Rural Suicide Prevention in New York

Overview Report and Recommendations for County and State Partners

December 15, 2021

COMMISSIONER'S FOREWORD

January 18, 2022

Dear Fellow New Yorkers:

Suicide is a major public health issue. Over the last two decades, both in the nation and New York, we've witnessed an over 30 percent increase in the suicide rate. Each year approximately 45,000 individuals in the U.S. and 1,700 in the Empire State die by suicide. For every suicide death, it is estimated that there are 25 non-lethal suicide attempts; and approximately 14 million Americans seriously consider suicide each year, including 17% of NY high school students. But the tragedy of suicide goes well beyond the statistics. Each death is someone's parent, child, family member, friend, or colleague, casting a long shadow.

Sadly, suicide disproportionally impacts our rural communities.

New York, though geographically diverse, is vastly rural. More than 86.6% of the state's land area is rural with 18% of the population and over 3.5 million people residing in rural areas. The suicide rate in rural NY is significantly greater than the state average (13.1 vs. 8.3/100,000) and has increased at a greater rate between 2000 and 2018 (47% vs. 40%) [CDC WISQARS]. While there are many factors that amplify suicide risk in rural areas—including social isolation, stigma, a lack of access to services, long distances and lack of transportation, and rates of gun ownership—suicide is preventable through our collective action. Moreover, rural communities are extraordinarily resourceful and resilient.

As highlighted in the recommendations of this report by stakeholders from across the state, there are a number of prevention activities that can be deployed to decrease the risk of suicide in our rural communities. We all have a role to play in preventing suicide. By working together with federal, state, and local partners, we can protect individuals, families, and communities from the loss, grief, and suffering that suicide leaves in its wake. For more information on resources and training available to schools, health providers, communities, and individuals in NYS, please visit https://www.preventsuicideny.org .

Thank you for working with us to prevent suicide in our communities.

Sincerely,

Ann T. Sullivan, MD
OMH Commissioner

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INTRODUCTION

Rural areas face a disproportionately high risk of suicide, compared with urban areas, and suicide rates in rural areas have been trending in the wrong direction in recent decades. Within rural areas, certain populations face higher risk than others, based on socio-demographic and occupational characteristics. There are many ways to address rural suicide risk, including at the individual, community, and societal level. Ideally, intervention will happen at multiple levels and must be informed by rural community members themselves.

In late 2019, OMH convened a workgroup of experts in suicide prevention and/or service delivery in rural areas from across the state. The workgroup was tasked with developing recommendations to inform prevention efforts at both the state and county level. Those recommendations were informed by monthly workgroup meetings, and data collected from surveys of rural schools and providers, as well as county focus groups. Given the unique blend of risk and protective factors in every rural county, all recommendations need to be tailored to meet the needs of the individual county.

Rural Suicide Prevention in the United States and New York: An Overview Report

By Carrie Smith-Henning, PhD, NYS Rural Workgroup Co-Chair

Background

Suicide is a leading cause of death across the U.S., claiming the lives of nearly 50,000 people annually and ranking as the 10th most common cause of death across all age groups.[1,2] For people aged 10-34, it is the 2nd most common cause of death; for adults age 35-54 it is the 4th most common cause.[1] While preventable, suicide is still altogether too common, leading to tragic loss of life and shockwaves through individuals, families, and communities. Further, recent data from the Centers for Disease Control and Prevention highlighting suicide rates between 1999-2016 show that rates of suicide are going up nationally, including in New York State.[3] More work is urgently needed by policymakers, public health practitioners, providers, and researchers to effectively prevent suicide.

The occurrence of suicide is not randomly distributed, however. Just as suicide risk varies by age group, so does it vary by other socio-demographic characteristics, including gender, race, ethnicity, socio-economic status, occupation, and health status.[2,4–9] Of particular concern, however, is how suicide varies by geographic location and context, with rural areas experiencing disproportionately high rates of suicide compared with urban areas.[2,10–12] Across the country, rural (non-metropolitan) counties had higher rates of suicide and steeper rates of increase between 2005-2015.[10,13]

Rural New York State is not immune from these inequities. While New York State on the whole consistently has the lowest suicide rate in the country, with 8.3 suicide deaths per 100,000 people in 2018, compared with a US average of 14.2 per 100,000,[3,14] that suicide rate masks stark rural/urban disparities within the state. This is partly because New York has a larger urban population than the national average, but suicide deaths in the state are disproportionately concentrated within rural areas.[15] Between 2015-2017, the state suicide rate outside of New York City was 10.2 per 100,000 people,[16] closer to the national average. Of those counties with the highest rate of death by suicide, fifteen of the sixteen counties with the highest rates are rural (non-metropolitan), with rates for self-harm hospitalizations and emergency department visits showing similar trends.[16]

