

# Rural America and Coronavirus Epidemic: Challenges and Solutions

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## ABSTRACT

There are emerging concerns about the preparedness of rural communities in the United States in the face of the 2019 novel coronavirus (called SARS-CoV-2, causing the disease COVID-19) considering the existing disparities across the social determinants of health between rural and urban Americans. Taking into account the current exponential rate of spread of the coronavirus, this article critically examines the risk facing the 60 million Americans living in rural areas, discusses possible solutions pertaining to rural COVID-19 prevention, and examines measures to consider to prepare for this epidemic before it reaches rural areas.

**Keywords:** Coronavirus, COVID-19, rural area, social determinants of health

## INTRODUCTION

The World Health Organization recognized the 2019 novel coronavirus (called SARS-CoV-2, causing the disease COVID-19) as a public health emergency of international concern on January 30, 2020 before declaring it as a pandemic on March 11, 2020 (WHO, 2020). As of April 9, 2020, 1,577,783 confirmed COVID-19 cases and 93,673 deaths have been reported worldwide. A total of 455,454 confirmed COVID-19 cases were reported in the United States with 16,114 deaths (Centers for Disease Control, 2020). Persons with underlying health conditions (diabetes mellitus, chronic lung disease, and cardiovascular disease) appear to be at a higher risk for severe disease from COVID-19 than those without these conditions (Jordan, Adab, and Cheng, 2020). COVID-19 cases occur predominantly in metropolitan areas such as Seattle, Los Angeles, Detroit, and New York, the pandemic epicenter. There are emerging concerns about the preparedness of rural communities in the face of the deadly virus considering the existing disparities across the range of social determinants of health between rural and urban Americans (Peterson, Newton, and Bazemore, 2020). The reality is that, rural populations are older, and have higher rates of chronic health conditions than their urban counterparts. With the current exponential rate of spread of the coronavirus, there is a need to critically examine the risk facing the 60 million Americans living in rural areas and discuss possible solutions pertaining to rural COVID-19 prevention.

## OPPORTUNITIES AND CHALLENGES

### Population

The number of COVID-19 cases is low in most rural areas compared to urban areas. About 97 percent of the country's land mass is rural but only 18 percent of the population lives there (United States Census Bureau, 2016). The remoteness, open space, and low population density that characterize rural areas could contribute to limit the spread of the COVID-19. However, with the rising incidence rates, it is only a matter of time before these regions experience a surge of coronavirus cases. The reality is that about 18% of the population in rural counties is older than 65 years, compared to 14% in the urban population (United States Census Bureau, 2016) and rural areas have higher rates of co-morbidities making them more susceptible to severe COVID-19. According to a recent CDC report, (February 12- March 16, 2020), 31% of cases, 45% of hospitalizations, 53% of intensive care admissions, and 80% of deaths occurred among the adult population aged  $\geq 65$  years (CDC COVID-19 Response Team, 2020). In rural areas, people travel more than 30 miles sometimes to reach the nearest grocery store, taking the risk to be exposed to people along the way who may have COVID-19. The shelter in place policy to prevent the disease transmission is unsustainable in rural areas because of a high proportion of older people who are generally poor and dependent on others for food to survive. Although the rate of transmission of the disease in rural

communities may be low, the potential risk of death and serious complications is higher in rural than urban areas.

### Health Care Infrastructure

The United States has an estimated 2.8 hospital beds per 1,000 people in 2016, (Blavin and Amos, 2020) compared with 13.1 beds in Japan and 8.1 in Germany. A further analysis by John Commins of the *HealthLeaders* magazine shows that about two-thirds of American hospital beds are currently occupied in the wake of the coronavirus pandemic (HealthLeaders, 2020).

