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POLICY SERIES

Investing in Certified Community Behavioral Health Centers to Fulfill Their Promise

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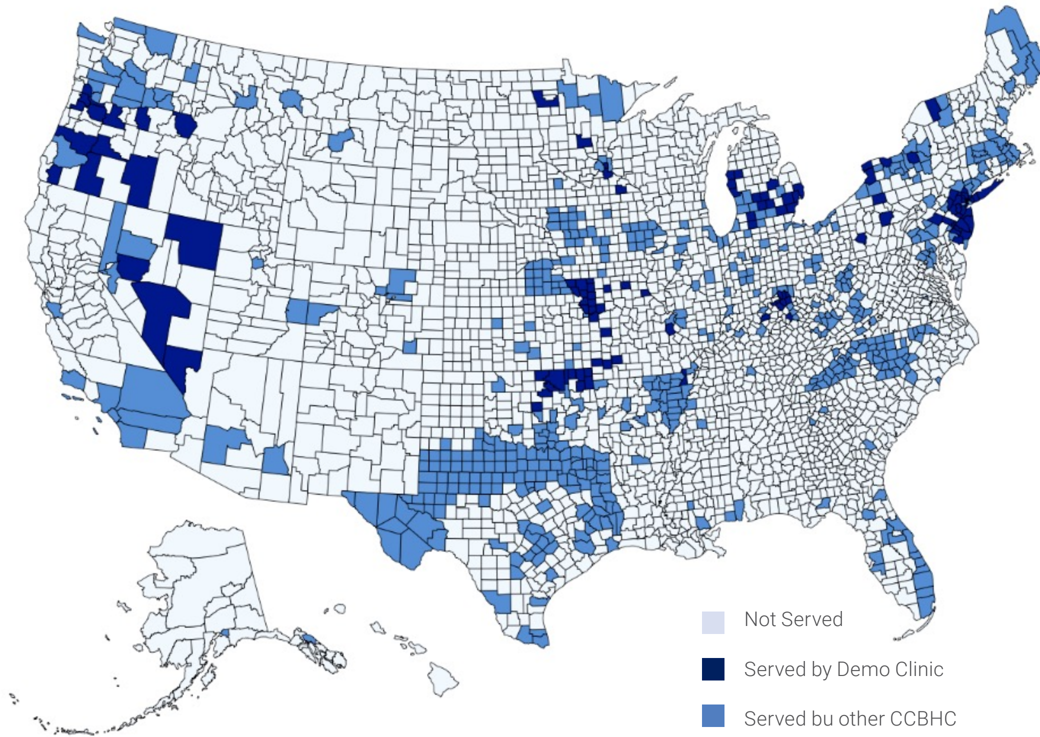
1. ADDITIONAL FIGURES AND TABLES

FIGURE OSI

Counties by Presence of CCBHCs and Funding Source



Note: Recipients of CCBHC-PDI or CCBHC-IA Grants are not included.

Source: Authors' analysis of data from the National Council for Mental Wellbeing CCBHC Locator and SMHSA Grant Abstracts.
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TABLE OS2

Selected County Characteristics by Presence of CCBHCs

	Counties without CCBHCs	Counties with CCBHCs
Percent Metropolitan	**35%**	**53%**
Average County Population	**59,764**	**279,837**

Note: Metropolitan counties defined as counties with Rural-Urban Continuum Code equal to 1, 2, or 3.
Source: Authors' analysis of data from the National Council for Mental Wellbeing CCBHC Locator and SAMHSA Grant Abstracts.

2. DETAILED DATASET CONSTRUCTION

Section 2 provides a detailed description of our dataset construction, documenting the process of compiling 1) a complete list of active CCBHCs as of July 2022, 2) the counties in the service area of each CCBHC, 3) the type(s) of funding received by each CCBHC, and 4) county- and state-level contextual variables used in the analysis.

CCBHC LIST

We constructed a list of all active CCBHCs (as of July 2022) based on the National Council for Mental Wellbeing's CCBHC Locator list, which includes 435 clinics. These 435 clinics were cross-referenced with state lists of demonstration clinics; SAMHSA's Grants Dashboard; the map version of the National Council's CCBHC Locator ("locator map"); and the National Council's list of counties served by each CCBHC ("county list").

