Rural Health Research RECAP

Rural Health Research Gateway

November 2017

Rural Behavioral Health

Funded by the Federal Office of Rural Health Policy (FORHP), the Rural Health Research Gateway strives to disseminate the work of the FORHP-funded Rural Health Research Centers (RHRCs) with diverse audiences. The RHRCs are committed to providing timely, quality national research on the most pressing rural health issues. This resource provides a summary of their most recent research on behavioral health, all of which may be found on Gateway's website at ruralhealthresearch.org.

Prevalence

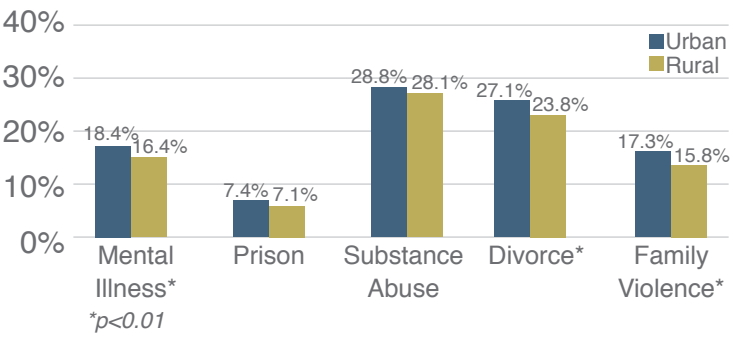
Any mental illness (AMI) is any diagnosable mental, behavioral, or emotional illness other than substance use.[1] During 2015, roughly 43.4 million adults in the U.S. had some kind of mental illness.[2] During 2010-2011, nonmetropolitan counties reported a higher percentage of residents with AMI (19.5%) than metropolitan counties (17.8%).[3] The highest rate of AMI (22.5%) occurred among rural residents in the western U.S. region.[3]

Nationally, 4% reported a serious mental illness, though rates rose with increasing rurality. Rural micropolitan residents in the western U.S. region reported the highest percentage of serious mental illness (6.8%). The lowest rate occurred in large central counties in the southern region of the U.S. (2.7%).[3]

Adverse Childhood Experiences

Adverse childhood experiences (ACEs) are occurrences in family relationships that prevent children from finding the support and safety they need for healthy growth. The more ACEs, the higher the risk for behavioral and physical health problems in adulthood.[4] More than half (56.5%) of rural residents had been exposed to some form of ACE during 2011-2013.[4] See Figure 1.

Figure 1. Prevalence of ACE Types in Rural and Urban Adults: Household Dysfunction[4]



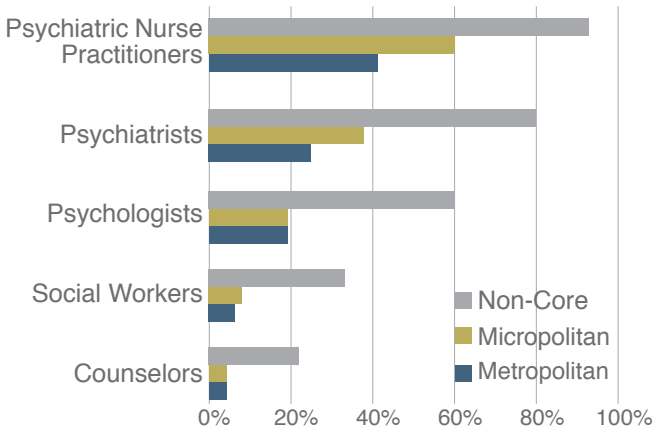
Access to Behavioral Healthcare

As of October 2015, rural communities reported a smaller proportion of behavioral healthcare providers than urban areas, including fewer psychiatrists, clinical psychologists, psychiatric nurse practitioners, social workers, and counselors.[5] See Table 1 and Figure 2.

Table 1. Behavioral Health Providers per 100,000 Population in U.S. Counties[5]

	Metropolitan	Micropolitan	Non-Core
Counselors	118.10	100.20	67.10
Social Workers	66.40	45.00	29.90
Psychologists	33.20	16.80	9.10
Psychiatrists	17.50	7.50	3.40
Psychiatric Nurse Practitioners	2.20	2.10	0.90

Figure 2. Percent of U.S. Counties Without Behavioral Health Providers[5]



Fewer providers may lead to increased utilization of the emergency department (ED) for mental health and substance abuse (MH/SA) treatment.

