

Society of behavioral medicine statement on COVID-19 and rural health

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Abstract

This position statement provides researchers, practitioners, and policymakers an overview of pre-existing and COVID-related rural health inequities in the United States (U.S.) and how they have been exacerbated by the COVID-19 pandemic. “Health deserts,” defined as “large areas with inadequate or nonexistent medical and trauma facilities,” are common in rural regions of the U.S. While telehealth could address some of these health-related inequities, significant gaps in broadband Internet availability are also common in these more remote areas. The Society of Behavioral Medicine urges Congress to authorize increased funding to rural healthcare facilities and staffing, along with the development of enhanced broadband Internet infrastructure. In addition, incentivizing rural healthcare systems to deliver value-based care could enhance their capacity to implement population health and behavioral health strategies. To stem the spread of COVID-19 in higher-risk rural-based industries (e.g., food processing plants), SBM urges Congress to require the Occupational Safety and Health Administration (OSHA) to routinely inspect for and enforce COVID-19 mitigation procedures, such as provision of effective Personal Protective Equipment (PPE) to all front-line workers and consistent implementation of standardized testing and social distancing advisories. The context of rural communities underscores the importance of tailored approaches to mitigate rural health inequities and promote the well-being of rural residents.

Keywords

COVID-19, Rural health, Health disparities, Health policy

INTRODUCTION

According to the United States (U.S.) Census Bureau [1] (2017), approximately one in five Americans live in rural areas. While the operational definition of “rural” may vary by federal, state, and local agencies, rurality is multidimensional, is typically defined based on geographic and/or population density criteria [2–4], and is characterized by small population size, low population density, and/or remoteness [5]. Rural areas are comprised predominantly of non-Hispanic white residents [80%] [6–8], though many rural areas are becoming more diverse (e.g., Latinx [9%], African Americans [8%], Native American [2%], and Asian and Pacific Islanders [1% and 0.1%]) [9]. Poverty rates are higher among rural (16.1%) versus urban residents (12.6%), with rural Black Americans and Native Americans/Alaska Natives having the highest poverty rates [10].

Implications

Research: Researchers should expand COVID-related data collection efforts by investing in online and mobile-based research to expand data monitoring and intervention delivery to rural populations and the infrastructure to support such studies (e.g., expansion of internet coverage).

Practice: To stem the spread of disease, the Occupational Safety and Health Administration (OSHA) should routinely inspect and enforce COVID-19 mitigation procedures, such as provision of effective Personal Protective Equipment (PPE) to all front-line workers and consistent implementation of standardized testing and social distancing strategies.

Policy: To address the dangerous health risks and outcomes of the novel corona virus, the Society of Behavioral Medicine urges Congress to authorize increased funding of rural healthcare facilities and staffing, along with expanding enhanced broadband Internet infrastructure into insufficiently serviced rural areas.

As of July 30, 2020, rural areas reported increased prevalence rates of COVID-19 in the U.S., with the Southeast (12.7%) and South Central U.S. (14.4%) incurring some of the highest per capita positive test rates in the U.S. [11]. The Great Lakes, Midwest, Southeast Coast, and the West also report elevated rates of COVID-19 prevalence [12]. Furthermore, as of October 14, 2020, high U.S. per capita rates of COVID-19 were found in North and South Dakota, Montana, Utah, Nebraska, Iowa, Idaho, Wyoming, Montana, Arkansas, and Oklahoma—all states with swaths of remote rural areas [13].

While urban areas report more total COVID-19 cases, proportionally the incidence rate is higher in rural regions of the U.S. [14]. Because of the high rates of risk factors for severe COVID-19 illness in rural populations, specifically older age (60 and older), and younger adults with heart disease, cancer, chronic obstructive pulmonary disease (COPD), or diabetes, it is projected that 50% of

noninstitutionalized rural adults are at high risk for hospitalization and serious illness if they are infected with COVID-19, compared to 46.9% and 40% of micropolitan and metropolitan adults, respectively [15]. While similar rates of asthma have been found in rural versus urban areas (e.g., Ownby et al. [16]), hypertension [17], and obesity and overweight [18] are found to be more common in rural than urban areas. The Centers for Disease Control (CDC) also recently added asthma, hypertension, and obesity and overweight to risk factors for severe COVID-19 illness [19].

Rural populations are uniquely at risk for COVID-19-related inequities for a variety of reasons. First, rural populations are on average, older, poorer, and have higher age-adjusted rates of underlying chronic conditions (e.g., obesity, diabetes, cancer, and respiratory illnesses) and disabilities than non-rural populations in the U.S. [20–24].

