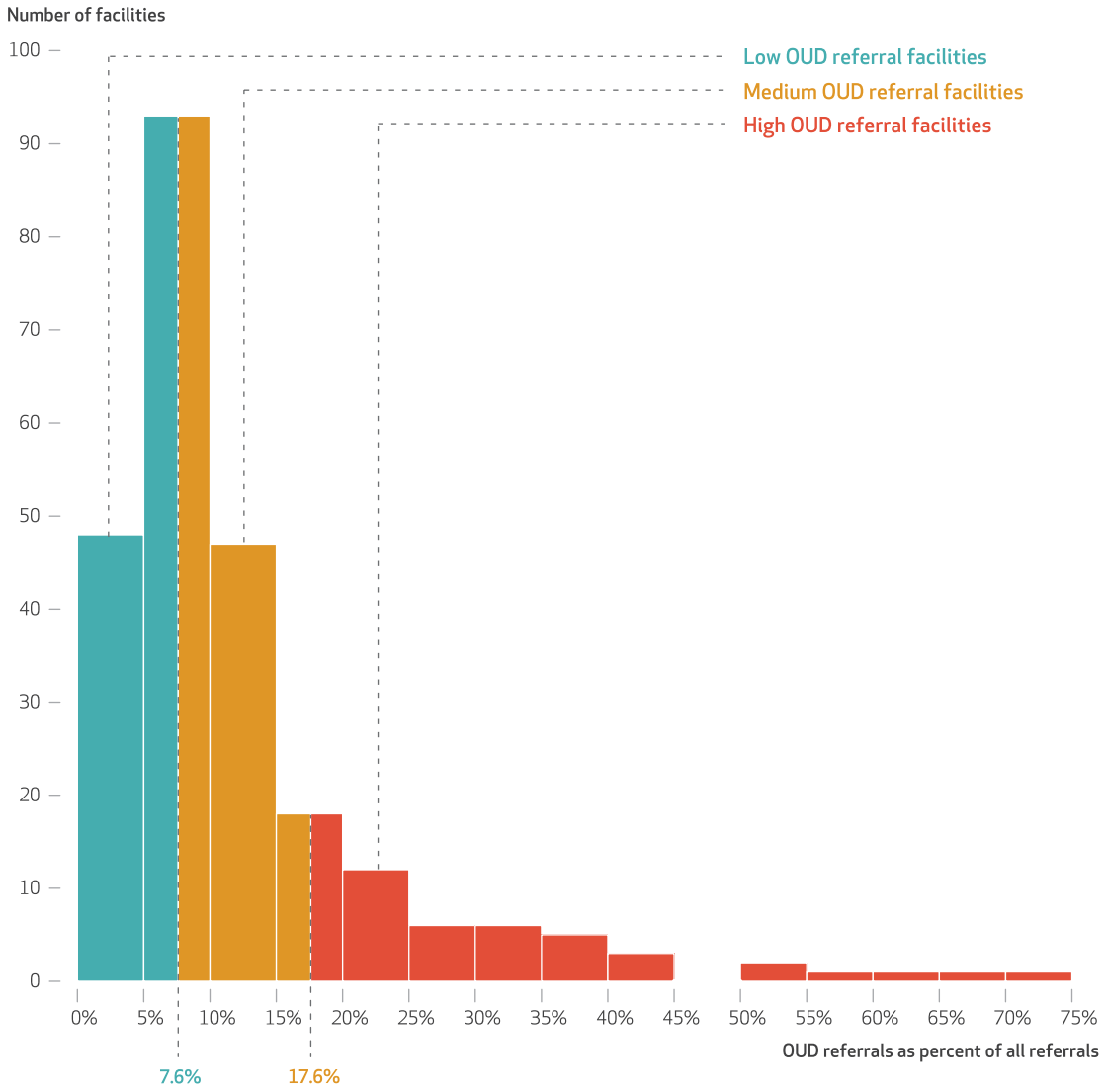
	Without OUD (*n* = 2,297)		With OUD (*n* = 166)		
Characteristics	**Number**	**Percent**	**Number**	**Percent**	***p* value[a]**
Age, years[b] (mean)	69.1	—[c]	51.7	—[c]	<0.001
Male[d]	1,134	49.4	115	69.3	<0.001
Race and ethnicity					<0.001
Non-Hispanic White	820	35.7	78	47.0	
Non-Hispanic Black	1,014	44.1	53	31.9	
Hispanic or Latino	244	10.6	28	16.9	
Other[e]	219	9.5	7	4.2	
Language spoken					<0.001
English	1,809	78.8	153	92.2	
Spanish	164	7.1	12	7.2	
Other	324	14.1	1	0.6	
Insurance type					<0.001
Medicaid	482	20.9	92	55.4	
Medicare	1,232	53.6	38	22.8	
Private	218	9.5	15	9.0	
Other	365	15.9	21	12.7	
Homeless	236	10.3	70	42.2	<0.001
Psychiatry consult	419	18.2	45	27.1	0.005
Addiction consult	106	4.6	110	66.3	<0.001
Alcohol use disorder	37	1.6	4	2.4	0.35
Contact precaution status					
Airborne	43	1.9	13	7.8	<0.001
Contact	565	24.6	82	49.4	<0.001
Contact plus	396	17.2	37	22.3	0.1
Droplet	102	4.4	18	10.8	<0.001
Charlson Comorbidity Index score					0.26
0	403	17.5	36	21.7	
1–2	736	32.0	49	29.5	
3–4	454	19.8	25	15.1	
5 or higher	704	30.6	56	33.7	
No. of referrals received (mean)	6.6	—[c]	8.2	—[c]	<0.001
Referrals rejected (%)	—[c]	65.5	—[c]	83.3	<0.001
Disposition status					<0.001
Against medical advice	22	1.0	22	13.3	
Facility[f]	1,860	81.0	103	62.0	
Deceased	40	1.7	3	1.8	
Home with services	242	10.5	15	9.0	
Home or self-care	129	5.6	23	13.9	
Other	4	0.2	0	0.0	