- Overall in 2013, 14.6% of all ED visits were for a primary MH/SA diagnosis.[6]
- Large rural (58.4%), small rural (62.3%), and isolated small rural (62.1%) residents presenting to the ED with a primary MH/SA diagnosis were more likely to be on public insurance than urban residents (48.0%).[6]
- Among urban MH/SA ED patients, 18.2% were 65 years of age and older compared to 22.3%, 26.4%, and 27.9% of large rural, small rural, and isolated small rural respectively.[6]

Though related to substance abuse, 2016 data indicated a disparity in rural access to buprenorphine-naloxone prescribers as well. Buprenorphine-naloxone is an effective treatment for opioid use disorder.[7] Roughly half (52.5%) of all counties had at least one physician with a Drug Enforcement Agency waiver to prescribe buprenorphine in 2016.[7] Urban counties were more likely than rural to have access to waivered providers; 65.9% of metropolitan counties had at least one provider compared to 45.4%, 59.5%, and 23.8% of adjacent to metropolitan, micropolitan not adjacent to metropolitan, and small and remote rural counties respectively.[7]

Rural Behavioral Health Interventions

Mental Health First Aid

Mental Health First Aid (MHFA) training is an early intervention program aimed at improving population-level behavioral health treatment-seeking.[8] MHFA rural graduates indicated confidence in their mastery of MHFA. However, given the primary focus of MHFA is to encourage treatment-seeking, rural communities may not have the workforce to meet the demands of those who would then seek treatment.[8]

Telemental Health

Telemental health refers to providing mental healthcare from one site to another using electronic technology. This intervention can address the most basic hurdles to rural mental healthcare, including shortages of mental health clinicians and extended travel distances.[9] Quality telemental health access in rural areas has grown while the cost has decreased. However, the fee-for-service reimbursement model does not provide sufficient financial reimbursement or incentive to sustain growth. Growth in telemental health is also burdened by workforce supply challenges, issues with recruitment and retention, and high rates of un-insurance and under-insurance in rural areas.[9] To expand rural access to telemental health, issues regarding reimbursement, administration, and provider supply must be addressed.[9]

Conclusion

Rural communities report a higher proportion of the population with mental illness, serious mental illness, and substance use. Rural behavioral health issues are compounded by a lack of access to care. Rural solutions need adequate reimbursement and must be sustainable when treating the uninsured and under-insured.

Resources

1. SAMHSA. (2013). The NSDUH Report. Rockville, MD: U.S. Department of Health and Human Services, available at https://www.samhsa.gov/data/sites/default/files/NSDUHresultsPDFWHTML2013/Web/NSDUHresults2013.pdf.
2. Center for Behavioral Health Statistics and Quality. (2016). 2015 National Survey on Drug Use and Health (HHS Publication No. SMA 16-4984, NSDUH Series H-51), available at https://www.samhsa.gov/data/.
3. Rural Health Reform Policy Research Center (2014). The 2014 update of the rural-urban chartbook, available on Gateway at https://www.ruralhealthresearch.org/publications/940.
4. Maine Rural Health Research Center (2016). Adverse childhood experiences in rural and urban contexts, available on Gateway at https://www.ruralhealthresearch.org/publications/1035.
5. WWAMI Rural Health Research Center (2016). Supply and distribution of the behavioral health workforce in rural America, available on Gateway at https://www.ruralhealthresearch.org/publications/1058.
6. Rural Health Reform Policy Research Center (2017). Rural and urban utilization of the emergency department for mental health and substance abuse, available on Gateway at https://www.ruralhealthresearch.org/publications/1118.
7. WWAMI Rural Health Research Center (2017). Changes in the supply of physicians with a DEA DATA waiver to prescribe buprenorphine for opioid use disorder, available on Gateway at https://www.ruralhealthresearch.org/publications/1113.
8. [Maine Rural Health Research Center] Talbot J.A., Ziller E.C., & Szlosek D.A. (2017). Mental health first aid in rural communities: Appropriateness and outcomes. JRH, 33(1), 82-91.
9. [Maine Rural Health Research Center] Lambert D., Gale J., Hartley D., Croll Z., & Hansen A. (2016). Understanding the business case for telemental health in rural communities. J Behav Health Serv Res, 43(3), 366-379.

For more information, visit the Rural Health Research Gateway website, ruralhealthresearch.org.