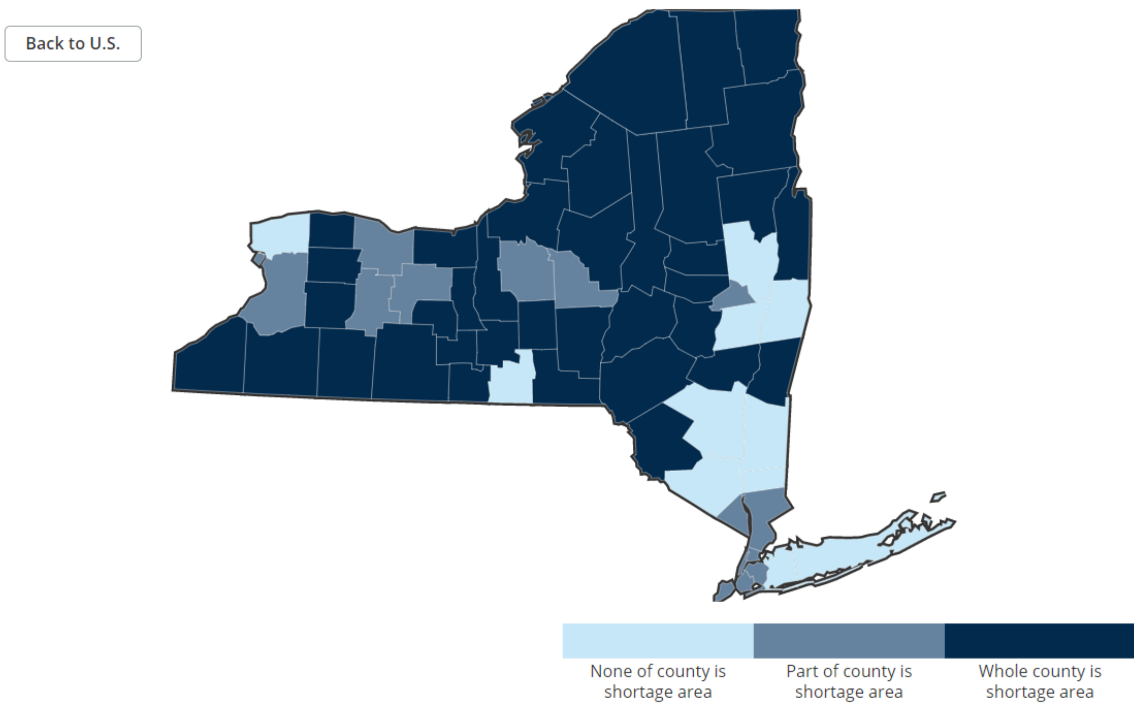
This literature review provides background on unique characteristics of rural areas as they relate to suicide risk, particularly vulnerable populations within rural areas, and promising an evidence-based approach to prevent suicide among rural residents.

The Rural Context and Suicide Risk

Rural areas differ from urban areas in many ways that have important implications for suicide prevention. On average, rural residents are older, have lower incomes, and have higher rates of disability, illness, and mortality than their urban counterparts.[17–22] Rural areas also face substantial barriers to accessing health care,[10,23–25] including mental and behavioral health care.[26,27]

Figure 1 shows a map of Mental Health Professional Shortage Areas (HPSAs) areas in New York State, as measured by the Health Resources & Services Administration.[28] While mental health HPSAs are located across the state, in urban and rural counties alike, it is worth noting that every rural county in New York is designated as having a shortage of mental health care providers, while only some urban counties are.

Figure 1: Mental Health Professional Shortages Areas in New York State, 2020



Source: HRSA data, accessed through the Rural Health Information Hub, https://www.ruralhealthinfo.org/charts/7?state=NY

The shortage of mental health providers is made worse by growing health care workforce shortages[29–31] and hospital closures[32] in rural areas. Further, rural residents have lower rates of health insurance than urban residents,[10,33,34] so even when care is available, it may be difficult to access and afford.

Above and beyond availability of mental health care services and health insurance, rural residents also face distinct barriers to accessing transportation[35–38] and to addressing social isolation across vast geographic distances.[39,40] And, rural areas have more limited access to broadband Internet and cellular connectivity,[33,41–44] which limits the availability and utility of telehealth services, as well as the ability to connect with rural residents in crisis. Altogether, these issues can make it challenging for rural residents to access ongoing routine and preventive health care, as well as to recognize and respond to someone in crisis or at risk of suicide.

Beyond barriers to accessing health care, both routine and in a crisis, there are other demographic and contextual factors that put rural residents at higher risk for suicide. These include higher rates of substance use among rural residents (compared with urban residents),[8,45–47] higher rates of firearm ownership among rural residents,[10,48–52] and insidious issues of stigma around mental health, help-seeking, and suicide in rural areas.[26,53–61] Each of these (substance use, firearm ownership, and stigma around suicide) is associated with a higher risk of dying by suicide,[62–67] and each is more common among rural residents.

Despite all of the risk factors for suicide present in rural areas, rural areas also have many positive attributes, which may be protective against suicide. These include historically larger and stronger networks of family and friends,[40,68] a common sense of self-reliance and independence,[39,61] connection to the land and community, and greater involvement in faith-based communities,[40,69–71] compared with urban residents. Any suicide prevention efforts in rural areas should build on these, and other, strengths.

Populations at Highest Risk within Rural Areas

In addressing rural suicide risk, it is important to note that rural residents are not monolithic; nor is risk for suicide distributed equally among rural residents. Instead, rural areas contain considerable diversity across demographic lines, as well as across geographic regions.[72] Certain populations face heightened risks for a variety of reasons, including structural barriers to health care and well-being, economic pressures, and lacking affinity groups within small, rural communities. Rural populations with the highest risk of suicide include lesbian, gay, bisexual, and transgender (LGBTQ+) individuals, especially youth; farmers; veterans; and Native Americans.

The reasons for higher risk among these rural populations are myriad and diverse. For LGBTQ+ rural residents, research suggests that it can be alienating and stressful to not be accepted by one's community or to feel as though there is not a strong affinity group or support system available.[55,73,74] In most small towns and rural areas, there is less likely to be a large LGBTQ+ community to provide social and emotional support, especially during adolescence when suicide risk for this population is especially high.[75] Further, LGBTQ+ rural residents have all of the same constraints on accessing health care that all rural residents experience, including lower rates of health insurance, compared with urban residents.[76]

For farmers, most of whom live and work in rural areas, there are long-standing economic pressures and uncertainties that come with their occupation, coupled with increasing stress related to climate change, trade policies, and market consolidation.[6,77–81] Farmers also tend to have a strong culture of self-reliance, making it difficult for individuals to seek help even if such help is available.[60,82] As a result, farmers have among the highest suicide rates of any occupation, in the U.S. and in many other developed countries.[60,64,83]

Veterans disproportionately live in rural areas, compared with the general U.S. population and, veterans living in rural areas experience especially high suicide rates. Veterans overall have higher suicide rates than the U.S. population, but rural veterans have considerably higher risk of

dying by suicide than their urban counterparts.[84–87] For example, male veterans living in rural areas are 20% more likely than male veterans living in urban areas to die by suicide.[88] There are many reasons for these disparities, but research suggests that they are associated with stigma around suicide and mental health issues among rural veterans[58] and with higher rates of firearm ownership among rural veterans, compared with urban veterans.[49,84,89]

Finally, Native Americans, or Indigenous residents are another group that disproportionately lives in rural areas that experiences disparities in suicide rates, with suicide risk especially high among Native American youth.[90–93] Suicide risk in this population can be directly linked to historical trauma and discrimination, high rates of poverty and substance use, as well as structural and institutional barriers to health care, education, and economic opportunity.[90]

While rural residents in general face higher suicide risk than their urban counterparts, the above populations are especially at risk and suggest a need for tailored interventions and a variety of approaches to prevent suicide in rural areas.

