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Race/Ethnicity and Geographic Access to Medicaid Substance Use Disorder Treatment Facilities in the United States

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Abstract

Background—Although substance use disorders (SUD) are prevalent and associated with adverse consequences, treatment rates remain extremely low. Unlike physical and mental health problems, treatment for SUD is predominantly provided in a separate specialty sector and more heavily financed by public sources. The Medicaid expansion under the Affordable Care Act (ACA) has the potential to increase access to treatment for SUD, but only if an infrastructure exists to serve new enrollees.

Objective—This study examines the availability of outpatient SUD treatment facilities that accept Medicaid across U.S. counties, and whether counties with a higher percentage of racial/ethnic minorities are more likely to have gaps in this infrastructure.

Design—We used data from the 2009 National Survey of Substance Abuse Treatment Services and the 2011-2012 Area Resource file to examine sociodemographic factors associated with county-level access to SUD treatment facilities that serve Medicaid enrollees. We estimated a probit model with state indicators to adjust for state-level heterogeneity in demographics, politics, and policies. Independent variables assessed county racial/ethnic composition (i.e., percentage Black and percentage Hispanic), percentage living in poverty, percentage living in a rural area, percentage insured with Medicaid, percentage uninsured, and total population.

Participants—U.S. Counties in all 50 states.

Main Outcome Measure—Dichotomous indicator for counties with at least one outpatient SUD treatment facility that accepts Medicaid.

Results—About sixty percent of U.S. counties have at least one outpatient SUD facility that accepts Medicaid, although this rate is lower in many Southern and Midwestern states. Counties with a higher percentage of Black (Marginal Effect [M.E.] = -3.1; 95% CI = -5.2, -0.9%), rural (M.E. = -9.2%; 95% CI = -11.1%, -7.4%), and/or uninsured (M.E. = -9.5%, 95% CI = -13.0%, -5.9%) residents are less likely to have one of these facilities.

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Conclusions—The potential for increasing access to SUD treatment via the Medicaid expansion may be tempered by the local availability of facilities to provide care, particularly for counties with a high percentage of Black and/or uninsured residents and for rural counties. Although states that opt into the expansion will secure additional federal funds for the SUD treatment system, additional policies may need to be implemented to ensure that adequate geographic access exists across local communities to serve new enrollees.

INTRODUCTION

Substance use disorders (SUDs) – including abuse of or dependence on alcohol and/or illicit drugs – are prevalent and associated with numerous adverse health and social consequences, but treatment rates remain extremely low.¹ In 2010, nine percent of the U.S. population (i.e. 22 million persons) suffered from an SUD.¹ A range of poor health outcomes are associated with SUDs, including sexually transmitted diseases, human immunodeficiency virus, liver disease, tuberculosis, and increased injuries;^{2,3} social consequences include educational underachievement, poor employment outcomes, and criminal involvement.⁴⁻⁷ Yet, in spite of these associated consequences and the availability of cost-effective treatments,⁸ only 13% of individuals in need of SUD treatment receive any specialty services.¹

The expansion of Medicaid under the Patient Protection and Affordable Care Act (PPACA) of 2010 sets the stage for helping address these longstanding gaps in access to substance use (SUD) treatment, for states that opt into the expansion.⁹ Unlike financing for other health conditions, nearly 80% of funding for SUD treatment comes from public sources, of which Medicaid accounts for approximately one-fourth.¹⁰ States that opt into the Medicaid expansion will improve health insurance coverage for those affected by SUDs, and greatly bolster federal funding for the SUD treatment system; the expansion is fully funded by federal dollars in the first three years, and 90% funded by federal dollars in 2020 and beyond.⁹

However, the Medicaid expansion will only improve access if there is a sufficient infrastructure of facilities and providers available to deliver SUD treatment to new enrollees across communities. Unlike physical and mental health problems, treatment for SUDs is mostly provided by facilities in a separate specialty sector. More than three-fourths of adults who seek SUD treatment outside of self-help programs do so in specialty facilities that typically offer some combination of SUD services such as detoxification,¹¹ pharmacotherapy, individual and/or group psychotherapy, and other psychosocial services (e.g., 12-step programs, voucher-based incentives) in one or more settings (i.e., inpatient, residential, or outpatient).^{12,13} Researchers have raised concerns, however, that the extant SUD treatment infrastructure does not have the capacity to provide care for those in need of services.¹²