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RECAP

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December 2017

Rural Hospital Closures

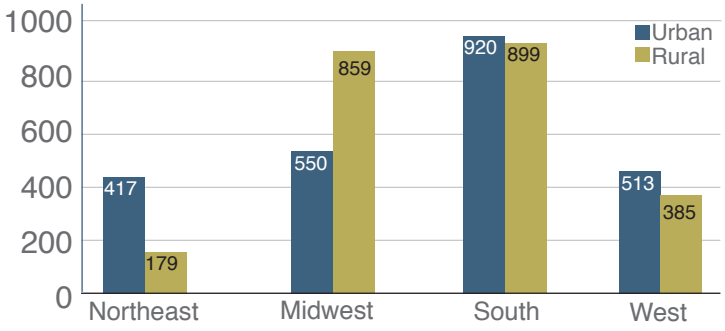
Funded by the Federal Office of Rural Health Policy (FORHP), under the Health Resources and Services Administration, the Rural Health Research Gateway strives to disseminate the work of the FORHP-funded Rural Health Research Centers (RHRCs) with diverse audiences. The RHRCs are committed to providing timely, quality national research on the most pressing rural health issues. This resource is one of two providing a summary of their most recent research on hospital closures, all of which may be found on Gateway's website at ***ruralhealthresearch.org****.*

Rural and urban hospitals serve varied patient demographics. Urban hospitals are located in counties with 20% higher income than rural hospitals, and isolated rural hospitals provide care in counties where one-fifth of the population is elderly.[1] As a result of patient demographics, reimbursement models, market characteristics, and available services (among other variables), rural hospitals are closing and rural communities are losing services in higher proportion than urban communities. The financial distress index (FDI) was developed to identify rural hospitals' risk of financial distress and has been a useful tool in identifying at-risk hospitals, providing an opportunity for rural hospitals and communities to consider alternative service models. This research also opens the door to future study of policy options and the communities impacted by hospital closures.

Hospitals in the United States

In 2012-13, the U.S. had about 5,000 short-term, acute care hospitals; half were located in urban areas, and half were in rural areas.[1] Among rural hospitals, 39% were located in large rural areas, 39% in small rural areas, and 22% in isolated rural areas. The largest number of hospitals were located in the South. See Figure 1.[1]

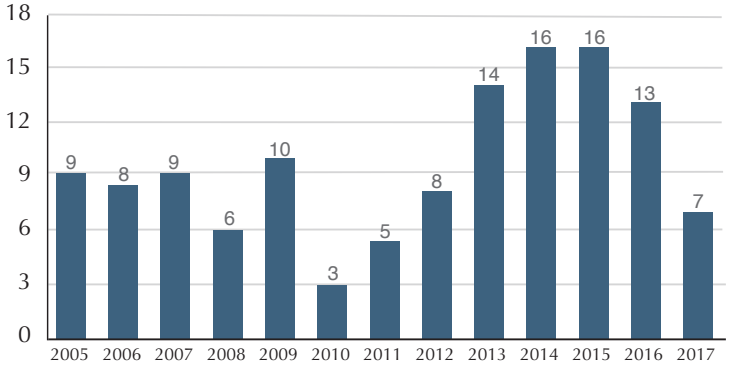
Figure 1. Number of Hospitals by U.S. Census Region and Rural/Urban Status (2012-13)[1]



Hospital Closures

From January 2005 to November 8, 2017, 124 rural hospitals closed in the U.S.[2] See Figure 2. The most current number of rural hospital closures can be found at www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures. Predictors of rural hospital closure have included financial distress,[2] hospital size, and community poverty rates.[3]

Figure 2. Number of Rural U.S. Hospital Closures, January 2005 through November 2017[2,4]



As a result of hospital and obstetric-unit closures, there was an increase in the percentage of U.S. rural counties without any hospital obstetric services from 2004 through 2014 (from 45% to 54%).[5] During this period of time, 179 rural counties experienced closures/loss of hospital obstetric services.[5] In 2014, while 77.9% of micropolitan (urban) counties reported access to hospital obstetric services, only 30.2% of rural noncore counties had access.[5]

Financial Distress Index

An FDI was developed to determine if a rural hospital could be classified at a high, medium-high, medium-low, or low risk of financial distress.[3] The FDI model "includes 12 predictors composed of 4 measures of financial