SOURCE Authors' analysis of data from Boston Medical Center's Clinical Data Warehouse. **NOTE** Values in the "Number" columns represent number of patients, except for age and number of referrals, which are both reported as a mean. [a]Tests of significance performed using chi-square or Fisher's exact tests (age, alcohol use). [b]Age presented as a categorical variable is available in online appendix exhibit A2 (see note 21 in text). [c]Not applicable. [d]Gender was missing for three patients. [e]American Indian/Native American, Asian, Native Hawaiian/Pacific Islander, and declined/not available. [f]Disposition to any facility including respite and state-funded facilities.

nificantly younger patients compared with medium and low OUD referral facilities (mean ages, 76.6 versus 81.3 and 81.6, respectively; $p = 0.002$), a smaller proportion of female patients (51.4 percent versus 57.4 percent and 58.7 percent, respectively; $p = 0.004$), and more patients with bipolar disorder or schizophrenia (29.1 percent versus 20.4 percent and 18.3 percent, respectively; $p = 0.004$). High OUD referral facilities also had significantly more patients with Medicaid (69.9 percent versus 63.7 percent and 61.1 percent, respectively; $p = 0.02$), fewer patients with Medicare (8.7 percent versus 12.5 percent and 15.0 percent, respectively; $p = 0.01$), and fewer direct care hours per resident per day (3.3 versus 3.7 and 3.9, respectively;

EXHIBIT 2

Distribution of percent of referrals received by cohort postacute medical care facilities from Boston Medical Center for patients with opioid use disorder (OUD), 2018



SOURCE Authors' analysis of data from Boston Medical Center's Clinical Data Warehouse. **NOTES** $N = 244$. Of these facilities, 237 (97.1 percent) were in Massachusetts, and 7 (2.9 percent) were in New Hampshire. The mean proportion of referrals received for patients with OUD was 12.6 percent. Low OUD referral facilities are defined as those with a proportion of OUD referrals less than 7.6 percent of all referrals. Medium OUD referral facilities received a proportion of OUD referrals between 7.6 percent and 17.6 percent, and high OUD referral facilities received OUD referrals for more than 17.6 percent.

$p < 0.001$). In addition, high OUD referral facilities were significantly less likely to be ranked as above-average facilities (having a CMS star rating of four or five; 24.4 percent versus 48.2 percent and 56.7 percent, respectively; $p < 0.001$). There was a trend toward high OUD referral facilities having a smaller proportion of Black patients and a higher proportion with daily pain and and for-profit designation, but these differences did not reach statistical significance.