Geographic accessibility of facilities that both provide outpatient treatment and accept Medicaid will be especially paramount for states that opt into the expansion. Although treatment in inpatient and residential settings may be required for those with acute SUD problems, most SUDs also require chronic care that is more efficiently delivered in outpatient settings. Furthermore, Medicaid rules exclude coverage for many services in

residential treatment settings, which comprise a substantial component of the current SUD treatment system.⁹ Therefore, the Medicaid expansion will place an even greater demand on the availability of outpatient services. However, no known study has examined the geographic accessibility of the outpatient substance use treatment infrastructure for Medicaid enrollees.

In addition to examining geographic access broadly, there are also several reasons to assess whether the SUD treatment system varies across racially/ethnically diverse communities. Although the annual prevalence of SUDs is similar across White (9.0 percent), Black (8.8 percent), and Hispanic (9.5 percent) populations,¹⁴ prior studies have found that Blacks and Hispanics are less likely to receive substance use services relative to Whites.^{11,15,16} Researchers have speculated that differences in geographic access to the treatment system could partially explain these lower rates of use for racial/ethnic minorities, and an emerging body of research has found that access to other elements of the healthcare infrastructure is worse (e.g., physician shortages and access to specialty MH facilities)^{17,18} and more likely to deteriorate (e.g., closures of hospitals and trauma centers)^{19,20} in communities of color.

This study contributes to the literature by examining: (1) the extent to which gaps exist in the SUD treatment infrastructure for Medicaid enrollees across U.S. counties; and (2) whether communities of color are more likely to experience gaps in this infrastructure. Our results highlight the types of communities that are less likely to have these facilities, and we discuss the implications for states' decisions about implementing the Medicaid expansion.

METHODS

Data

Data come from the 2009 National Survey of Substance Abuse Treatment Services (N-SSATS) public-use file,²¹ a national survey sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) of all public and private facilities that provide SUD treatment. The sampling frame comes from the Inventory of Substance Abuse Treatment Services (I-SATS), which includes facilities that are: (1) licensed, certified, or otherwise approved by the state substance abuse agency to provide SUD treatment (79% of total facilities); and (2) not licensed or certified, which includes private, for-profit, small group practices and hospital-based programs (21% of total facilities). Of the eligible facilities that were surveyed, a 94% response rate was achieved, and a sample size of 13,317 facilities in all 50 U.S. states was available in the public use file for analysis. Facility-level data from the N-SSATS were aggregated to the county level and merged with data from the Area Resource File (ARF).²²

Measures

Dependent Variable—Facility information was used to assess the number of SUD facilities per county that accepted Medicaid and provide outpatient services in 2009. We created a dichotomous indicator for counties that have at least one of these facilities versus counties that have none.

Independent Variables—County-level measures were assessed using the most recent year of data available preceding the year in which the dependent variable was measured, and included the percentage of residents who were: (1) Black (2008); (2) Hispanic (2008); (3) living below 100% of the federal poverty level (2008); (4) living in a rural area as defined by Census Bureau (2000);²³ (5) enrolled in Medicaid (2007); and (6) uninsured (2008). Models also adjusted for the total population of the county (2008).

Data Analysis

Using two sample t-tests, we compared sociodemographic characteristics across counties that offered *no access* to outpatient SUD treatment facilities that accept Medicaid versus counties that offer access to *at least one* of these facilities. We estimated two probit models to examine the association between county racial/ethnic composition and the likelihood that a county offered access to at least one outpatient SUD treatment facility that accepts Medicaid. The first model included county-level measures of percent living in poverty, percent living in a rural area, and total population. The second model also included county-level measures of the percent enrolled in Medicaid and percent uninsured. Both models included state indicator variables to adjust for unmeasured state-level heterogeneity in demographics, political environment, and policies that affect the availability of SUD treatment resources across local communities,^{24,25} as well as an indicator for counties with an SUD treatment facility that had missing survey information precluding them from inclusion in analyses. Although 260 outpatient facilities had missing survey information about whether Medicaid was accepted, only 21 counties were affected (i.e., 1.5% of counties in the analytic sample) when creating the dependent variable at the county-level.