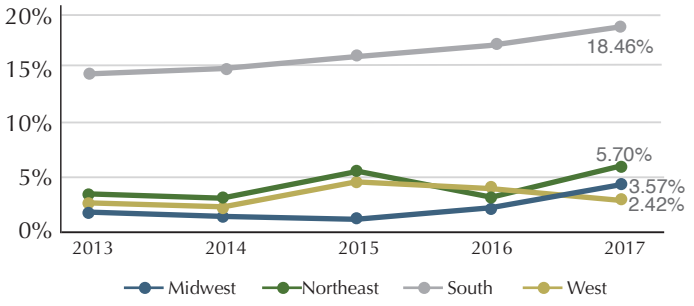
performance, 2 measures of hospital characteristics, 2 measures of government reimbursement, 2 measures of community characteristics, and 2 measures of local competition."[3] Access the brief *Prediction of Financial Distress among Rural Hospitals* for a complete list of factors utilized to determine risk.[3]

Between 2006 and 2014, hospitals identified as high risk in the FDI had closure rates 60 times higher than hospitals identified as low risk.

- Two out of three hospitals that closed were identified by the FDI at high risk of financial distress in the year prior to closure.[3]
- The proportion of rural hospitals at high risk increased from 7.0% in 2015 to 8.1% in 2016.[3]
- The South Census region reported the largest percentage of hospitals at risk in 2017.[2]

States with the highest number of rural hospitals at high risk of financial distress in 2015 were Texas, Oklahoma, Tennessee, Arkansas, Georgia, and Alabama.[6] States with the highest percentage of rural hospitals at high risk included Hawaii, Alabama, Oklahoma, Arkansas, and Tennessee.[6] The South Census region reported a greater percentage of rural hospitals at high risk of financial distress than any other Census region. See Figure 3.

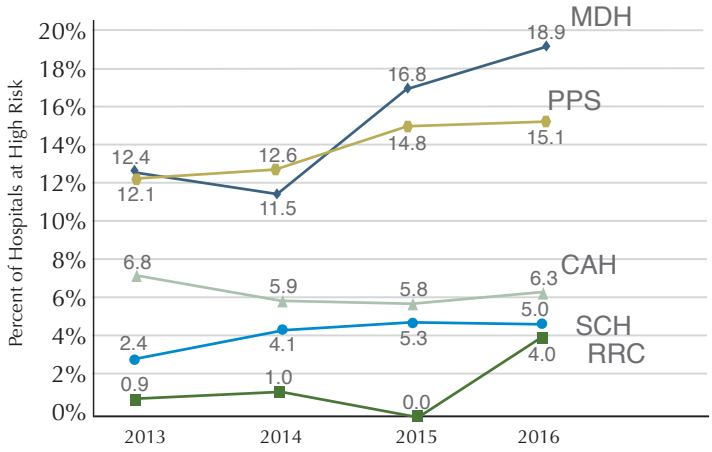
Figure 3. Percent of Rural Hospitals at High Risk of Financial Distress, Census Region, 2013-2017[6]



Urban and Rural Hospital Profitability

Insufficient revenue reduces hospital services and quality, which can lead to closure.[7] Hospital closures leave rural residents at greater risk of health and economic hardships because of the loss of local acute and inpatient care services.[7] Medicare Dependent Hospitals (MDHs) reported a larger percentage of their hospitals at high risk of financial distress than any other rural hospital type in 2016.[6] However, the percentage of rural Perspective Payment System (PPS) hospitals and Rural Referral Centers (RRCs) at high risk consistently increased from 2013 through 2016.[6] See Figure 4.[9]

Figure 4. High Risk of Financial Distress in Rural Hospitals, by CMS Payment Type, 2013-2016[6]



CAH = Critical Access Hospital
SCH = Sole Community Hospital

RRCs and urban hospitals had higher profitability when compared to other hospitals.[7] The rural PPS hospitals (26-50 beds) and MDHs had lower profitability with high financial distress when compared to other payment systems.[7] From 2012 through 2014, urban hospitals experienced increases in profitability while rural hospitals experienced decreases.[7] For more basic information on these hospital types, visit www.ruralhealthinfo.org/topics/hospitals#designations.

Resources

1. North Carolina Rural Health Research and Policy Analysis Center (2015). The 21st century rural hospital: A chartbook, available on Gateway at ruralhealthresearch.org/publications/961.
2. North Carolina Rural Health Research and Policy Analysis Center (2016). Trends in risk of financial distress among rural hospitals, available on Gateway at ruralhealthresearch.org/publications/1059.
3. North Carolina Rural Health Research and Policy Analysis Center (2016). Prediction of financial distress among rural hospitals, available on Gateway at ruralhealthresearch.org/publications/998.
4. North Carolina Rural Health Research and Policy Analysis Center (November, 2017). Rural hospital closure tracking website, available at www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures.
5. University of Minnesota Rural Health Research Center (2017). Closure of hospital obstetric services disproportionately affects less-populated counties, available on Gateway at ruralhealthresearch.org/publications/1106.
6. North Carolina Rural Health Research and Policy Analysis Center (2016). Geographic variation in risk of financial distress among rural hospitals, available on Gateway at ruralhealthresearch.org/publications/999.
7. North Carolina Rural Health Research and Policy Analysis Center (2016). Geographic variation in the profitability of urban and rural hospitals, available on Gateway at ruralhealthresearch.org/publications/1007.