MODEL RESULTS In an adjusted multivariable logistic regression model, referrals for patients with an OUD diagnosis had significantly higher odds of rejection (adjusted odds ratio: 2.2) (exhibit 4). Other factors associated with increased odds of rejection included having an alcohol use disorder (AOR: 1.9), experiencing homelessness (AOR: 1.4), or receiving a psychiatry consult during the hospitalization (AOR: 1.6). Patients older than age fifty-five had significantly decreased odds of rejection, as did those who were female (AOR: 0.8) and those with Medicare insurance (AOR: 0.8). Race and ethnicity were not significantly associated with facility rejection.

Referrals to low OUD referral facilities had

EXHIBIT 3

Characteristics of postacute medical care facilities according to proportion of referrals from Boston Medical Center received for patients with opioid use disorder (OUD), 2018

Characteristics	High OUD referral facilities (*n* = 41)	Medium OUD referral facilities (*n* = 83)	Low OUD referral facilities (*n* = 97)	*p* value[a]
Patient population				
Age, mean (years)	76.6	81.3	81.6	0.002
Age <65 (%)	33.2	19.7	17.4	<0.001
Female (%)	51.4	57.4	58.7	0.004
Bipolar disorder or schizophrenia (%)	29.1	20.4	18.3	0.004
Long-stay residents with daily pain (%)	5.6	4.2	3.5	0.08
Non-Hispanic White (%)	82.9	84.3	78.6	0.29
Non-Hispanic Black (%)	8.3	11.3	15.7	0.07
Hispanic or Latino (%)	4.6	6.0	4.2	0.91
Acuity index score[b]	11.8	12.1	12.0	0.19
Resource utilization index score[c]	1.1	1.2	1.2	0.003
No. of beds	127.4	120.6	126.1	0.44
Occupancy rate (%)	86.6	84.1	81.9	0.28
Multifacility chain (%)	61.0	66.3	61.8	0.78
Patients with Medicaid (%)	69.9	63.7	61.1	0.02
Patients with Medicare (%)	8.7	12.5	15.0	0.01
NP or PA on staff (%)	70.7	78.3	77.3	0.62
For-profit status (%)	87.8	80.7	70.1	0.09
No. of direct care hours per resident per day	3.3	3.7	3.9	<0.001
CMS star rating (%)				<0.001
1	26.8	4.8	4.1	
2–3	46.3	47.0	32.0	
4–5	24.4	48.2	56.7	
Missing	2.4	0.0	7.2	

SOURCE Authors' analysis of data from Boston Medical Center's Clinical Data Warehouse, facility data from LTCFocus.org, and star ratings data from the Centers for Medicare and Medicaid Services. **NOTES** Data shown for 221 of 244 facilities that received referrals in our cohort. Twenty-three facilities had missing data and were excluded from this exhibit. High, medium, and low OUD referral facilities are defined in the exhibit 2 notes. NP is nurse practitioner. PA is physician assistant. [a]To test for significant differences between groups, we used Kruskal-Wallis test for continuous variables, chi-square test for categorical variables, and Fisher's exact test when sample sizes in each cell were small (that is, for-profit status and CMS star rating). [b]Measure of residents' need for assistance with activities of daily living or special treatments. Higher scores represent greater acuity. Index scores ranged from 0 to 14.0 for low OUD referral facilities, from 10.0 to 14.1 for medium OUD referral facilities, and from 9.1 to 14.9 for high OUD referral facilities. [c]Measure of staff time needed to care for residents. Higher scores represent greater resource utilization. Index scores ranged from 0.9 to 2.0 for low OUD referral facilities, from 0.9 to 1.4 for medium OUD referral facilities, and from 0.8 to 1.6 for high OUD referral facilities.

greater odds of rejection (AOR: 1.6), whereas referrals to high OUD referral facilities had lower odds of rejection (AOR: 0.5). On the basis of these findings and our a priori hypotheses that people with OUD would be more likely to be referred to postacute care facilities with a higher likelihood of acceptance, we tested for an interaction between OUD status and facility category. The interaction between OUD status and the low OUD facility group had a positive effect estimate but did not reach statistical significance (AOR: 1.7). There also was no significant interaction with the high OUD referral group (AOR: 0.7) (appendix exhibit A3).[22]

In adjusted analyses stratified by facility group, the odds of an OUD-associated referral being rejected were lowest for high OUD referral facilities (AOR: 1.8), intermediate for medium OUD referral facilities (AOR: 2.6), and highest for low OUD referral facilities (AOR: 3.4) (appendix exhibit A4).[22]