Independent variables were standardized and marginal effects were calculated for a one standard deviation increase in each explanatory variable at the observed value of other covariates using the “margins” command in Stata V12.²⁶

We derived an analytic sample for bivariate and multivariate analyses by excluding one county missing demographic information in the ARF. Furthermore, 56 counties in five states (Arizona, Connecticut, Delaware, Maine, and Massachusetts) were also excluded from the regression due to perfect prediction resulting from the use of state indicators (i.e., all counties in these five states have at least one facility that accepts Medicaid); this yielded an analytic sample size of 3,085 counties for bivariate and regression analysis.

RESULTS

Descriptive information about facilities that provide SUD treatment is presented for 3,141 U.S. counties from all 50 States in Table 1. Four-fifths of SUD facilities provided treatment in an outpatient setting, 25 % provided treatment in a residential setting, and 6% provided treatment in an inpatient setting. Approximately 54% of SUD treatment facilities accepted Medicaid (N=7,239), and most of these offered treatment in an outpatient setting (N=6,212).

At the county level, 70% of U.S. counties have at least one SUD facility, and 60% of U.S. counties have at least one outpatient SUD treatment facility that accepts Medicaid. Over 90% of the U.S. population lives in a county with an outpatient SUD facility that accepts

Medicaid (Table 1), which is consistent with the finding that these facilities are more likely to be located in counties with larger populations ($p < 0.001$) (Table 2).

States in the South and Midwest have an especially high proportion of counties without any access to these facilities (Figure 1).²¹ The ten states (in rank order) with the highest proportion of counties that do not offer access to an outpatient SUD facility that accepts Medicaid are: Arkansas, North Dakota, Texas, Louisiana, South Dakota, Idaho, Nebraska, Georgia, Nevada, and Minnesota.

Bivariate analyses indicate that, compared to counties that offer no access to outpatient SUD facilities that accept Medicaid (Table 2), counties with at least one of these facilities have a lower percentage of residents who are Hispanic ($p = 0.005$), living in poverty ($p < 0.001$), uninsured ($p < 0.001$), and living in a rural area ($p < 0.001$). In multivariate regression analysis, the percentage of residents living in a rural area (Marginal Effect [M.E.] = -9.2% , 95% CI = -11.1% , -7.4%) and the percentage of uninsured residents (M.E. = -9.5% , 95% CI = -13.0% , -5.9%) are strongly associated with a decreased likelihood that counties have one of these facilities (Table 3, Model 2).

Furthermore, counties with a higher percentage of Black residents (ME = -2.5% , 95% CI = -4.7% , -0.4%) and Hispanic residents (ME = -3.0% , 95% CI = -5.2% , -0.8%) are less likely to have any outpatient SUD facility that accepts Medicaid, after adjusting for differences in county poverty and percent living in a rural area (Table 3, Model 1). When measures of county health insurance status are also included (Table 3, Model 2), the finding for percentage of Black residents remains significant (ME = -3.1% , 95% CI = -5.2% , -0.9%), whereas the finding for percentage of Hispanic residents is no longer significant (ME = -0.7% , 95% CI = -3.1% , 1.7%). In other words, findings from Model 2 indicate that a one standard deviation increase above the mean in the percentage of Black residents in the county reduces the predicted percentage of counties having at least one of these facilities from 59% to 56%.