Nine organizations included on the list were not included in our analysis:

- **Integrated Health Resources (operating under a grant to Ivan Walks & Associates) – Washington, D.C.**
  - » Based on the TAGGS entry for Ivan Walks & Associates, the expansion grant funding they received seems to have been revoked. On 2/2/2021, TAGGS reports that they received a grant of $3,986,782. On 8/19/2021, TAGGS reports that they received a grant of -$3,986,782. The "Grand Total All Awards" reported by TAGGS is $0.
  - » The Integrated Health Resources website does not note that they are a CCBHC.
  - » The National Council's list of counties served by each CCBHC does not include IHR or Ivan Walks & Associates, nor does the locator map.
  - » Researchers contacted the organization by phone to confirm their CCBHC status; employees indicated that Integrated Health Resources is not a CCBHC.
- **First Step of Sarasota, Inc – Sarasota, FL**
  - » Based on the TAGGS entry for First Step of Sarasota, the expansion grant funding they received seems to have been revoked. On 2/2/2021, TAGGS reports that they received a grant of $3,999,190. On 6/9/2021, TAGGS reports that they received a grant of -$3,999,190. The "Grand Total All Awards" reported by TAGGS is $0.
  - » First Step of Sarasota's website does not note that they are a CCBHC.
  - » The National Council's list of counties served by each CCBHC does not include First Step of Sarasota, nor does the locator map.
- **Syracuse Brick House, Inc. - Syracuse, NY**
  - » The Syracuse Brick House website redirects to Helio Health Syracuse, which is also an entry in the National Council's list.
  - » Local news sources document that these are the same organization; Syracuse Brick House simply changed its name to Helio Health (e.g. see this article). There are therefore duplicate entries for this CCBHC in the list. Only one entry will be used for the paper.

- **Integral Care - Austin, TX**
  - » The National Council list includes entries for "Integral Care – Austin, TX" and "Austin Travis County Integral Care – Austin, TX." Both entries are linked to the same website.
  - » The Integral Care website confirms that the official organization name is Austin Travis County Integral Care, with "Integral Care" being used as shorthand. There are therefore duplicate entries for this CCBHC in the list. Only one entry will be used for the paper.
- **Lubbock Regional MHMR Center – Lubbock, TX**
  - » The National Council list includes entries for "Lubbock Regional MHMR Center – Lubbock, TX" and "StarCare Specialty Health System – Lubbock, TX." Both entries are linked to the same website.
  - » The StarCare website confirms that the two organizations are the same: "After 45 years as Lubbock Regional Mental Health Mental Retardation Center, the center changes its name to StarCare Specialty Health System."
- **PROMESA (Dba Acacia Network) - Bronx, NY**
  - » The National Council list includes entries for "PROMESA (Dba Acacia Network) - Bronx, NY" and "PROMESA Inc - Bronx, NY." The website for PROMESA redirects to the Acacia Network.
  - » The locator map only shows the Acacia Network, and does not have a second separate entry for PROMESA. Nor does the county list.
  - » There are therefore duplicate entries for this CCBHC in the list. Only one entry will be used for the paper.
- **New Horizon Counseling Center - Jamaica, NY**
  - » The National Council list includes two entries for "New Horizon Counseling Center - Jamaica, NY" and "New Horizon Counseling Center - Ozone Park, NY." Both link to the same website (the New Horizon Counseling Center). However, this website does not appear to distinguish between the two locations, only referring to Ozone Park.
  - » In addition, Ozone Park and Jamaica are both in Queens. As a general matter, when one organization serves the same county with multiple CCBHC locations, we count it as one CCBHC.
- **ALM Hopewell Center, Inc. (Amanda Luckett Murphy Hopewell Center (ALMHC)) – St. Louis, MO**
  - » The National Council list includes entries for "ALM Hopewell Center, Inc. (Amanda Luckett Murphy Hopewell Center (ALMHC)) – St. Louis, MO" and "Hopewell Center - St. Louis, MO." Both entries are linked to the same website.
  - » Both the locator map and the county list only show one entry for the ALM Hopewell Center. There are therefore duplicate entries for this CCBHC in the list. Only one entry will be used for the paper.