Second, occupation is a major social determinant of respiratory illness in rural residents. This risk factor is particularly true for jobs in rural industries such as coal mining, farming, and food processing. Approximately 3.6% of rural Americans [25]—51,000 mostly male residents [26] from central Appalachia (e.g., Kentucky, Virginia, and West Virginia) [27]—work in the coal mining industry. Due to coal dust inhalation [28], miners disproportionately suffer from lung diseases, notably coal workers pneumoconiosis (CWP), commonly known as “black lung disease” or simply, “black lung” [27]. While there is insufficient tracking of COVID-19 related morbidity and mortality in coal miners [29], these lung diseases are risk factors for COVID-19 diagnoses and complications. The seriousness of COVID-19 and its threats to health prompted the United Mine Workers of America International Union to sue the Mine Safety and Health Administration, U.S. Department of Labor to adopt legally enforceable rules and procedures (e.g., adequate PPE and social distancing) to protect miners from COVID-19 transmission [30]. Exposures to pesticides and fungicides, commonly used in the farming industry, are also associated with compromised lung functioning [31]. The respiratory conditions resulting from prolonged occupational exposure to toxins place many rural residents (primarily males) at higher risk for COVID-19 complications, if infected.

Rural areas also house many agricultural and food-processing industries in the U.S. Working in these industries poses further risk of COVID-19 infection due to close physical proximity in working conditions and the nature of this work, which rules out remote work options for most employees. Major COVID-19 outbreaks have been reported in multiple rural-based food industries, such as meat packing plants [32]. Hence, in areas where these rural industries exist, there is the risk of accelerated and rapid community spread of the coronavirus [33].

Third, the healthcare infrastructure of rural communities is often limited. Many rural hospitals are less equipped and less accessible than their non-rural counterparts [34, 35]. Many rural communities are characterized as “hospital deserts” (located 30–50 miles away from the nearest hospital center), impacting an estimated 16% of the population [35]. Lack of healthcare access ultimately limits access to care for rural populations, making delayed or foregoing of care a concern. With respect to COVID-19, many rural counties in the U.S. lack intensive care unit (ICU) beds [36]. Rural hospitals also often lack adequate personal protection equipment (PPE) and COVID-19 test kits to meet demands [37]. Insufficient testing for COVID-19 in rural areas subsequently leads to underreporting of disease prevalence, which can inadvertently promote the relaxation of COVID-19 virus prevention, testing, and mitigation efforts [38].

Fourth, rural hospitals have been closing at alarming rates (172 closures since 2005, with another 700 hospitals currently at risk for closing) due to systemic and ongoing factors. Factors for rural hospital closures include rising costs, revenue pressures, and the complications involved in caring for an older, sicker patients who require enhanced health and social services. Moreover, challenges in hiring and retaining providers in remote areas [39, 40] are an ongoing concern. Also contributing to rising costs are state variations in Medicaid expansion. For example, states that did not participate in Medicaid expansion programs increased rural hospitals’ burden of caring for uninsured populations compared to states that expanded coverage [41]. Finally, most rural hospitals have limited value-based or quality-based reimbursement mechanisms in place [42], which poses a barrier to implement social, behavioral, or population health initiatives that are critical during COVID-19.

Limitations on elective surgeries, physical therapy, and lab tests may further threaten the financial solvency of some rural area hospitals and clinics [43] and their ability to respond to crises, such as the ongoing COVID-19 pandemic. According to the National Rural Health Association [44], cashflow, inadequate supplies and tests, staff (especially Emergency Medical Services [EMS] shortages), workforce shortages, telehealth waivers, critical access hospital waivers, and needs for loan forbearance emerge as “grave” concerns facing rural healthcare systems. Combined with limited numbers of hospital and ICU beds and ventilators, limited access to tertiary support, and the limited number of physicians qualified to manage ICU patients, rural hospitals and clinics are severely restricted in their ability to treat COVID-19 patients. Altogether, rural populations are particularly vulnerable to COVID-19 infection, morbidity, and mortality and in need of strategic interventions to mitigate rural-based inequities that are emerging during this pandemic.

ADDRESSING RURAL HEALTH INEQUITIES IN COVID-19: RESEARCH, POLICY, AND PRACTICE IMPLICATIONS

Research

Social and behavioral science plays a central role in monitoring as well as mitigating health inequities, including those related to COVID-19. Unfortunately, sparsely populated small towns and remote areas of the U.S. are sometimes not well suited to traditional research models. Logistical barriers in communication and time required to travel long distances [23] pose major measurement challenges that lead to a lack of high-quality research on health outcomes among rural populations. The usefulness of existing models for evaluating rural healthcare outcomes is currently under debate [45]. Synthesizing health outcome measures across rural healthcare systems has also proved difficult due to low patient volume [46] and subsequently inadequate power to produce statistically significant results [45].

Recommendations for health services research

Tracking relevant quality measures across hospitals and healthcare systems could improve quality of rural healthcare and reimbursement for rural providers [46]. There is tremendous value in investing in online and mobile-based research to expand data monitoring and intervention delivery to rural populations and the infrastructure to support such studies (e.g., expansion of internet coverage). Efforts that harness existing technology and networks can facilitate COVID and non-COVID-related research in rural areas. The evaluation of these expanded intervention delivery methods by health services researchers will be critical for assessing the accessibility and effectiveness of these platforms for rural populations.

Policy and practice

From implementing social distancing and quarantine requirements to travel restrictions and business and school closings, public health policy dominates the management of this pandemic. However, public policies can reflect and even exacerbate social inequities. The policy recommendations below identify strategies to facilitate healthcare delivery to rural patients during the COVID-19 pandemic, as well as address long-term healthcare needs of rural populations.