Supplemental analyses were conducted to further examine the association between racial/ethnic composition and county-level availability of SUD facilities. We estimated the full model with interaction terms between each measure of racial/ethnic composition and percent living in a rural area; these interaction terms were not significant, suggesting that that association between racial/ethnic composition and access to one of these facilities is not moderated by population density. Because 88% of counties with an outpatient SUD facility included an outpatient SUD facility that accepts Medicaid, we estimated models in which the dependent variable assessed whether a county had *any* outpatient facility regardless of the type of insurance that was accepted; findings for percentage of Black residents remained significant, whereas the findings for Hispanic were not significant.

Finally, using the subsample of counties with at least one outpatient SUD treatment facility that accepted Medicaid, we examined the relationship between racial/ethnic composition and: (1) the number of SUD outpatient facilities that accepted Medicaid per county; and (2) the annual count of SUD treatment episodes in these facilities per county. The former was estimated with a zero-truncated negative binomial model and the latter with a generalized

linear model with a log link and gamma distribution; models were estimated with the same independent variables described above. Counties with a higher percentage of Black residents and counties with a higher percentage of Hispanic residents had fewer facilities ($p<0.05$) and lower aggregate annual treatment rates of SUD across these facilities ($p<0.05$), before and after adjusting for county-level measures of health insurance.

DISCUSSION

Forty percent of counties in the U.S. do not have an SUD treatment facility that provides outpatient care and accepts Medicaid. Counties in rural areas are much more likely to lack access to outpatient SUD facilities that accept Medicaid, particularly those in Southern and Midwestern states. Our findings also indicate that gaps in the SUD treatment infrastructure are further compounded for areas with a higher proportion of racial and ethnic minorities.

Notably, six of the ten states that have the highest proportion of counties without a facility have indicated their intention to opt out of the Medicaid expansion (i.e., Texas, Louisiana, South Dakota, Idaho, Nebraska, and Georgia).²⁷ In states that are opting out, leaders must be cognizant of the missed opportunity to obtain more federal funding for treatment systems across local communities that are already stretched for resources. The federal Substance Abuse Prevention and Treatment Block Grant -- one of the biggest sources of funding for SUD services -- has remained relatively stagnant since 2010,^{9,28} and there is concern that impending efforts to reduce federal spending may result in decreased funding for the block grant in coming years.⁹ Therefore, for states that choose not to expand Medicaid, any reductions in federal funding may actually result in worse access to SUD care across local communities than was available prior to passage of the ACA.

For states that opt into the expansion, our findings suggest that many rural counties do not have an outpatient SUD facility that accepts Medicaid. To improve access, policy makers could invest resources to expand SUD treatment capacity in primary care safety-net facilities across rural communities by implementing technologies such as telepsychiatry. Additional descriptive analyses using data from the ARF indicated that 78% of rural counties with *no access* to an outpatient SUD treatment facility for Medicaid enrollees have at least one primary care safety-net facility (i.e., community health center [CHC]). Thus, most rural counties have a primary care infrastructure that could offer a foundation for improving access to specialized SUD treatment.

Findings also indicate a modest, negative association between minority racial/ethnic composition and access to the SUD treatment infrastructure. Lower access to these facilities in communities of color may be especially problematic in states that opt into the Medicaid expansion, because projections indicate that Blacks and Hispanics will be disproportionately affected by the expansion relative to whites.²⁹ However, our findings also suggest that the mechanisms accounting for lower access to these facilities may differ for counties with a high percentage of Hispanic versus Black residents. The negative association between percent Hispanic and access to any outpatient SUD treatment facility that accepts Medicaid was no longer significant once county-level insurance status was included in the model; additional analyses (not shown) revealed that it was the inclusion of percent uninsured that

accounted for the change in statistical significance. Thus, our results suggest that counties with a high percentage of Hispanic residents may be less likely to have outpatient SUD facilities that accept Medicaid because these counties are also more likely to have a high percentage of uninsured residents. Furthermore, counties with a high percentage of Hispanic residents did not differ in their likelihood of having access to *any* outpatient facility, suggesting that policies aimed at increasing the number of facilities that accept Medicaid may improve geographic disparities in access to SUD treatment for Medicaid enrollees in counties with a large percentage of Hispanics.