- **Heartland Family Service – Council Bluffs, IA**
  - » The National Council list includes entries for "Heartland Family Service – Council Bluffs, IA" and "Heartland Family Service – Omaha, NE." Both entries are linked to the same website.
  - » Both the locator map and the county list only show one entry for Heartland Family Services. There are therefore duplicate entries for this CCBHC in the list. Only one entry will be used for the paper.
  - » However, based on their website, HFS is based in Omaha and also serves southwest Iowa. That likely explains why there are two separate entries for this CCBHC in the list. We include Pottawattamie County (IA) in the list of counties served by this CCBHC.
- **Spectrum Health & Human Services - Orchard Park, NY**
  - » The National Council list includes entries for "Spectrum Health & Human Services - Orchard Park, NY" and "Spectrum Human Services - Orchard Park."
  - » Both the locator map and the county list only show one entry for Spectrum Human Services. There are therefore duplicate entries for this CCBHC in the list. Only one entry will be used for the paper.

The list was supplemented with six additional organizations that have received expansion grants and/or are demonstration sites but had not been included in the National Council's list.

- **COLORADO WEST REGIONAL MENTAL HEALTH, INC. (dba Mind Springs Health) – GRAND JUNCTION, CO**
  - » Mind Springs is listed as an expansion grant recipient on the TAGGS and SAMHSA websites.
  - » Mind Springs is included in both the locator map and the county list.
- **HUMAN SERVICE CENTER – PEORIA, IL**
  - » HSC is listed as an expansion grant recipient on the TAGGS and SAMHSA websites.
  - » Researchers contacted the organization by phone to confirm their CCBHC status; employees indicated that the Human Service Center is a CCBHC.
- **VOLUNTEERS OF AMERICA, INC. – BOSTON, MA**
  - » Volunteers of America Massachusetts is listed as an expansion grant recipient on the SAMHSA website.
  - » Volunteers of America Massachusetts is included in both the locator map and the county list.
- **CMH & SUBSTANCE ABUSE SERVICES OF ST. JOSEPH COUNTY – CENTREVILLE, MI**
  - » CMH & Substance Abuse Services of St. Joseph County is listed as one of Michigan's demonstration sites.
  - »CMH & Substance Abuse Services of St. Joseph County is included in both the locator map and the county list.
- **THE RIGHT DOOR FOR HOPE, RECOVERY, AND WELLNESS – IONIA, MI**
  - » The Right Door is listed as one of Michigan's demonstration sites.
  - » The Right Door is included in both the locator map and the county list.

- **ARAB COMMUNITY CENTER/ECON/SOCIAL SRVS – DEARBORN, MI**
  - » ACCESS is listed as an expansion grant recipient on the SAMHSA website, with a project period lasting until 09/29/2023.
  - » ACCESS is included in both the locator map and the county list.

CCBHC SERVICE AREAS

After the adjustments documented above, the resulting list includes 432 CCBHCs. For each CCBHC, we merged in the list of counties in its service area and its funding source (expansion grantee, demonstration site, and/or state-certified clinic) from the National Council's county list. Minor adjustments (generally spelling corrections) were made to the counties from the list. In a few cases, we made substantive changes to the list of counties served by CCBHCs, based on details from the CCBHCs' websites or SAMHSA grant abstracts. These changes are documented below:

- Added Pottawamie County (IA) to the service area of Heartland Family Services
- Changed Chestnut Health Systems to serve Madison and St. Clair Counties based on this grant abstract.
- Changed THE VITALITY CENTER (Carson City) to Carson City (from Elko County)
- Changed THE VITALITY CENTER (Reno) to Washoe county (from Elko County)
- Changed Lummi Indian Business Council to Whatcom County (from Washington County)
- Removed Nueces County from the service area of Liberty Resources, Inc. (there is no Nueces County in NY)
- Changed Montgomery County CCBHC service area to Montgomery County (originally listed Maryland, which is not a county)
- Changed Merakey to serve Delaware County based on this grant abstract (changed from Montgomery County)
- Added Suffolk County to Samaritan Daytop Village's service area based on this grant abstract, and added Richmond County based on this grant abstract
- Added Champaign County to Rosecrance's service area based on this grant abstract (they received two Covid expansion grants in 2021; the other grant aimed to serve Winnebago County)

CCBHC FUNDING TYPE

We also use the List of CCBHCs by State and Counties Served to categorize each CCBHC as a Demonstration Site, Expansion Grantee, and/or State-Certified Clinic. There were a small number of cases where CCBHCs were not listed as Expansion Grantees by the National Council, but SAMHSA reports that they have received grants. In these cases (listed below), we consider the CCBHCs in question to be Expansion Grantees.