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Effects of Rural Hospital Closures

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Rural Hospital Closures and Conversions

From January 2005 to November 8, 2017, 124 rural hospitals closed in the U.S.[1] Closure of a rural hospital has a direct effect on the individuals within that hospital's service area, decreasing the health and economic well-being of that community.[1] The most current number of rural hospital closures can be found at: www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures.

A rural hospital closure includes both hospital conversions and abandoned hospitals. Abandoned hospitals are those that no longer provide any form of health service, while converted hospitals remain a healthcare facility but do not provide any inpatient care. From 2010 through 2014, roughly 800,000 people were living in rural markets with abandoned hospitals.[2] An additional 700,000 people experienced loss of inpatient care as a result of rural hospital conversions.[2]

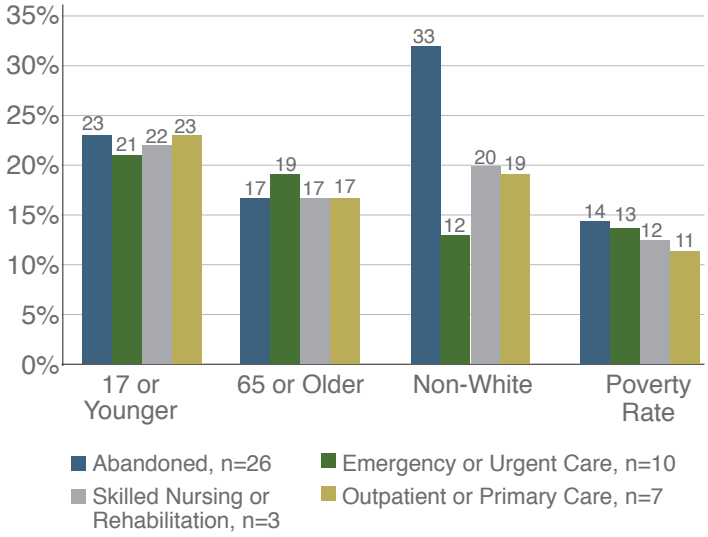
The three most common care models among the 21 converted rural hospitals in 2014 were:

- Urgent care or emergency facility (10/21);
- Outpatient or primary care facility (7/21); and
- Skilled nursing or rehabilitation (4/21)[2].

Abandoned rural hospitals had a higher proportion of their patient base that was non-White (33%) than converted hospitals (17%).[2] See Figure 1. Abandoned hospitals were also more likely than those that had converted to:

- Serve markets with higher poverty rates and lower per capita income;
- Be farther from the nearest hospital; and,
- Report lower profitability and liquidity prior to closure.[2]

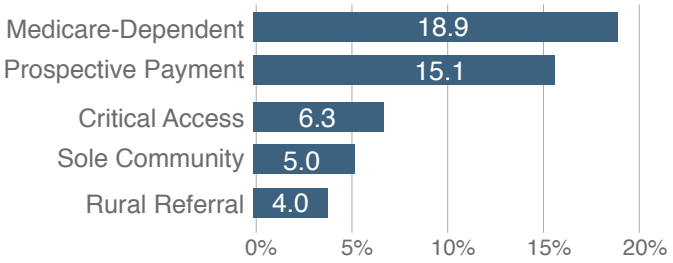
Figure 1. Demographics of the Population Served by Abandoned/Converted Rural Hospitals[2]



Rural Hospital Payment Models

Low financial performance in small rural hospitals led federal lawmakers to pass legislation authorizing the Medicare program to provide higher payments to hospitals that served rural communities.[3] These rural hospitals included Critical Access Hospitals (CAHs), Sole Community Hospitals (SCHs), Medicare Dependent Hospitals (MDHs), and Standard Prospective Payment Systems (PPS) Hospitals.[3] Not all rural hospital systems were under the same financial pressure in 2016. A larger proportion of MDHs and rural PPS were at high risk of financial distress compared to other hospital payment models.[3] See Figure 2.