In contrast to counties with a high percentage of Hispanic residents, counties with a high percentage of Black residents were less likely to have *any* outpatient SUD facility (regardless of the type of insurance accepted) after controlling for county-level insurance status. These results suggest that simply broadening the mix of payer sources in existing facilities will not in-and-of-itself be adequate to reduce geographic disparities in access to SUD services in counties with a high percentage of Black residents. Another policy option includes expanding SUD treatment capacity in safety-net facilities that provide MH services in these counties, because many facilities that focus on MH outpatient services do not routinely provide SUD services. However, a recent study reported that counties with a high percentage of Black residents are also less likely to offer access to an outpatient MH treatment facility that serves Medicaid enrollees;¹⁷ therefore, although expansion of SUD treatment services via the MH safety net may improve overall access to care, it may not reduce the disparities for Black communities.

The primary care safety net presents another opportunity to expand SUD treatment capacity and may be a more viable option to address racial disparities in geographic access – especially in urban communities. Prior research has shown that urban counties with a high percentage of racial/ethnic minority residents are more likely to have experienced an increase in the number of primary care safety-net clinics (i.e., federally qualified health centers [FQHC]) in the past decade.³⁰ Nationally, however, the number of patients with a primary SUD diagnosis treated at FQHCs in 2007 (Alcohol use disorder: N= 69,076; Drug use disorder: N=79,664),³¹ pales in comparison to the 2.4 million persons (age 12 and older) who received SUD treatment in a specialty facility that same year.³² These figures suggest that FQHCs would need an infusion of resources to dramatically increase their capacity to treat SUD and address this infrastructure gap across communities.

A recent report to Congress submitted by SAMHSA highlighted a major challenge to expanding the SUD treatment capacity in any setting (i.e., SUD specialty facility or other health care setting) – the shortage of providers with sufficient experience, certification, and/or education to serve this population.³³ Because of this shortage, SUD facilities have reported difficulty hiring and retaining providers. For example, a longitudinal study of SUD treatment centers reported an annual turnover rate of 33% for counselors and 23% for clinical supervisors.³⁴ This report also highlighted concerns about the diversity of the workforce: although health care providers from racial/ethnic minority backgrounds are more likely than their white peers to practice in minority and underserved communities,³⁵ racial/ethnic minorities are underrepresented among behavioral health care providers. Consequently, any effort to improve the capacity of the SUD treatment infrastructure in

vulnerable communities will also need to increase support for initiatives that address these workforce challenges.³³

Several study limitations are noted. First, the data are limited in that there is no information available about the number and percentage of clients served at a given facility who are enrolled in Medicaid or who are uninsured. Thus, we are unable to obtain estimates of the number of individuals served by these facilities in a given county by payment status to examine county-level capacity to treat Medicaid enrollees. Second, it would have been preferable if the county-level measures were all available for the same year (2008) preceding the year in which the dependent variable was assessed (2009); however, we used the best data available for each measure from the ARF and the serial correlation for each county-level measure is high. Lastly, individuals living in one county may seek treatment in a different county. Nevertheless, these findings provide information about the types of counties that are less likely to have a facility. Furthermore, counties are an important unit of analysis to consider because they play an important role in the coordination, funding, and provision of health and behavioral health services for disadvantaged populations.³⁶

Notwithstanding these limitations, this study is the first to examine the geographic distribution of the of the SUD treatment infrastructure for Medicaid enrollees in the United States. We identified large gaps in this infrastructure across many communities, especially in rural areas and in Southern and Midwestern states. Moreover, communities with a higher percentage of racial and ethnic minorities are less likely to have an outpatient SUD facility that serves Medicaid enrollees. In addition to further examining the mechanisms underlying reduced access to these facilities in communities of color, future studies should also assess whether differences in geographic access to the SUD treatment infrastructure help explain lower rates of SUD service use among Blacks and Hispanics relative to Whites. Although the Medicaid expansion will provide states with an opportunity to bolster the SUD treatment system with new federal funds, additional policies may need to be implemented to ensure that there is an infrastructure in place to serve new enrollees who seek SUD treatment across local communities.