- BRIDGE COUNSELING ASSOCIATES, INCORPORATED (Grant)
- KLAMATH CHILD & FAMILY TREATMENT CENTER INC (Grant)
- MARK TWAIN ASSOCIATION FOR MENTAL HEALTH INC. (Grant)
- MID-ERIE MENTAL HEALTH SERVICES, INC. (Grant)
- NEW HORIZON COUNSELING CENTER, INC., THE (Grant)
- OKLAHOMA DEPT OF MENTAL HLTH/SUBS ABUSE (Grant)
  - » Jim Taliaferro Community Mental Health Center (JTCMHC)
- OKLAHOMA DEPT OF MENTAL HLTH/SUBS ABUSE (Grant)
  - » Northwest Center for Behavioral Health (NCBH)
- OKLAHOMA DEPT OF MENTAL HLTH/SUBS ABUSE (Grant)
  - » Central Oklahoma Community Mental Health Center (COCMHC)
- OKLAHOMA DEPT OF MENTAL HLTH/SUBS ABUSE (Grant)
  - » Carl Albert Community Mental Health Center (CACMHC)
- PEOPLE INCORPORATED (Grant)
- PROMESA, INC. (Grant)
- UNIVERSITY OF ROCHESTER (Grant)
- VIP COMMUNITY SERVICES (Grant)
- WALLOWA VALLEY CENTER FOR WELLNESS (Grant)

CONTEXTUAL VARIABLES

VARIABLE	GEOGRAPHIC LEVEL	DESCRIPTION AND NOTES	SOURCE
Share Non-White Population	County	Source table: Race (B02001) Universe: Total population Process: divide "White alone" by "Total," subtract from 1.	2016-2020 ACS 5-Year Estimates via IPUMS NHGIS Data Finder
Poverty Rate	County	Source table: Ratio of Income to Poverty Level in the Past 12 Months (C17002). Universe: Population for whom poverty status is determined. Process: for 100% Poverty Rate, sum "Under .50" and ".50 to .99" and divide by "Total." For 200% Poverty Rate, sum all categories except	2016-2020 ACS 5-Year Estimates via IPUMS NHGIS Data Finder
Uninsured Population Share	County	Source table: Types of Health Insurance Coverage by Age (B27010). Universe: Civilian noninstitutionalized population. Process: Sum "No health insurance coverage" category across	2016-2020 ACS 5-Year Estimates via IPUMS NHGIS Data Finder
Population Share with Medicaid Only	County	Source table: Types of Health Insurance Coverage by Age (B27010). Universe: Civilian noninstitutionalized population. Process: Sum "With Medicaid/means-tested public coverage only" category across all age groups, divide by total population across all age groups.	2016-2020 ACS 5-Year Estimates via IPUMS NHGIS Data Finder
Serious Mental Illness (SMI) Prevalence	County	Substate-level estimated share of the population over 18 experiencing serious mental illness. Substate-level estimates are crosswalked to the appropriate county, except where Substate and county borders are not contiguous. In these cases (CT, MA, RI), state-level SMI prevalence estimates are used. Where one county contains multiple substate regions, population-weighted averages are used.	2016-2018 National Survey on Drug Use and Health Substate Estimates

CONTEXTUAL VARIABLES *(continued)*

VARIABLE	GEOGRAPHIC LEVEL	DESCRIPTION AND NOTES	SOURCE
Population Density	County	Total county population (from the ACS) is divided by county land area (from the US Census Bureau) to yield the number of residents per square kilometer	US Census Bureau, 2016-2020 ACS 5-Year Estimates via IPUMS NHGIS Data Finder
Urbanicity	County	Nine-category system to describe county-level urbanicity. Three categories for metro counties, distinguished by population size. Six categories for nonmetro counties, distinguished by population size and proximity to metro areas. For further documentation, refer to the USDA site.	USDA Economic Research Service (ERS) 2013 Rural-Urban Continuum Codes
State Mental Health Expenditures Per Capita	State	Total mental health expenditures by state are sourced from SAMHSA's 2020 Uniform Reporting System Tables (specifically the "Total Expenditures: State" line item from table "STRUCTURE DOMAIN: State Mental Health Agency Controlled Expenditures for Mental Health, FY 2020"). Total expenditures are divided by state population in 2020 (from the US Census Bureau) to yield per-capita state mental health expenditures. URS tables were not available for Maryland in 2020, so 2019 tables are used in this case.	US Census Bureau, Substance Abuse and Mental Health Services Administration 2020 Uniform Reporting System (URS) Output Tables
Medicaid Expansion Status	State	Indicator variable for whether a given state had expanded Medicaid as of January 2022.	Kaiser Family Foundation