Strategies to Prevent Rural Suicide

Given the wide variety of risk factors for suicide in rural areas, as well as the diversity of populations who experience disproportionately high risk of suicide, efforts to respond to and prevent suicide should be similarly multi-faceted.[94] Efforts to reduce suicide risk can also happen on many levels. These include prevention (reducing suicide risk before it emerges), intervention (addressing acute suicide risk and suicidality), and postvention (supporting survivors of suicide to reduce further risk).[95–98] And, efforts to prevent and address suicide risk can happen at the macro (e.g., policy), meso/mezzo (e.g., community, relationships), and micro (e.g., interpersonal, individual) levels.[99] Other research distinguishes between primary (e.g., reducing initial risk of suicide), secondary (e.g., reducing risk of suicide among survivors and loved ones; decreasing risk among high risk individuals), and tertiary (e.g., addressing systemic, long-term risk factors; reducing suicide contagion or clusters).[100–103]

Because there are so many risk factors for suicide in rural areas and so many levels on which to intervene, there is a wide variety of ways that rural communities and stakeholders can chose to act. These include:

- Education and support to build individual coping skills;
- School-based programming to increase support for youth
- Development of affinity groups for high-risk populations
- Increased access to crisis lines and mobile support units
- Screening for suicide risk in health care settings
- Community education and public awareness campaigns to reduce stigma and increase public knowledge about suicide risk
- Programs designed to foster social support and reduce social isolation at the community level
- Policy action to address upstream risk factors of suicide in rural areas, including firearm safety, economic stability, access to health insurance, access to broadband Internet and tele-mental health services, and increased incentives for mental health workforce in rural areas

The above list is neither comprehensive, nor will all of those options be appropriate for all communities. Instead, rural community stakeholders should be involved in deciding on the best course of action to reduce suicide in their rural area, based on their unique needs, challenges, and strengths. More information about each of the above type of intervention, as well as information about rural suicide risk and prevention in general, is available at the Rural Health Information Hub website's Rural Suicide Prevention Toolkit: https://www.ruralhealthinfo.org/toolkits/suicide

Conclusions

Rural areas face a disproportionately high risk of suicide, compared with urban areas, and suicide rates in rural areas have been trending in the wrong direction in recent decades. Within rural areas, certain populations face higher risk than others, based on socio-demographic and occupational characteristics. There are many ways to address rural suicide risk, including at the individual, community, and societal level. Ideally, intervention will happen at multiple levels and will be informed by rural community members themselves.

Workgroup Activities

At the directive of Commissioner Ann Sullivan, M.D, the OMH Suicide Prevention Center of New York convened a group of experts in suicide prevention and/or service delivery in rural areas from across the state. Dr. Carrie Henning-Smith, Deputy Director from the Rural Health Research Center at the University of Minnesota, was brought in to co-chair the workgroup along with Garra Lloyd-Lester from SPCNY. The workgroup met monthly between December 2019 and March 2020, discussing issues related to suicide risk in rural areas and strategies to better address them. The workgroup also developed and disseminated two surveys to better understand the current landscape of suicide prevention in rural NYS, one for school personnel and one for community providers. Finally, SPCNY staff conducted focus groups with behavioral health stakeholders and community members at-large in four rural counties.

Survey Data Results

School survey: A survey was distributed through the Rural Schools Association of NYS email listserv, reaching over 300 districts, and 109 completed surveys were returned. Respondents represented districts from across the state, providing a cross section of various rural communities.

More than two-thirds of respondents (69%) reported no suicide prevention programs in their districts. While 41.3% reported having an OMH-licensed school-based mental health clinic in one or more of their school buildings, only 29.5% have or are preparing to open a Department of Health-licensed school-based health center. Respondents identified mental health staff as their

most pressing need (79%) followed by training (62%) and help writing a district suicide prevention policy (21%).

Rural community provider survey: This survey was distributed through various channels including county Directors of Community Services, local area agencies on aging, local community coalitions, the NYS Association for Rural Health, and local health departments. The survey received 189 responses across 54 counties.

Respondents identified transportation, service access, crisis services, funding, and stigma most frequently as known or perceived gaps to addressing suicide risk in rural communities. Funding was by far the most mentioned support that could help respondents to better carry out their work (105 times) followed by training (22 times) and staffing (18 times).

Focus Groups

The focus groups were part of a Rural New York Mental Health Listening Tour to learn more about the unique aspects of rural communities and culture that may contribute to mental health concerns and increased risk of suicide. The tour stopped in four different counties: Columbia, Greene, Seneca, and Sullivan. Each stop of the tour consisted of two 1.5-hour focus groups. One focus group included community providers/stakeholders and the other community members at-large.

The purpose of the listening tour was to gather information on the following questions:

1. What are the main factors that contribute to increased risk of suicide in unique rural New York communities?
2. What factors contribute to positive mental health and wellbeing?
3. How do community members seek help for behavioral health concerns, and what factors influence these help-seeking preferences?
4. How can rural communities – individually and as a whole – improve availability, awareness, access, and utilization of mental health services and resources?

Overarching themes from the focus groups included stigma within close-knit communities, lack of services and limited transportation, limited awareness of services, and negative experiences when previously attempting to access services. The sessions also identified unique, county-specific issues. For example, one county described residents with unreliable transportation and a lack of basic life skills, making it especially difficult for them to gain employment. They also described a behavioral health workforce unable to meet the needs of patients with multiple-system involvement compounded by a lack of funding and few local professional development opportunities, requiring providers and gatekeepers to go out of county to receive training. Another county highlighted the challenges of a trial-and-error process of obtaining mental health services for their children and the long distances they had to travel to receive standard care. In all, the results of the focus groups suggest a need for more coordinated care, increased funding and support, and targeted, community-specific efforts.