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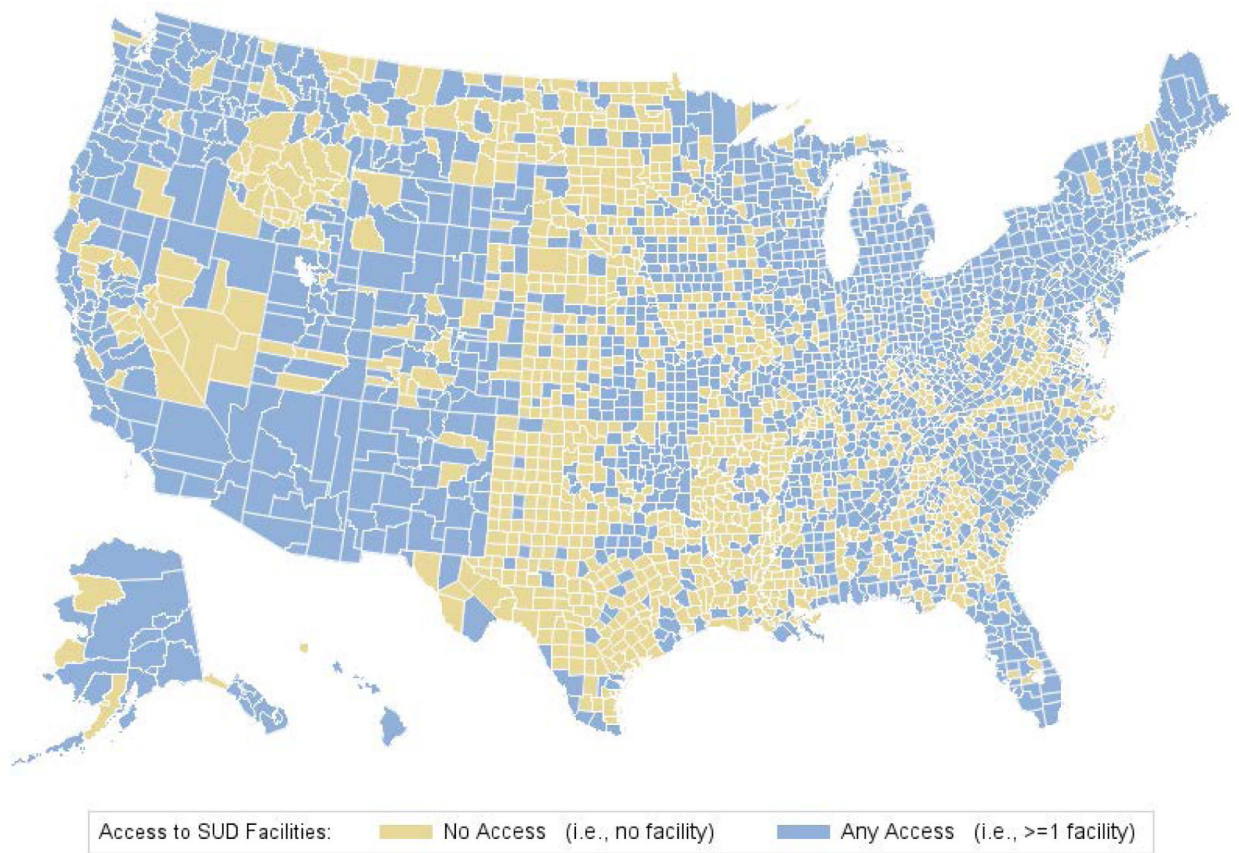
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Note: Data from the 2009 National Survey of Substance Abuse Treatment Services

Figure 1.
Access to Outpatient Substance Use Treatment Facilities that Accept Medicaid Across U.S. Counties