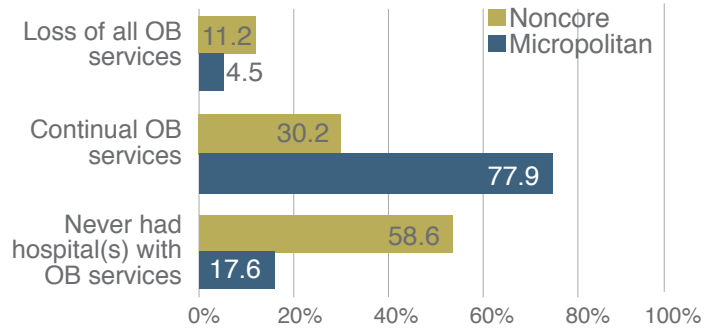
Figure 2. Percentage of Hospitals at High Risk: 2016[3]



Rural Hospital Obstetric Services

The proportion of all rural U.S. counties lacking hospital obstetric (OB) services rose from 45% to 54% from 2004 through 2014.[4] Roughly 45.3% of all rural counties (898) never had OB services. Only 17.6% of micropolitan (urban) counties never had a hospital(s) with OB services compared to 58.6% of rural noncore.[4] See Figure 3.

Figure 3. Distribution of Hospital Obstetric Unit Closures in Rural Counties, 2004-2014[4]



The loss of services is primarily the result of OB unit closures as opposed to full hospital closures. From 2004 through 2014, 9% of all rural counties (179 counties) lost access to hospital OB services.[4]

- While 77.9% of micropolitan counties provided constant hospital OB services in 2014, the same was true for only 30.2% of rural noncore counties.[4]
- About two-thirds or more of the rural counties in Florida (78%), Nevada (69%), and South Dakota (66%) had no in-county hospital OB services.[5]
- A large decline was reported in hospital OB services in rural counties in South Carolina, Washington, and North Dakota.[5]

Effects of Rural Hospital Closures

Rural hospital closures and reduction of services reduce access to locally available healthcare.[2,4,6] Communities have reported that rural hospital closures resulted in:

- A rise in emergency medical services costs.[2]
- Increased time and cost of transportation to healthcare services for patients.[2]
- Heightened transportation issues and barriers to care for vulnerable groups.[2,4]
- Loss of jobs for hospital staff, creating concerns about unemployment and outward migration of community members.[2]

As it relates to OB services, the sharp decline in access to care raises concern around the quality of, and distance to, maternity care.[4]

Hospital conversions and closures disproportionately impact non-Whites (particularly Blacks), poor people, and women. There is opportunity to identify new healthcare delivery models in communities at risk of hospital closure. read *After hospital closure: Pursuing hiogh performance rural health systems without impatient care*[6] to learn about models employed in rural communities following a hospital closure.

The research on hospital closures and healthcare service reduction (such as OB care) in rural communities generally draws similar conclusions; rural communities, hospital administrators, and policymakers must work to identify community-centered methods for providing quality healthcare access and must continue to assess the impact of closures and conversions. FORHP-funded RHRCs continue to explore rural hospital finance and hospital closures, with new research released on the Rural Health Research Gateway.

Resources

1. North Carolina Rural Health Research and Policy Analysis Center (2016). Trends in risk of financial distress among rural hospitals, available on Gateway at ruralhealthresearch.org/alerts/145.
2. North Carolina Rural Health Research and Policy Analysis Center (2015). A Comparison of closed rural hospitals and perceived impact, available on Gateway at ruralhealthresearch.org/publications/966.
3. North Carolina Rural Health Research and Policy Analysis Center (2016). Do current Medicare rural hospital payment systems align with cost determinants?, available on Gateway at ruralhealthresearch.org/publications/958.
4. University of Minnesota Rural Health Research Center (2017). Closure of hospital obstetric services disproportionately affects less-populated counties, available on Gateway at ruralhealthresearch.org/publications/1106.
5. University of Minnesota Rural Health Research Center (2017). State variability in access to hospital-based obstetric services in rural us counties, available on Gateway at ruralhealthresearch.org/publications/1107.
6. RUPRI Health Panel: Rural Policy Analysis and Applications (2017). After hospital closure: Pursuing high performance rural health systems without inpatient care, available on Gateway at ruralhealthresearch.org/publications/1117.