Workgroup Recommendations

The following recommendations were developed based on a review of the surveys, focus groups, and from discussions within the workgroup. General recommendations are provided while specific recommendations are broken down into the categories of Health Care, Communities (including schools), and Data/Surveillance in order to align with the pillars of the NYS Suicide Prevention Plan *1,700 Too Many.*

➢ ***General***

1. Host community forums to learn the unique opportunities and challenges faced by residents and use this information to inform efforts
2. Develop a county or community-specific approach rather than a regional approach based on local data and issues discussed during forums to best meet the needs of residents
3. Identify key local and state agencies that can assist in efforts to address both proximal and distal factors related to suicide risk

➢ ***Health Care***

1. Support primary care behavioral health integration so that residents may have their mental health needs addressed by their primary care providers in counties and communities that lack access to behavioral health care; expand the size and scope of primary care teams*
2. Expand the use of telehealth to increase access to mental health services for community members; aim to reduce fear of privacy breach and stigma when accessing services*
3. Tailor training and service delivery protocols delivered remotely so they are culturally appropriate for rural residents
4. Provide education, training, and resources on suicide prevention to rural health care providers with an emphasis on the role they can play; educate providers on strategies to encourage patients to use Crisis Text Line and other local or national hotlines available to everyone
5. Ensure people are connected with local services or a peer after discharge from acute medical and psychiatric care
6. Encourage primary care providers to offer referrals to programs that facilitate purpose and connectedness including volunteer opportunities, club membership, continuing education, job training, and connection to mentors/mentees

- ***Communities***

1. Identify those most vulnerable or isolated and create opportunities for community connectedness and support, such as a weekly check-in chain or pen-pal program

2. Engage local businesses and organizations in a stigma reduction campaign, educate the community on mental health, and disseminate county resource maps

3. Involve the community in job readiness and life skills training to increase confidence and ability to secure stable and meaningful employment

4. Expand mobile and talk and text line services; raise awareness of the availability of these services

5. Develop and strengthen partnerships between health/behavioral health care, community-based, and rural-specific organizations (i.e. FarmNet, Cooperative Extensions, 4H, Farm Bureau)

6. Strategically identify and train rural community members and stakeholders in gatekeeper training of various intensity (i.e., 2-day ASIST vs. 90-minute QPR)

7. Develop population-specific outreach and messaging campaigns that considers rural culture and setting; identify and support specific high-risk populations including veterans, LGBTQ+, farmers, and gun owners

8. Veteran specific recommendations should align with the National Strategy for Preventing Veteran Suicide 2018-2028 and recommendations from the veterans workgroup from former Governor Cuomo's Suicide Prevention Task Force Report (see page 31)

9. Engage gun shops and the gun owning community through education and training on safe storage; encourage them to share information with customers and other gun owners

10. Develop and/or expand programs that establish connectedness and social support within a community including volunteer opportunities, clubs, events, and connections to mentors/mentees

11. Educate local media markets on how to promote dissemination of resources for rural community members including standardized messages of resilience and encouraging help seeking

12. Promote local, state, and national crisis and support lines (i.e., National Suicide Prevention Lifeline, Crisis Text Line, TrevorText, NY Project Teach Emotional Support Helpline) and increase usage by emphasizing its availability for mental health promotion and support rather than solely for crises

- **Schools**

1. Explore or develop creative transportation solutions (e.g. allowing families to utilize school transportation or other means to access health care)

2. Promote the uptake and completion of free Question, Persuade, Refer (QPR) training for members of local 4- and 2-year college communities including students, faculty, staff, and campus police

3. Support schools in implementing trauma informed skills trainings and organizing community engagement opportunities to support resiliency, increase connectedness, and reduce stigma within the community

4. Expand availability of school-based health and mental health clinics through the provision of support to rural schools in navigating the process and in incentivizing expansion

5. Disseminate the Guide for Suicide Prevention in NYS Schools and direct schools to online training modules

6. Promote the implementation of upstream prevention programs such as Sources of Strength to prevent the need for more specialized services; consider feasibility of piloting Text4Strength which extends Sources of Strength

7. Disseminate guidance documents such as Promoting Positive Mental Health in Rural Schools

- ***Data/Surveillance***

1. Develop and implement mechanisms to obtain access to actionable local suicide surveillance data. For example, county specific data from the New York State Health Connector Suicide and Self-harm Dashboard.

Putting Recommendations Into Action

The Educational Develop Center, a national technical assistance center recently highlighted examples of successful rural suicide prevention projects in a series of blog posts. Key themes that emerge are strategic planning, partnerships, using data, culturally driven prevention, and integrating the voices of individuals with lived experience around suicide. Another good source of information on effective rural suicide prevention, including examples, funding sources, and a rural suicide prevention toolkit, is the Rural Information Hub https://www.ruralhealthinfo.org/project-examples/topics/suicide-and-prevention

Implementation of many of the recommendations above is underway across the state in various forms. For more information on prevention partnerships and activities in NYS, or for technical

assistance in support of rural suicide prevention, please visit https://www.preventsuicideny.org or email spcny@omh.ny.gov

Concluding Remarks

Rural suicide is a complex problem. The confluence of a number of factors – economic, demographic, socio-cultural – put New York rural communities at elevated risk for suicide. No one solution can solve the problem. But strategic partnerships between federal, state, and local stakeholders targeting some of the common drivers of rural suicide highlighted in this report, and focused on implementation of workgroup recommendations, offer both hope and practical solutions.