Table 1

Descriptive Statistics for U.S. Substance Use Treatment Infrastructure

| | Facility Level | | County Level | | Population Level |
|--|----------------------|------------------------------------|-------------------------------|---------------------------------|---|
| | Number of Facilities | % of Total Facilities (N / 13,317) | Number Counties w/ 1 facility | % of Total Counties (N / 3,141) | % of U.S. Population Living in County with 1 Facility |
| <i>All Substance Use Treatment Facilities</i> | 13,317 | - | 2,194 | 69.9% | 95.7% |
| Accept Medicaid | 7,239 | 54.4% | 1,934 | 61.6% | 92.4% |
| <i>Facilities with Outpatient Substance Use Treatment</i> | 10,834 | 81.4% | 2160 | 68.8% | 95.4% |
| Accept Medicaid | 6,212 | 46.6% | 1894 | 60.3% | 91.8% |
| <i>Facilities with Residential Substance Use Treatment</i> | 3386 | 25.4% | 918 | 29.2% | 78.3% |
| Accept Medicaid | 1339 | 10.1% | 595 | 18.9% | 62.9% |
| <i>Facilities with Inpatient Substance Use Treatment</i> | 781 | 5.9% | 433 | 13.8% | 56.6% |
| Accept Medicaid | 557 | 4.2% | 350 | 11.1% | 48.0% |

Table 2

County Sociodemographic Characteristics by Access to Outpatient Substance Use Treatment Facilities that Accept Medicaid

| | All Counties N=3,085 (100%) | Counties without any facility N=1,247 (40.4%) | Counties with 1 facility N=1,838 (59.6%) | |
|--|--|--|---|----------------|
| | Mean (Sd) | Mean (Sd) | Mean (Sd) | P-value |
| <i>Black, %</i> | 9.2 (14.5) | 9.6 (15.7) | 8.9 (13.6) | p<0.171 |
| <i>Hispanic, %</i> | 7.6 (12.7) | 8.4 (14.3) | 7.1 (11.5) | p<0.005 |
| <i>Living in Poverty (<100% FPL), %</i> | 15.3 (6.1) | 16.1 (6.4) | 14.7 (5.7) | p<0.001 |
| <i>Living in Rural Area, %</i> | 60.3 (30.9) | 75.8 (26.6) | 49.8 (29.1) | p<0.001 |
| <i>Insured with Medicaid, %</i> | 20.3 (8.4) | 20.5 (8.9) | 20.2 (8.1) | p<0.403 |
| <i>Uninsured, %</i> | 18.0 (5.8) | 20.2 (6.2) | 16.5 (5.0) | p<0.001 |
| <i>Total Population (x 10,000), %</i> | 9.2 (30.3) | 2.0 (3.1) | 14.1 (38.4) | P<0.001 |

Notes: Two sample t-tests are performed

Table 3

Probit Regression Examining County Sociodemographics Associated with Availability of an Outpatient Substance Use Treatment Facility that Accepts Medicaid

| County Has At Least One Facility (Predicted Percentage = 59.3%) | | | | | | |
|--|------------------------|---------------|------|------------------------|---------------|------|
| | Marginal Effect | 95% CI | | Marginal Effect | 95% CI | |
| <i>Black, %</i> | -2.5* | -4.7 | -0.4 | -3.1** | -5.2 | -0.9 |
| <i>Hispanic, %</i> | -3.0** | -5.2 | -0.8 | -0.7 | -3.1 | 1.7 |
| <i>Living in Poverty (<100% FPL), %</i> | 4.8*** | 3.0 | 6.5 | 3.7** | 0.9 | 6.4 |
| <i>Living in Rural Area, %</i> | -11.1*** | -12.8 | -9.4 | -9.2*** | -11.1 | -7.4 |
| <i>Insured with Medicaid, %</i> | | | | 3.6** | 1.0 | 6.3 |
| <i>Uninsured, %</i> | | | | -9.5*** | -13.0 | -5.9 |

Notes: N=3,085 Counties

Probit regression model adjusts for county population and includes state indicator variables.

Marginal effect indicates the predicted change in the percentage of counties that have any facility associated with a 1 S.D. increase in the explanatory variable, holding the covariates at their observed value.

*
 $p < 0.05$

**
 $p < 0.01$

 $p < 0.001$