Discussion

In this cohort of postacute medical care referrals for hospitalized patients, more than eight in ten referrals for patients with OUD were rejected. Referrals associated with OUD had more than double the odds of rejection compared with referrals not associated with an OUD diagnosis when adjusting for clinical and demographic confounders. Previous research has demonstrated that postacute care facilities in Massachusetts explicitly document substance use or medica-

EXHIBIT 4

Odds of referral rejection from postacute medical care facilities in the Northeast by opioid use disorder (OUD) status and selected characteristics, 2018

Characteristics	Adjusted odds ratio	95% CI	*p* value
Patients with OUD (ref: patients without OUD)	2.2	1.7, 2.8	<0.001
Facility type (ref: medium OUD referral facilities)			
Low OUD referral facilities	1.6	1.5, 1.8	<0.001
High OUD referral facilities	0.5	0.4, 0.6	<0.001
Age, years (ref: 18–34)			
35–44	0.8	0.4, 1.3	0.330
45–54	0.6	0.4, 1.1	0.094
55–64	0.5	0.3, 0.8	0.005
65–74	0.3	0.2, 0.5	<0.001
75 and older	0.3	0.2, 0.4	<0.001
Sex (ref: male)			
Female	0.8	0.7, 0.9	0.001
Race and ethnicity (ref: non-Hispanic White)			
Hispanic	1.1	0.8, 1.5	0.491
Non-Hispanic Black	1.1	1.0, 1.3	0.189
Other	1.2	1.0, 1.5	0.096
Language (ref: English)			
Spanish	0.8	0.6, 1.2	0.226
Other	0.8	0.7, 1.0	0.057
Insurance type (ref: private)			
Medicaid	1.1	0.9, 1.4	0.269
Medicare	0.8	0.6, 1.0	0.045
Other	0.9	0.7, 1.1	0.191
Homelessness	1.4	1.2, 1.1	0.002
Psychiatry consult	1.6	1.3, 1.8	<0.001
Precaution status (ref: no precautions)			
Air	1.3	0.9, 1.8	0.242
Contact	0.9	0.8, 1.0	0.162
Contact Plus	1.1	0.9, 1.4	0.192
Droplet	1.0	0.8, 1.3	0.965
Alcohol use disorder	1.9	1.4, 2.5	<0.001

SOURCE Authors' analysis of data from Boston Medical Center's Clinical Data Warehouse on 16,503 referrals. **NOTES** Sixty-three referrals (0.38 percent) were to seven facilities in New Hampshire. All other referrals were to Massachusetts facilities. All characteristics included in model are listed. Reference groups (value = 1.0) are shown in parentheses except for binary variables, where the reference group is the complement of the category shown.

tions for OUD as a rationale for rejecting referrals for people with OUD; this has been classified as discriminatory under the federal Americans with Disabilities Act and also violates state policies.[10,14] The results of this study go further and demonstrate that referral, rejection, and acceptance inequities for people with OUD are widespread and not limited to the 15 percent of referrals for people with OUD in which explicit discrimination was documented.[14] The postacute care facilities in this study disproportionately reject patients with OUD from medically necessary care despite public health guidelines and legal scrutiny.

Patients with OUD had increased odds of referral rejection even when other potentially stigmatized factors that facilities might use to make admissions decisions, such as experiencing homelessness, active psychiatric disease, or alcohol use disorder, were controlled for. Although these other stigmatized conditions were also independently associated with increased odds of rejection, the independent association of OUD with rejection suggests that it is the presence of OUD and the medications used to treat it that is particularly scrutinized in admissions decisions.

We also found that facilities that receive a higher proportion of OUD referrals are less likely to reject a referral for a person with OUD than facilities that receive a lower proportion of OUD referrals. This suggests that case managers may preferentially refer patients with OUD to specific facilities where such referrals are less likely to be rejected. These facilities may offer specialized services or access to specialists for people with

OUD. However, the facilities in the high OUD referral group were less likely to be highly rated according to the CMS star rating system, which is designed to measure overall quality of care. As these referrals are for medical indications for patients with OUD and not for OUD-specific care, this raises concerns about the quality of postacute care for these patients. Additional research is needed to explore how clinical outcomes vary by type of facility.