Short-term recommendations

- **Increase OSHA inspections for rural industry COVID mitigation policies and practices.** To better protect the health of essential “front line” employees, especially those working in rural health industries such as coal mining [29] and food processing [32], OSHA should conduct inspections to ensure that employers implement COVID-19-related safety policies and practices, such as regular testing, enforced social distancing,

and the provision of effective PPE for all front line employees [47].

- **Fund, develop, and implement systematic widespread rural COVID-related outreach, testing, and treatment.** Congress should prioritize the funding, development, and implementation of widespread affordable, accessible, culturally appropriate and systematic health-related outreach [48], including ramping up rural healthcare systems’ capacity for COVID-19 testing and treatment, specifically targeting underrepresented and marginalized rural areas. Additionally, COVID-19 outreach and education should directly address misinformation and misperceptions regarding COVID-19 (e.g., the validity and risk of the virus, prevention through health behaviors such as handwashing, social distancing, and wearing masks). Restoration in funding and/or the equivalent of expected patient reimbursements to smaller, community-centric health delivery systems such as Community Based Health Clinics, family practices [49–52], and School-Based Health Centers [53] can facilitate their reopening and operations as safely as possible.

Long-term recommendations

- **Bridge broadband gaps in Internet coverage.** Lack of broadband and Internet connectivity is an ongoing and serious problem in rural communities [54–56]. Expansion of these services can increase opportunities for occupational telecommuting and telecommunication [54] and promote access to medical telehealth [57] and online education [54] at primary, secondary, and postsecondary levels [56, 58]. To address pre-existing gaps in Internet broadband availability [59] and restrictions in Internet access due to COVID-19 related closures of businesses, schools, and libraries [60], local, state, and federal governments should provide more affordable and accessible internet access [57]. Ongoing pilot programs such as the USDA Rural eConnectivity Pilot Program (aka ReConnect [61]) could be enlisted and expanded by:
 - o Removing eligibility restrictions to allow all rural areas experiencing gaps in Internet access and broadband service less than 25/3 Mbps in all service areas to be eligible to apply for funding.
 - o Providing additional funding in a reauthorization of the Consolidated Appropriations Act, 2018, to transition this program from a pilot to a national program.
 - o Providing technical assistance and educational outreach to inform rural communities and service providers about this infrastructure building opportunity. Providing free or low-cost computers or tablet and access to training on how to use these devices to vulnerable populations, such as low-income families or individuals who lost their jobs.
- **Invest in and develop flexible and affordable strategies for healthcare delivery that position rural healthcare systems for success.** Innovative healthcare delivery strategies that minimize administrative burden (e.g., implemented through CMS)

should be prioritized, particularly for rural communities lacking healthcare providers or clinics and for rural hospitals already stretched thin with administrative burdens. The development of flexible and affordable healthcare delivery options that are adaptive to the current circumstances and that harness existing technology (e.g., mobile clinics) can bridge health disparities experienced by “hospital deserts” [62–64]. Recent examples from rural practices spanning the U.S. include creating and expanding telehealth services to settings that do not have health clinics, expansion of drive-through testing, offering curbside lab services and health care, and provision of behavioral online support groups [65]. Finally and critically, allowing rural (and all) healthcare systems to bill for telehealth services in the short- and long-term expands the capacity of such systems to deliver care and reach additional, harder-to-reach segments of the population.

CONCLUSIONS

Targeting COVID-19 inequities experienced by rural populations in the U.S. requires an understanding of the unique factors that shape rural health and rural healthcare systems’ capacity to manage a pandemic. Increasing funding for rural healthcare facilities, staffing, and capacity for COVID-19 testing and enhancing broadband Internet infrastructure are vital to mitigate the impact of COVID-19 in rural areas. Implementing consistent OSHA inspections and enforcing COVID-19 mitigation procedures, such as provision of effective PPE and enactment of standardized testing and social distancing measures, is paramount to protect the health of the rural workforce in higher risk industries (e.g., food processing). Finally, incentivizing rural healthcare systems to deliver value-based care will increase the capacity of such systems to prioritize and implement population health strategies. Altogether, these recommendations are critical for the successful implementation and evaluation of policy and behavioral interventions that are central to protecting the well-being of rural residents during and following a pandemic.

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Compliance with Ethical Standards

Conflicts of Interest Pamela Behrman, Marian Fitzgibbon, Akilah Dulin, Monica Wang, and Monica Baskin declare they have no conflicts of interest.

Ethical Standards This manuscript is not being simultaneously submitted elsewhere. All procedures were conducted in accordance with ethical standards.

Human Rights This article does not contain studies with human participants. This article does not involve human participants and informed consent was therefore not required.

Welfare of Animals This article does not contain studies with animals. In June 2020, a shorter version of this manuscript was posted, in policy brief format, on the Society of Behavioral Medicine website and on Society of Behavioral Medicine’s Twitter and Facebook pages. The authors have full control of the entire content of this manuscript and allow the journal to review the information and sources.

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