3. REGRESSION ANALYSIS

We estimate a qualitative response model where the outcome variable is whether a county is served by CCBHCs. Explanatory variables include a suite of contextual county- and state-level indicators. We employ a logit model with random effects at the state level. We use random effects instead of fixed effects because a number of states are not served by any CCBHC, which creates a perfect classification problem when state fixed effects are specified. We include controls for local county characteristics that may capture local behavioral health infrastructure and need for CCBHC services: poverty rate, SMI prevalence, the share of county residents with Medicaid and no other form of health insurance, the share of county residents who are uninsured, state Medicaid expansion status, and state mental health expenditures per capita. We also control for population characteristics that may be correlated with the establishment of CCBHCs: population density and the non-white share of county population.

Note that Puerto Rico and Guam are not included in the regression analysis because they are not included in many of the datasets used to construct the control variables.

The model estimates indicate that population density is the most consistent and significant factor associated with CCBHC presence. See **Table 1** below for the primary regression results. The coefficient on the natural log of population density is both economically and statistically significant in the models that include state-level random effects. The results suggest that counties with higher population densities are more likely to be served by CCBHCs.

In addition to population density, Medicaid expansion is also a strong predictor of CCBHC presence in many of our specifications. However, this effect is somewhat attenuated when counties with Demonstration clinics are excluded from the sample (**see Table 2**).

When rural-urban continuum codes are included in the regression instead of population density, increased urbanicity is significantly associated with a higher likelihood of being served by CCBHC (**see Table 3**). However, these differences are generally no longer significant when controls for population density are included in the model (**see Table 4**), indicating that the rural-urban continuum codes are capturing differences in CCBHC presence associated with variation in population density, not some other unique characteristics that vary with urbanicity.

The most rural counties (RUCC 9, “Completely rural or less than 2,500 urban population, not adjacent to a metro area”) have an average population density of 6.1 residents per square kilometer, while the most urban counties (RUCC 1, “Counties in metro areas of 1 million population or more”) have 543.4 residents per square kilometer on average. Holding other variables constant at their means, going from the population density typical of RUCC 9 to that of RUCC 1 is associated with an approximately 28-percentage-point increase in the likelihood of being served by a CCBHC (from ~7% to ~35%). **See Table 5**.

TABLE 1

Logit Regression of CCBHC Presence on County Characteristics

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Log(Population Density)	0.464*** (0.0362)	0.694*** (0.0527)
Poverty Rate 100% FPL	-0.00645 (0.0142)	0.0264 (0.0182)
SMI Prevalence 18+	-0.397** (0.0883)	0.192 (0.157)
Non-White Population Share	-0.0168*** (0.00399)	0.00301 (0.00589)
Medicaid Expansion State	0.327*** (0.127)	1.426** (0.652)
State Mental Health Expenditures Per Capita (Thousands of $)	1.094* (0.581)	-0.0277 (2.706)
Medicaid Only Population Share	1.981 (1.266)	-0.0410 (1.823)
Uninsured Population Share	7.581** (1.307)	-0.256 (1.929)
Constant	-1.940*** (0.501)	-6.701*** (1.043)
Observations	2,962	2,962
Number of states		51
State RE		YES
Rho		0.459

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Counties with total population under 3,000 are not included in the sample. For percentage variables (Poverty Rate, SMI Prevalence, Non-White Population Share) one unit represents one percentage point. Population density is number of county residents per square kilometer.