It is also important to note that 32 percent of facilities receiving at least five referrals did not receive a single referral for a person with a diagnosis of OUD. The fact that many facilities with a substantial volume of referrals from Boston Medical Center receive no referrals for people with OUD is particularly problematic and suggestive of an underlying disparity: Many facilities seem to provide no postacute care for people with OUD, which is a common and treatable condition.[23,24] The fact that case managers may sort referrals by OUD status (that is, refer people with OUD to different facilities than those without OUD), which may increase the chance of procuring postacute care, also has implications for interpreting our study findings: As our study included a selected cohort of patients with OUD, our analysis likely underestimated the degree to which a diagnosis of OUD affects postacute care acceptance. We did not find differences in rejection by race or ethnicity, but this may reflect the fact that the majority of Black and Hispanic people in this study did not have OUD. Additional research should further scrutinize racial inequities in referral patterns and admissions among people with OUD.

Only six in ten people with OUD referred to postacute care were ultimately discharged to a nursing facility, which suggests that admissions practices have clinical implications and represent barriers to medically recommended care. It is possible that these barriers to discharge contribute to longer hospital stays, which are a risk factor for patient-directed or "against medical advice" discharge.[8,25–27] Further, those who are successfully discharged to postacute care may find themselves in lower-quality facilities based on referral locations and rejection probabilities.

These pervasive referral and rejection patterns provide further evidence of the inequities in postacute care access faced by people with OUD. Although most of the referrals in this study were to facilities in Massachusetts, referrals to facilities in New Hampshire were also included, suggesting that these practices are not limited to one state or city. We suspect that these practices are widespread, but this should be confirmed by additional studies in other locations.

Amid the ongoing opioid crisis, it is essential that people with OUD have equitable access to high-quality postacute medical care.

There are several possible explanations for these practices, including externalized stigma toward people with OUD, which may be formally or informally codified in admissions criteria; lack of comfort with or expertise in OUD treatment; and regulations that make provision of buprenorphine or methadone for OUD logistically challenging for postacute care facilities.[28–32] To provide buprenorphine, facilities must either have an X-waivered prescriber or a relationship with an outside prescriber, which may become more widely available given recent regulation changes by the Department of Health and Human Services designed to increase access to buprenorphine.[33] To provide methadone, a facility must coordinate with an opioid treatment program to transport the patient to the program or transport the methadone to the facility.[13] However, facilities frequently coordinate with specialist providers for other medical conditions. Changes to federal regulations that allow nursing facilities to administer methadone, as in acute care hospitals, would reduce barriers. In addition, some facilities may be concerned about adhering to regulations around the care received by people with OUD, such as ensuring access to behavioral health care or liability for poor outcomes. These barriers may be overcome with increased education, clinical capacity and leadership, and coordination between hospitals and facilities, as well as external legal enforcement. Many of these approaches have been successful in addressing barriers to addiction care in primary and inpatient care. As facilities are legally required to care for people who are otherwise eligible for postacute care and who also have a diagnosis of OUD, active approaches to address these barriers—many of which are rooted in informal or codified stigma toward people with OUD or toward MOUD itself—are essential.

More high OUD referral facilities were for

profit and had significantly less staffing support compared with other facilities in our cohort, which suggests that some facilities see a market opportunity and could develop expertise in providing this care. As referrals for people with OUD continue to increase, more facilities may respond by providing care for this population, but it is important that such facilities are able to provide high-quality care with appropriate staffing.

This study's strengths include its contribution to an improved understanding of referral and admissions practices at postacute medical care facilities. The study used data from a unique, real-world electronic referral system, which allowed more detailed examination of these practices compared with studies based on administrative billing records of admitted patients. We also linked these referrals to relevant clinical data to adjust for confounding factors in our models. In addition, we categorized referrals at the facility level according to the proportion of referrals that included an OUD diagnosis. This approach allowed for an assessment of referral sorting based on likelihood of acceptance. Last, linking facilities with clinical, financial, and quality ratings data from multiple sources of publicly available data allowed us to assess differences across OUD referral categories among a large number of facilities.

The finding that hospitalized patients with OUD are routinely rejected from postacute medical care in Massachusetts and are more likely to be rejected than patients without OUD has significance to policy makers, civil rights advocates, health care system leaders, clinicians, and people with OUD across the country. Additional research focused on the experiences of case managers and nursing facility staff, as well as patient outcomes, is needed. Amid the ongoing opioid crisis, it is essential that people with OUD have equitable access to high-quality postacute medical care.

Conclusion

In an urban safety-net hospital, hospitalized patients with OUD are routinely rejected by nursing facilities for medically necessary postacute medical care. People with OUD have more than double the odds of receiving a rejection compared to someone without OUD. Efforts are needed to improve access to postacute medical care for people with OUD. ■

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