REFERENCES

1. The National Institute of Mental Health (NIMH). NIMH » Suicide. https://www.nimh.nih.gov/health/statistics/suicide.shtml. Published 2018. Accessed September 21, 2018.
2. Ivey-Stephenson AZ, Crosby AE, Jack SPD, Haileyesus T, Kresnow-Sedacca M. Suicide Trends Among and Within Urbanization Levels by Sex, Race/Ethnicity, Age Group, and Mechanism of Death — United States, 2001–2015. *MMWR Surveill Summ*. 2017;66(18):1-16. doi:10.15585/mmwr.ss6618a1
3. Stone DM, Simon TR, Fowler KA, et al. Trends in State Suicide Rates — United States, 1999–2016 and Circumstances Contributing to Suicide — 27 States, 2015. *MMWR Morb Mortal Wkly Rep*. 2018;67(22):617-624. doi:10.15585/mmwr.mm6722a1
4. Behere P, Bhise M. Farmers' suicide: Across culture. *Indian J Psychiatry*. 2009;51(4):242-243. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2802368/. Accessed July 22, 2020.
5. Malmberg A, Simkin S, Hawton K. Suicide in farmers: Editorial. *Br J Psychiatry*. 1999;175(AUG.):103-105. doi:10.1192/bjp.175.2.103
6. Reed DB, Claunch DT. Risk for Depressive Symptoms and Suicide Among U.S. Primary Farmers and Family Members: A Systematic Literature Review. *Work Heal Saf*. 2020;68(5):236-248. doi:10.1177/2165079919888940
7. Masters RK, Tilstra AM, Simon DH. Explaining recent mortality trends among younger and middle-aged White Americans. *Int J Epidemiol*. July 2017. doi:10.1093/ije/dyx127
8. Stein EM, Gennuso KP, Ugboaja DC, Remington PL. The Epidemic of Despair Among White Americans: Trends in the Leading Causes of Premature Death, 1999-2015. *Am J Public Health*. August 2017:e1-e7. doi:10.2105/AJPH.2017.303941
9. Case A, Deaton A. Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *Proc Natl Acad Sci U S A*. 2015;112(49):15078-15083. doi:10.1073/pnas.1518393112
10. Steelesmith DL, Fontanella CA, Campo J V., Bridge JA, Warren KL, Root ED. Contextual Factors Associated With County-Level Suicide Rates in the United States, 1999 to 2016. *JAMA Netw open*. 2019;2(9):e1910936. doi:10.1001/jamanetworkopen.2019.10936
11. Kim K, Ozegovic D, Voaklander DC. Differences in incidence of injury between rural and urban children in Canada and the USA: a systematic review. *Inj Prev*. 2012;18(4):264-271. doi:10.1136/injuryprev-2011-040306
12. Hirsch JK. A review of the literature on rural suicide: Risk and protective factors, incidence, and prevention. *Crisis*. 2006;27(4):189-199. doi:10.1027/0227-5910.27.4.189
13. Rossen LM, Hedegaard H, Khan D, Warner M. County-Level Trends in Suicide Rates in the U.S., 2005–2015. *Am J Prev Med*. 2018;55(1):72-79. doi:10.1016/j.amepre.2018.03.020
14. Centers for Disease Control and Prevention National Center for Health Statistics. Stats of the State - Suicide Mortality. Stats of the States. https://www.cdc.gov/nchs/pressroom/sosmap/suicide-mortality/suicide.htm. Published April 29, 2020. Accessed August 7, 2020.
15. Andrews M. Among U.S. States, New York's Suicide Rate Is The Lowest. How's That? *Kaiser Heal News*. December 2019. https://khn.org/news/among-u-s-states-new-yorks-suicide-rate-is-the-lowest-hows-that/. Accessed August 7, 2020.
16. New York State Department of Health. NYS Health Connector - Suicides in New York State. https://nyshc.health.ny.gov/web/nyapd/suicides-in-new-york. Published 2018. Accessed August 7, 2020.
17. Garcia MC. Reducing Potentially Excess Deaths from the Five Leading Causes of Death in the Rural United States. *MMWR Surveill Summ*. 2017;66. doi:10.15585/MMWR.SS6602A1
18. USDA. USDA ERS - Income. https://www.ers.usda.gov/topics/rural-economy-

population/rural-poverty-well-being/income/. Published 2016. Accessed April 11, 2017.
19. USDA ERS - Poverty Demographics. https://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/poverty-demographics/. Accessed April 7, 2017.
20. Henning-Smith C, Kozhimannil K, Casey M, Prasad S, Moscovice I. Rural-Urban Differences in Medicare Quality Outcomes and the Impact of Risk Adjustment. *Med Care*. 2017;55(9):823-829. doi:10.1097/MLR.0000000000000761
21. Henning-Smith C, Prasad S, Casey M, Kozhimannil K, Moscovice I. Rural-Urban Differences in Medicare Quality Scores Persist After Adjusting for Sociodemographic and Environmental Characteristics. *J Rural Heal*. September 2017. doi:10.1111/jrh.12261
22. Myers A, Greiman L, von Reichert C, Seekins T. *Rural Matters: The Geography of Disability in Rural America - RTC:Rural*.; 2016. http://rtc.ruralinstitute.umt.edu/research-findings/geography/. Accessed May 2, 2017.
23. Meit M, Knudson A, Gilbert T, et al. *The 2014 Update of the Rural-Urban Chartbook*. Bethesda, MD: Rural Health Reform Policy Research Center; 2014. http://worh.org/sites/default/files/2014-rural-urban-chartbook.pdf.
24. Grzybowski S, Stoll K, Kornelsen J. Distance matters: a population based study examining access to maternity services for rural women. *BMC Health Serv Res*. 2011;11(1):147. doi:10.1186/1472-6963-11-147 [doi]
25. Chan L, Hart LG, Goodman DC. Geographic Access to Health Care for Rural Medicare Beneficiaries. *J Rural Heal*. 2006;22(2):140-146. doi:10.1111/j.1748-0361.2006.00022.x
26. Henning-Smith C, Johnson M. Mental Health in Rural Communities Toolkit . Rural Health Information Hub. https://www.ruralhealthinfo.org/toolkits/mental-health. Published December 2019. Accessed August 7, 2020.
27. Gamm LG, Stone S, Pittman S. Mental health and mental disorders-a rural challenge: A literature review. In: *Rural Healthy People 2010: A Companion Document to Healthy People 2020*. Volume 2. College Station, TX: The Texas A&M University System Health Science Center, School of Public Health; 2003. https://www.researchgate.net/publication/255683562. Accessed October 24, 2018.
28. Health Resources & Services Administration (HRSA) Bureau of Health Workforce. Health Professional Shortage Areas (HPSAs) . https://bhw.hrsa.gov/shortage-designation/hpsas. Accessed August 7, 2020.
29. The U.S. Senate Committee on Health EL& P. The Health Care Workforce: Addressing Shortages and Improving Care. Presented at the: May 22, 2018. https://www.help.senate.gov/hearings/the-health-care-workforce-addressing-shortages-and-improving-care. Accessed August 7, 2020.
30. Thomas KC, Ellis AR, Konrad TR, Holzer CE, Morrissey JP. County-level estimates of mental health professional shortage in the United States. *Psychiatr Serv*. 2009;60(10):1323-1328. doi:10.1176/ps.2009.60.10.1323
31. Rural Health Information Hub. Map of Health Professional Shortage Areas: Mental Health, by County, 2019. 2020. https://www.ruralhealthinfo.org/charts/7. Accessed August 7, 2020.
32. Research UNCCGSC for HS. 66 Rural Hospital Closures: January 2010 - Present. http://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/.
33. Douthit N, Kiv S, Dwolatzky T, Biswas S. Exposing some important barriers to health care access in the rural USA. *Public Health*. 2015;129(6):611-620. doi:10.1016/j.puhe.2015.04.001 [doi]
34. Cheeseman Day J. *Health Insurance in Rural America*.; 2019. https://www.census.gov/library/stories/2019/04/health-insurance-rural-america.html. Accessed August 12, 2020.
35. Henning-Smith C, Kozhimannil KB, Casey MM, Prasad S. Beyond Clinical Complexity: Nonmedical Barriers to Nursing Home Care for Rural Residents. *J Aging Soc Policy*. 2018;30(2):109-126. doi:10.1080/08959420.2018.1430413