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Opioid Use and Treatment Availability

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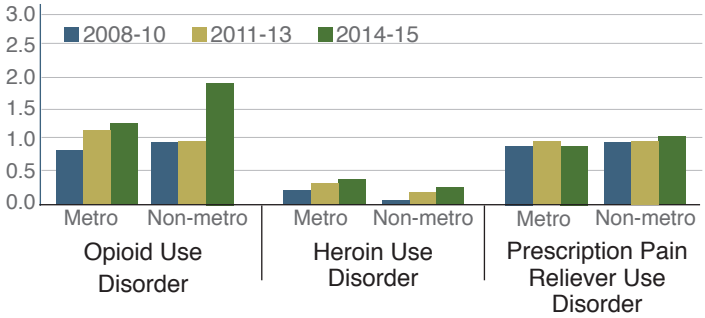
Opioid Use in Rural Communities

Opioids are prescribed for pain relief; most recognizable are morphine, hydrocodone, oxycodone, and fentanyl. Opioids also include the illegal drug, heroin. Opioid use disorder (OUD) (to include prescription drugs and heroin) is the fastest growing substance use problem in the nation. During 2008-13, 4.7% of U.S. residents ages 12 and older reported using non-medical opioids in the past year. Mean age at first use was 23.[1] This did not vary between rural and urban communites.[1] Among those who misused prescription opioids, 75% admitted to obtaining the pain relievers from someone who held a prescription for the drug.[1] Despite implementation of treatment and prevention programs, rates of OUDs continue to rise in rural (non-metropolitan) and urban (metropolitan) communities alike (see Figure 1).[1-2]

Figure 1. Prevalence of Past-year Drug Use Disorders over Time, by Geography[2]

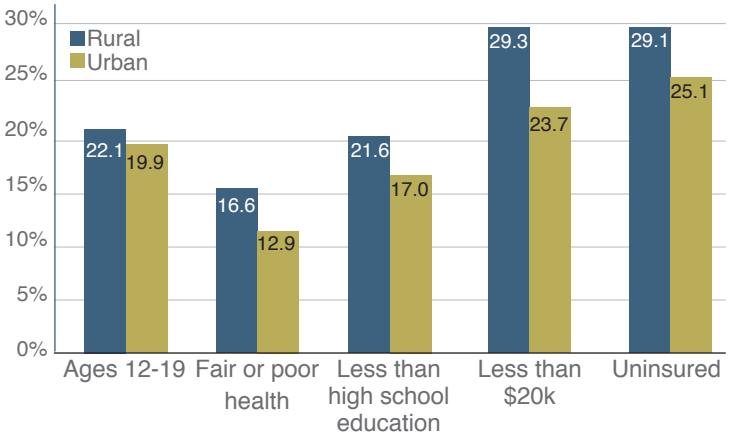


Note: Crude prevalence rates are expressed as a % and are population-weighted

There has been little to no variation in the overall prevalence of OUDs between rural and urban populations. However, particular groups of rural residents have reported a greater prevalence of past-year use.[1-2] Specifically, 8% of all rural residents ages 12-19 and 9.5% of those 20-29 had used opioids in the past year.[1] Among those who had used opioids, rural were more likely than urban to be uninsured, low income, in poor health, and between ages 12-19 (see Figure 2).[1]

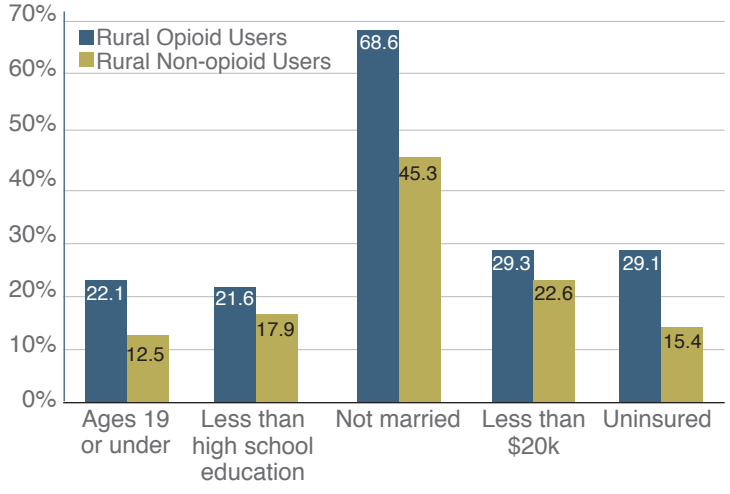
Rural opioid users were also more likely than urban to have ever been arrested (42.5% compared to 36.1%) and more likely to have been on probation in the past year (10.6% compared to 8.2%).[1]