TABLE 2

Logit Regression of CCBHC Presence on County Characteristics,
Excluding Counties Served by Demonstration Clinics

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Log(Population Density)	0.4444*** (0.0393)	0.717*** (0.0574)
Poverty Rate 100% FPL	-0.0183 (0.0153)	0.0238 (0.0193)
SMI Prevalence 18+	-0.389*** (0.0955)	0.413** (0.168)
Non-White Population Share	-0.0180*** (0.00422)	0.00118 (0.00610)
Medicaid Expansion State	-0.0580 (0.134)	1.027* (0.623)
State Mental Health Expenditures Per Capita (Thousands of $)	0.966 (0.644)	-0.105 (2.599)
Medicaid Only Population Share	3.552** (1.385)	0.899 (1.953)
Uninsured Population Share	7.325*** (1.375)	0.529 (2.016)
Constant	-1.866*** (0.543)	-7.914*** (1.099)
Observations	2,846	2,846
Number of states		51
State RE		YES
Rho		0.430

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Counties with total population under 3,000 are not included in the sample. For percentage variables (Poverty Rate, SMI Prevalence, Non-White Population Share) one unit represents one percentage point. Population density is number of county residents per square kilometer.

TABLE 3

Logit Regression of CCBHC Presence on County Characteristics,
Urbanicity Controls Instead of Population Density

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Poverty Rate 100% FPL	0.00793 (0.0142)	0.0284 (0.0181)
SMI Prevalence 18+	-0.446*** (0.0865)	0.174 (0.154)
Non-White Population Share	-0.00951*** (0.00368)	0.0198*** (0.00533)
Medicaid Expansion State	0.383*** (0.126)	1.502** (0.624)
State Mental Health Expenditures Per Capita (Thousands of $)	1.089* (0.571)	0.742 (2.600)
Medicaid Only Population Share	0.749 (1.229)	-1.859 (1.749)
Uninsured Population Share	4.966*** (1.210)	-1.732 (1.876)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Counties with total population under 3,000 are not included in the sample. For percentage variables (Poverty Rate, SMI Prevalence, Non-White Population Share) one unit represents one percentage point. Population density is number of county residents per square kilometer. The most urban counties have Rural-Urban Continuum Code = 1, while the most rural counties have Rural-Urban Continuum Code = 9.

TABLE 3

Logit Regression of CCBHC Presence on County Characteristics,
Urbanicity Controls Instead of Population Density (*continued*)

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Rural-Urban Continuum Code = 2	-0.285* (0.161)	-0.573*** (0.198)
Rural-Urban Continuum Code = 3	-0.781*** (0.178)	-0.999*** (0.215)
Rural-Urban Continuum Code = 4	-0.709*** (0.207)	-1.013*** (0.244)
Rural-Urban Continuum Code = 5	-0.701** (0.280)	-0.936*** (0.327)
Rural-Urban Continuum Code = 6	-1.148*** (0.171)	-1.476*** (0.206)
Rural-Urban Continuum Code = 7	-1.305*** (0.189)	-1.646*** (0.228)
Rural-Urban Continuum Code = 8	-1.398*** (0.253)	-1.621*** (0.291)
Rural-Urban Continuum Code = 9	-1.789*** (0.245)	-1.951*** (0.283)
Constant	0.684 (0.435)	-3.393*** (0.970)
Observations	2,962	2,962
Number of states		51
State RE		YES

TABLE 4

Logit Regression of CCBHC Presence on County Characteristics,
Urbanicity and Population Density Controls

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Log(Population Density)	0.416*** (0.0457)	0.696*** (0.0672)
Poverty Rate 100% FPL	-0.000588 (0.0147)	0.0312* (0.0186)
SMI Prevalence 18+	-0.390*** (0.0891)	0.238 (0.160)
Non-White Population Share	-0.0178*** (0.00405)	0.00236 (0.00592)
Medicaid Expansion State= 1	0.332*** (0.128)	1.411** (0.656)
State Mental Health Expenditures Per Capita (Thousands of $)	1.142* (0.585)	0.0707 (2.725)
Medicaid Only Population Share	1.880 (1.271)	-0.115 (1.829)
Uninsured Population Share	7.574*** (1.311)	-0.275 (1.943)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Counties with total population under 3,000 are not included in the sample. For percentage variables (Poverty Rate, SMI Prevalence, Non-White Population Share) one unit represents one percentage point. Population density is number of county residents per square kilometer. The most urban counties have Rural-Urban Continuum Code = 1, while the most rural counties have Rural-Urban Continuum Code = 9.