36. Henning-Smith C. The Public Health Case for Addressing Transportation-Related Barriers to Care. *Am J Public Health*. 2020;110(6):763-764. doi:10.2105/AJPH.2020.305638
37. Henning-Smith C, Evenson A, Kozhimannil K, Moscovice I. Geographic variation in transportation concerns and adaptations to travel-limiting health conditions in the United States. *J Transp Heal*. November 2017. doi:10.1016/j.jth.2017.11.146
38. Henning-Smith C, Evenson A, Corbett A, Kozhimannil K, Moscovice I. *Rural Transportation: Challenges and Opportunities | The University of Minnesota Rural Health Research Center*. Minneapolis, MN; 2018. https://rhrc.umn.edu/publication/rural-transportation-challenges-and-opportunities/. Accessed January 28, 2019.
39. Henning-Smith C, Ecklund A, Lahr M, Evenson A, Moscovice I, Kozhimannil KB. *Key Informant Perspectives on Rural Social Isolation*. Minneapolis, MN; 2019. https://rhrc.umn.edu/publication/key-informant-perspectives-on-rural-social-isolation-and-loneliness/.
40. Henning-Smith C, Moscovice I, Kozhimannil K. Differences in Social Isolation and Its Relationship to Health by Rurality. *J Rural Heal*. January 2019. doi:10.1111/jrh.12344
41. Kaur H. Why rural Americans are having a hard time working from home. *CNN*. April 2020. https://www.cnn.com/2020/04/29/us/rural-broadband-access-coronavirus-trnd/index.html. Accessed May 6, 2020.
42. Prieger JE. The broadband digital divide and the economic benefits of mobile broadband for rural areas. *Telecomm Policy*. 2013;37(6):483-502. doi:10.1016/j.telpol.2012.11.003
43. Whitacre BE, Wheeler D, Landgraf C. What Can the National Broadband Map Tell Us About the Health Care Connectivity Gap? *J Rural Heal*. 2017;33(3):284-289. doi:10.1111/jrh.12177
44. Street 1615 L., Washington S 800, Inquiries D 20036 U 419 4300 | M 419 4349 | F 419 4372 | M. *Internet/Broadband Fact Sheet*.; 2017.
45. Matthews KA, Croft JB, Liu Y, et al. Health-Related Behaviors by Urban-Rural County Classification — United States, 2013. *MMWR Surveill Summ*. 2017;66(5):1-8. doi:10.15585/mmwr.ss6605a1
46. Weaver KE, Palmer N, Lu L, Case LD, Geiger AM. Rural-urban differences in health behaviors and implications for health status among US cancer survivors. *Cancer Causes Control*. 2013. doi:10.1007/s10552-013-0225-x
47. Erwin PC. Despair in the American Heartland? A Focus on Rural Health. *Am J Public Health*. 2017;107(10):1533-1534. doi:10.2105/AJPH.2017.304029
48. Kellermann AL, Rivara FP, Somes G, et al. Suicide in the Home in Relation to Gun Ownership. *N Engl J Med*. 1992;327(7):467-472. doi:10.1056/NEJM199208133270705
49. Cleveland EC, Azrael D, Simonetti JA, Miller M. Firearm ownership among American veterans: findings from the 2015 National Firearm Survey. *Inj Epidemiol*. 2017;4(1):1-10. doi:10.1186/s40621-017-0130-y
50. Nestadt PS, Triplett P, Fowler DR, Mojtabai R. Urban-Rural Differences in Suicide in the State of Maryland: The Role of Firearms. *Am J Public Health*. 2017;107(10):1548-1553. doi:10.2105/AJPH.2017.303865
51. Boffa JW, Houtsma C, Raines AM, et al. Rural suicide prevention in response to COVID-19: Failing to prepare is preparing to fail. *J Rural Ment Heal*. 2020;44(3):143-145. doi:10.1037/rmh0000146
52. Connor SM. The association between presence of children in the home and firearm-ownership and -storage practices. *Pediatrics*. 2005;115(1):e38-e43. doi:10.1542/peds.2004-1105
53. Brenes GA, Danhauer SC, Lyles MF, Hogan PE, Miller ME. Barriers to Mental Health Treatment in Rural Older Adults. *Am J Geriatr Psychiatry*. 2015;23(11):1172-1178. doi:10.1016/j.jagp.2015.06.002
54. Jones AR, Cook TM, Wang J. Rural–urban differences in stigma against depression and

agreement with health professionals about treatment. *J Affect Disord*. 2011;134(1-3):145-150. doi:10.1016/J.JAD.2011.05.013