Figure 2. Rural and Urban Opioid Users, 2008-13[1]



Among rural residents, those who had used opioids in the past year were more likely than those who had not used opioids to be under the age of 19, not married, low-income, and uninsured (see Figure 3).[1]

Figure 3. Rural Opioid and Non-opioid Users, 2008-13[1]



Treatment for Opioid Use Disorder

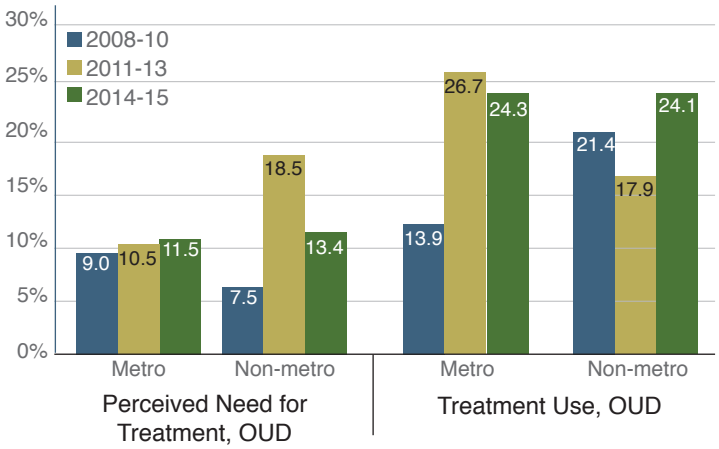
Medication assisted treatment (MAT) is the use of medications in combination with counseling and behavioral therapies for the treatment of OUD. Buprenorphine-naloxone is one of the effective OUD treatment medications that may be provided in a primary care setting. The Drug Addiction Treatment Act (DATA) was passed in 2000 to expand OUD treatment options. DATA allows a physician to prescribe buprenorphine after he/she receives a waiver from the Drug Enforcement Agency (DEA).[3] From 2012 through 2016, the percentage of counties with at least one waivered physician increased from 46.6% to 52.5%. However, while only 26.2% of urban counties were without a waivered provider in 2016, 60.1% of rural counties were still without one.[3-4] The percentage of rural counties with a waivered provider has slightly increased since 2012; however, a majority of waivered providers (91.2%) are still disproportionately located in urban counties.[3-4]

Of the 1,124 rural physicians with DEA DATA waivers who were surveyed in 2016, only 60% were current prescribers accepting new patients.[5] Overall, the most significant barriers of waivered prescribers providing MAT were diversion or misuse of medication (indicated by 48.4% of rural waivered providers), lack of available mental health support services (44.4%), and time constraints (40.2%).[5] Nonprescribers (never and former prescribers) were significantly more likely than current prescribers to identify the following barriers: time constraints, lack of patient need, resistance from practice partners, lack of specialty backup for complex problems, lack of confidence in their ability to manage OUD, concerns about DEA intrusions on their practices, and attraction of drug users to their practices.[5]

Perceived Need and Use of Treatment

Beyond the need for prescribers is concern with identified need for, and utilization of, treatment. The rate of perceived OUD treatment need among those with past year use did not vary significantly between rural (non-metro) and urban (metro) adults during 2014-15.[6] However, the perceived need for treatment did increase significantly among rural users from 2008-10 to 2011-13.[6] Most recently, treatment use for OUD did not vary between rural and urban adults, though rural adults reported a more significant increase in treatment from 2011-13 to 2014-15 (see Figure 4).[6]

Figure 4. Perceived Need for Treatment and Treatment Use over Time for OUD, by Geography[6]



Note: Perceived need for treatment and treatment utilization among adults ages 18-64 with a past year illicit drug use disorder, self-reported

Rural Community Response

Rural community-based strategies are imperative for the prevention and treatment of and recovery from OUD and must expand beyond the availability of waivered prescribers. Specific rural challenges to the prevention/treatment of OUD include workforce concerns, timely access to prevention and/or treatment, stigma, lack of community-provider collaborations, and providers not using current protocols for prescribing opioids.[7] Community models for OUD treatment have included the use of telehealth, coalitions, evidenced-based prescribing protocols, emergency department protocols, and harm-reduction strategies through public health.[7] Read, *Rural Opioid Abuse Prevention and Treatment Strategies* for more information on these programs.[7]

Resources

1. Maine Rural Health Research Center (2016). Rural opioid abuse: Prevalence and user characteristics, ruralhealthresearch.org/publications/1002.
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