TABLE 4

Logit Regression of CCBHC Presence on County Characteristics,
Urbanicity and Population Density Controls (*continued)*

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Urban-Rural Continuum Code = 2	0.0109 (0.168)	-0.231 (0.212)
Urban-Rural Continuum Code = 3	-0.290 (0.191)	-0.345 (0.235)
Urban-Rural Continuum Code = 4	-0.189 (0.219)	-0.299 (0.263)
Urban-Rural Continuum Code = 5	0.0505 (0.297)	-0.142 (0.348)
Urban-Rural Continuum Code = 6	-0.299 (0.199)	-0.233 (0.246)
Urban-Rural Continuum Code = 7	-0.230 (0.227))	-0.150 (0.276)
Urban-Rural Continuum Code = 8	-0.264 (0.286)	0.0467 (0.341)
Urban-Rural Continuum Code = 9	-0.455 (0.289)	-0.136 (0.341)
Constant	-1.696*** (0.519)	-6.804*** (1.062)
Observations	2,962	2,962
Number of states		51
State RE		YES

TABLE 5

Predicted Likelihood of Being Served by a CCBHC, by Population Density

Poverty Measure: 100% FPL

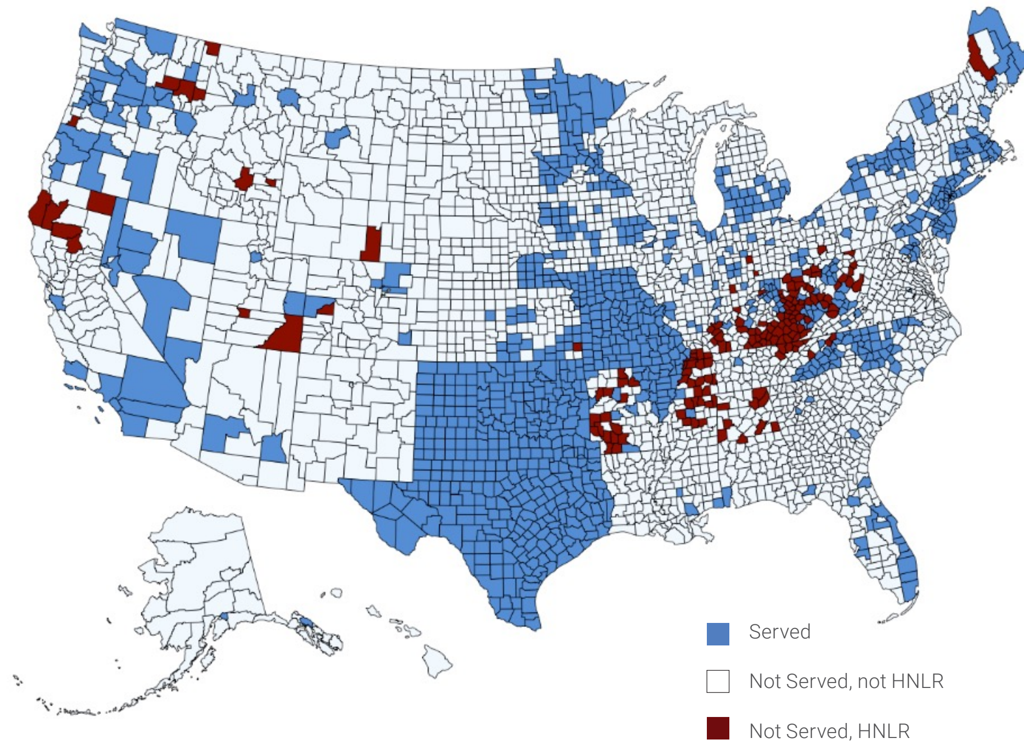
RURAL-URBAN CONTINUUM DESCRIPTION (CODE)	AVG POPULATION DENSITY	VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Counties in metro areas of 1 million population or more (1)	543.4	RUCC 1	0.361 (0.0171)	0.348 (0.0443)
Counties in metro areas of 250,000 to 1 million population (2)	117.7	RUCC 2	0.267 (0.0104)	0.253 (0.0373)
Counties in metro areas of fewer than 250,000 population (3)	75.6	RUCC 3	0.224 (0.00845)	0.210 (0.0336)
Urban population of 20,000 or more, adjacent to a metro area (4)	44.0	RUCC 4	0.215 (0.00819)	0.201 (0.0328)
Urban population of 20,000 or more, not adjacent to a metro area (5)	24.6	RUCC 5	0.175 (0.00758)	0.159 (0.0289)
Urban population of 2,500 to 19,999, adjacent to a metro area (6)	20.9	RUCC 6	0.152 (0.00758)	0.136 (0.0264)
Urban population of 2,500 to 19,999, not adjacent to a metro area (7)	12.3	RUCC 7	0.117 (0.00773)	0.100 (0.0221)
Completely rural or less than 2,500 urban population, adjacent to a metro area (8)	9.2	RUCC 8	0.113 (0.00773)	0.0965 (0.0216)
Completely rural or less than 2,500 urban population, not adjacent to a metro area (9)	6.1	RUCC 9	0.0890 (0.00763)	0.0720 (0.0180)
		Observations	2,962	2,962
		State RE		YES