55. Lyons A, Hosking W, Rozbroj T. Rural-Urban Differences in Mental Health, Resilience, Stigma, and Social Support Among Young Australian Gay Men. *J Rural Heal*. 2015;31(1):89-97. doi:10.1111/jrh.12089
56. Shoveller J, Johnson J, Prkachin K, Patrick D. "Around here, they roll up the sidewalks at night": A qualitative study of youth living in a rural Canadian community. *Health Place*. 2007;13(4):826-838. doi:10.1016/J.HEALTHPLACE.2007.01.004
57. Stark CR, Riordan V, O'connor R. *A Conceptual Model of Suicide in Rural Areas Stark CR, Riordan V, O'Connor R A Conceptual Model of Suicide in Rural Areas*. Vol 11.; 2011. http://www.rrh.org.au. Accessed August 12, 2020.
58. Monteith LL, Smith NB, Holliday R, Dorsey Holliman BA, LoFaro CT, Mohatt N V. "We're Afraid to Say Suicide." *J Nerv Ment Dis*. 2020;208(5):371-376. doi:10.1097/nmd.0000000000001139
59. Bartik W, Maple M, McKay K. Suicide bereavement and stigma for young people in rural Australia: A mixed methods study. *Adv Ment Heal*. 2015;13(1):84-95. doi:10.1080/18374905.2015.1026301
60. Bryant L, Garnham B. The fallen hero: masculinity, shame and farmer suicide in Australia. *Gender, Place Cult*. 2015;22(1):67-82. doi:10.1080/0966369X.2013.855628
61. Henning-Smith C, Hernandez A, Lahr M. *Rural-Urban Differences in Access to and Attitudes Toward Care for Medicare Beneficiaries*. Minneapolis, MN; 2019. https://rhrc.umn.edu/publication/rural-urban-differences-in-access-to-and-attitudes-toward-care-for-medicare-beneficiaries/. Accessed December 13, 2019.
62. Schneider B. Substance use disorders and risk for completed suicide. *Arch Suicide Res*. 2009;13(4):303-316. doi:10.1080/13811110903263191
63. Reynders A, Kerkhof • A J F M, Molenberghs • G, Van Audenhove • C. Attitudes and stigma in relation to help-seeking intentions for psychological problems in low and high suicide rate regions. doi:10.1007/s00127-013-0745-4
64. Judd F, Jackson H, Fraser C, Murray G, Robins G, Komiti A. Understanding suicide in Australian farmers. *Soc Psychiatry Psychiatr Epidemiol*. 2006;41(1):1-10. doi:10.1007/s00127-005-0007-1
65. Czyz EK, Horwitz AG, Eisenberg D, Kramer A, King CA. Self-reported Barriers to Professional Help Seeking Among College Students at Elevated Risk for Suicide. *J Am Coll Heal*. 2013;61(7):398-406. doi:10.1080/07448481.2013.820731
66. Rudd MD, Joiner TE, Rajab MH. Help Negation After Acute Suicidal Crisis. *J Consult Clin Psychol*. 1995;63(3):499-503. doi:10.1037/0022-006X.63.3.499
67. Calear AL, Batterham PJ. Suicidal ideation disclosure: Patterns, correlates and outcome. *Psychiatry Res*. 2019;278:1-6. doi:10.1016/j.psychres.2019.05.024
68. Stern MJ, Adams AE, Boase J. *Rural Community Participation, Social Networks, and Broadband Use: Examples from Localized and National Survey Data*. Vol 40.; 2011. doi:10.22004/AG.ECON.117769
69. Crouch E, Radcliff E, Merrell MA, Bennett KJ. Rural-Urban Differences in Positive Childhood Experiences Across a National Sample. *J Rural Heal*. July 2020:jrh.12493. doi:10.1111/jrh.12493
70. Chalfant HP, Heller PL. Rural/Urban versus Regional Differences in Religiosity. *Rev Relig Res*. 1991;33(1):76. doi:10.2307/3511262
71. NC State University Institute for Emerging Issues. Rural Faith Communities Play Anchoring Role. https://iei.ncsu.edu/2018/rural-faith-communities-as-anchor-institutions/. Published March 28, 2018. Accessed August 12, 2020.
72. Henning-Smith CE, Hernandez AM, Hardeman RR, Ramirez MR, Kozhimannil KB. Rural Counties With Majority Black Or Indigenous Populations Suffer The Highest Rates Of

Premature Death In The US. *Health Aff*. 2019;38(12):2019-2026. doi:10.1377/hlthaff.2019.00847
73. Swank E, Frost DM, Fahs B. Rural location and exposure to minority stress among sexual minorities in the United States. *Psychol Sex*. 2012;3(3):226-243. doi:10.1080/19419899.2012.700026
74. Rosenkrantz DE, Black WW, Abreu RL, Aleshire ME, Fallin-Bennett K. Health and health care of rural sexual and gender minorities: A systematic review. *Stigma Heal*. 2016. doi:10.1037/sah0000055
75. Movement Advancement Project. *How Educators & Schools Can Support LGBT Youth in Rural Communities*.; 2019. www.lgbtmap.org/equality-maps. Accessed August 12, 2020.
76. Fisher CM, Irwin JA, Coleman JD. LGBT Health in the Midlands: A Rural/Urban Comparison of Basic Health Indicators. *J Homosex*. 2014;61(8):1062-1090. doi:10.1080/00918369.2014.872487
77. Onwuameze OE, Paradiso S, Peek-Asa C, Donham KJ, Rautiainen RH. Modifiable risk factors for depressed mood among farmers. *Ann Clin Psychiatry*. 2013;25(2):83-90. http://www.ncbi.nlm.nih.gov/pubmed/23638438. Accessed October 29, 2018.
78. Braun B. *Farm Family Stressors: Private Problems, Public Issue*. Saint Paul, MN; 2019. https://www.ncfr.org/resources/research-and-policy-briefs/farm-family-stressors-private-problems-public-issue. Accessed July 22, 2020.
79. Rudolphi JM, Berg RL, Parsaik A. Depression, Anxiety and Stress Among Young Farmers and Ranchers: A Pilot Study. *Community Ment Health J*. 2020;56(1):126-134. doi:10.1007/s10597-019-00480-y
80. Ortega ST, Johnson DR, Beeson PG, Craft BJ. The Farm Crisis and Mental Health: A Longitudinal Study of the 1980s1. *Rural Sociol*. 2010;59(4):598-619. doi:10.1111/j.1549-0831.1994.tb00550.x
81. Stoneman Z, Jinnah HA. Stress on the farm: Father stress and its association with the unsafe farm behaviors of youth. *J Rural Ment Heal*. 2015;39(2):73-80. doi:10.1037/rmh0000026
82. Hull MJ, Fennell KM, Vallury K, Jones M, Dollman J. A comparison of barriers to mental health support-seeking among farming and non-farming adults in rural South Australia. *Aust J Rural Health*. 2017;25(6):347-353. doi:10.1111/ajr.12352
83. Peterson C, Stone DM, Marsh SM, et al. Suicide Rates by Major Occupational Group — 17 States, 2012 and 2015. *MMWR Morb Mortal Wkly Rep*. 2018;67(45):1253-1260. doi:10.15585/mmwr.mm6745a1
84. Mohatt N V., Billera M, Demers N, Monteith LL, Bahraini NH. A menu of options: Resources for preventing veteran suicide in rural communities. *Psychol Serv*. 2018;15(3):262-269. doi:10.1037/ser0000203
85. Monteith LL, Wendleton L, Bahraini NH, Matarazzo BB, Brimner G, Mohatt N V. Together With Veterans: VA National Strategy Alignment and Lessons Learned from Community-Based Suicide Prevention for Rural Veterans. *Suicide Life-Threatening Behav*. 2020;50(3):588-600. doi:10.1111/sltb.12613
86. Kaplan MS, McFarland BH, Huguet N, Valenstein M. Suicide risk and precipitating circumstances among young, middle-aged, and older male veterans. *Am J Public Health*. 2012;102 Suppl 1(S1):S131-7. doi:10.2105/AJPH.2011.300445
87. York JA, Lamis DA, Pope CA, Egede LE. Veteran-specific suicide prevention. *Psychiatr Q*. 2013;84(2):219-238. doi:10.1007/s11126-012-9241-3
88. Britton PC, Bohnert KM, Ilgen MA, Kane C, Stephens B, Pigeon WR. Suicide mortality among male veterans discharged from Veterans Health Administration acute psychiatric units from 2005 to 2010. *Soc Psychiatry Psychiatr Epidemiol*. 2017;52(9):1081-1087. doi:10.1007/s00127-017-1377-x
89. McCarthy JF, Blow FC, Ignacio R V., Ilgen MA, Austin KL, Valenstein M. Suicide among

patients in the Veterans Affairs health system: Rural-urban differences in rates, risks, and methods. *Am J Public Health*. 2012;102(SUPPL. 1):S111-S117. doi:10.2105/AJPH.2011.300463
90. Gray JS, McCullagh JA. Suicide in Indian country: The continuing epidemic in rural Native American communities. *J Rural Ment Heal*. 2014;38(2):79-86. doi:10.1037/rmh0000017
91. Philip J, Ford T, Henry D, Rasmus S, Allen J. Relationship of Social Network to Protective Factors in Suicide and Alcohol Use Disorder Intervention for Rural Yup'ik Alaska Native Youth. *Psychosoc Interv*. 2016;25(1):45-54. doi:10.1016/j.psi.2015.08.002
92. Wexler L, Chandler M, Gone JP, et al. Advancing Suicide Prevention research with rural American Indian and Alaska Native populations. *Am J Public Health*. 2015;105(5):891-899. doi:10.2105/AJPH.2014.302517
93. Dorgan BL. The tragedy of native american youth suicide. *Psychol Serv*. 2010;7(3):213-218. doi:10.1037/a0020461
94. Henning-Smith C, Pick M. *Rural Suicide Prevention Toolkit*.; 2019. https://www.ruralhealthinfo.org/toolkits/suicide.
95. Clark SE, Goldney RD. The Impact of Suicide Relatives and Friends on. In: Hawton K, van Heeringen K, eds. *The Lnternational Handbook of Suicide and Attempted Suicide*. John Wiley & Sons, Ltd. ; 2000:467-484. https://onlinelibrary.wiley.com/doi/pdf/10.1002/9780470698976.ch26. Accessed September 21, 2018.
96. Cox GR, Robinson J, Williamson M, Lockley A, Cheung YTD, Pirkis J. Suicide clusters in young people. *Crisis*. 2012;33(4):208-214. doi:10.1027/0227-5910/a000144
97. Grollman E. *Suicide: Prevention, Intervention, Postvention*. Beacon Press; 1988. https://books.google.com/books?id=WgL03UHQ5OAC&dq=suicide+prevention+postvention+rural&lr=&source=gbs_navlinks_s. Accessed August 13, 2020.
98. Aguirre RTP, Slater H. Suicide postvention as suicide prevention: Improvement and expansion in the United States. *Death Stud*. 2010;34(6):529-540. doi:10.1080/07481181003761336
99. Maple M, Pearce T, Sanford RL, Cerel J. The Role of Social Work in Suicide Prevention, Intervention, and Postvention: A Scoping Review. *Aust Soc Work*. 2017;70(3):289-301. doi:10.1080/0312407X.2016.1213871
100. Ganz D, Braquehais MD, Sher L. Secondary prevention of suicide. *PLoS Med*. 2010;7(6). doi:10.1371/journal.pmed.1000271
101. King KA. Developing a Comprehensive School Suicide Prevention Program. *J Sch Health*. 2001;71(4):132-137. doi:10.1111/j.1746-1561.2001.tb01310.x
102. Caldwell D. The Suicide Prevention Continuum. *Pimatisiwin*. 2008;6(2):145-153. http://www.ncbi.nlm.nih.gov/pubmed/20835376. Accessed August 13, 2020.
103. Georgia Tech Division of Student Life. Levels of Prevention | End Suicide. https://endsuicide.gatech.edu/content/levels-prevention. Accessed August 13, 2020.