4. INDEPENDENT STATE PROGRAM SENSITIVITY ANALYSIS

The primary analysis is based on the National Council list of CCBHCs as of July 2022, which is not a comprehensive list of all clinics certified as CCBHCs through independent state programs and the counties in their service areas. Because we are focused on federal policy, we do not supplement the National Council list with these state-certified clinics in our primary analysis. However, we do include these clinics in a sensitivity analysis in order to confirm that our findings are consistent.

See below for the updated map of CCBHC presence once the independent state programs in Kansas, Minnesota, Missouri, Nevada, Oklahoma, and Texas are included:

Counties by CCBHC Presence and High-Need, Low-Resource Status



Note: High-Need, Low Resource (HNLR) counties are defined as counties in the fort quartiles of both SMI prevelance and poverty rate. Recipients of CCBHC-PDI or CCBHC-IA Grants are not included.

Source: Authors' analysis of data from the National Council for Mental Wellbeing CCBHC Locator and SMHSA Grant Abstracts. ACS 2016-2020 5-Year Estimates, and NSDUH 2016-2018 Substate Estimates.

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The regression analysis confirms that population density remains the most significant predictor of CCBHC presence (**Table 6**). In fact, the coefficient on population density has an even greater magnitude than in the primary analysis and remains significant at the 1% confidence level. In this robustness check, the poverty rate also has a significant, positive association with CCBHC presence. However, the magnitude of this relationship is small. Moving from the 10th to the 90th percentile of poverty is associated with a 6.5-percentage-point increase in the likelihood of being served by a CCBHC, holding all other variables constant at their means (**Table 7**). For population density, the same shift is associated with a 28.5-percentage-point increase in the likelihood of being served by a CCBHC. This robustness check confirms that our key finding, namely that CCBHC presence is primarily driven by population density, remains consistent even when a more comprehensive definition of CCBHC presence is used.

TABLE 6

Logit Regression of CCBHC Presence on County Characteristics

VARIABLES	(1) NO RANDOM EFFECTS	(2) RANDOM EFFECTS
Log(Population Density)	0.296*** (0.0308)	0.714*** (0.0619)
Poverty Rate 100% FPL	0.0221* (0.0126)	0.0439** (0.0218)
SMI Prevalence 18+	-0.583*** (0.0803)	0.0634 (0.199)
Non-White Population Share	-0.0291*** (0.00372)	-0.00355 (0.00691)
Medicaid Expansion State = 1	0.855*** (0.114)	1.537 (1.046)
State Mental Health Expenditures Per Capita (Thousands of $)	1.065** (0.523)	-2.135 (4.449)
Medicaid Only Population Share	-3.499*** (1.127)	0.112 (1.996)
Uninsured Population Share	17.75*** (1.283)	1.066 (2.354)
Constant	-0.587 (0.437)	-5.868*** (1.406)
Observations	2,962	2,962
Number of states		51
State RE		YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Counties with total population under 3,000 are not included in the sample. For percentage variables (Poverty Rate, SMI Prevalence, Non-White Population Share) one unit represents one percentage point. Population density is number of county residents per square kilometer.

TABLE 7

Predicted Likelihood of Being Served by a CCBHC, by Poverty Rate and Population Density

	(1) POVERTY RATE	(2) POPULATION DENSITY
10th Percentile	0.251 (0.0463)	0.161 (0.0379)
25th Percentile	0.261 (0.0460)	0.217 (0.0417)
75th Percentile	0.294 (0.0484)	0.348 (0.0508)
90th Percentile	0.316 (0.0528)	0.446 (0.0528)
Observations	2,962	2,962

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