Since 2005, about 162 rural hospitals have been closed due to poor financial health, shortage of manpower, aging facilities and low occupancy rate, resulting in reduced hospital availability to rural dwellers (Peterson et al., 2020). The problem is further compounded by the lack of efficient transport systems in rural settings, lack of insurance, and the fact that infected persons may opt for alternative treatment (Zhang, Tao, and Anderson, 2003). The required critical infrastructure necessary to provide care during this pandemic may be scarce, or even non-existent.

Furthermore, many rural hospitals are under-equipped with limited healthcare personnel, limited ventilators, personal protective equipment and testing kits (Emanuel et al., 2020) with a paltry 1% of ICU beds (Staff et al., 2020). In the event that the virus continues to spread, there may be obvious deficiencies in the management of patients in their care. Equally troubling is that urban medical centers which ordinarily will serve as referral hospitals will be filled to capacity as already seen in most of urban America. In addition, rural hospitals are already stretched in terms of manpower. Even so, the personnel are comparatively older than their urban counterparts, which makes them equally susceptible to the disease. The burden of care on rural health facilities may become heavy in a case of increased incidence rate in rural areas, which may limit their ability to handle impending crises. If the situations persist, they may eventually result to patient triage - a last resort it may seem.

### Lack of Broadband and Internet Connectivity

Another issue facing rural areas is a lack of broadband and internet connectivity (Seeks, 2018). Not only do people in rural areas lack access to current health information about the prevention of this disease, but also, they do not have access to telehealth care services which is a good alternative to providing care during the pandemic.

### Economic Activities

In rural communities, hospitals and government institutions not only provide a main source of employment to doctors, nurses and pharmacists, but they also create a customer base for local businesses. They are therefore, intricately linked to the functionality of these institutions (Healthline, 2020). With the restrictions on movement and gathering, the attending effects of reduced economic activities in the rural areas, heightened unemployment rates, and worsening poverty rate become evident and may result in non-adherence to the social distancing policy of government. The aftermath of the socioeconomic downturn of the pandemic may be worse off in rural areas than in urban settlements and

may require longer time to recover from the effects of the disease.

Furthermore, rural dwellers may face the problem of shortage of food and essential commodities, given the reduced income associated with loss of jobs and sources of livelihood. The aged population may be afraid of going to the stores to get groceries for fear of contracting the disease. They may also meet empty shelves when they eventually do so. This situation may result in hunger for the most aged rural population.

## COMMUNITY EFFORTS TO MITIGATE OR ALLEVIATE THE SPREAD OF COVID-19

Following the recognition that COVID-19 is an emergency of public health importance, communities have developed strategies to combat the spread and transmission of the virus. This is in view of the fact that the virus is new with no known cure or vaccines.

### Restricting Mass Gatherings and Congregations

Restrictions have been placed on mass gatherings and events that may enhance the spread of respiratory infections such as COVID-19. These gatherings include conferences, political gatherings, football events, religious gatherings and cultural and music festivals. Countries who placed earlier and stricter restrictions have seen decline in the rate of transmission and have similarly reported lower incidence rates (Chinazzi et al., 2020; WHO, 2020).

### Social Distancing

Social distancing reduces the interactions between people in a community, in which individuals have the potential for infectivity. Since the coronavirus is transmitted by respiratory droplets, it thus requires close proximity of people for transmission. Adopted by the communities, social distancing creates the needed barrier to break the chain of admission (Gudi and Tiwari, 2020). Examples of social distancing include compulsory closure of schools or office buildings and cancellation of gatherings.

### Isolation and Mandatory Quarantine

Quarantine is one of the oldest methods of containing communicable diseases. However, isolation and institutional quarantining of people who have been in contact with a confirmed or likely case is unrealistic during pandemics as it eventually overwhelms the system and may result in further spread of the infection (Ebrahim et al., 2020). Voluntary home quarantine reduces the stress on emergency healthcare system. Concerns about the possible infection of family members may arise but this is likely to affect fewer persons than institutional settings.

## SOLUTIONS FOR RURAL AREAS

### Epidemic Preparedness in Rural Areas

As rural areas are bracing for the onset of the COVID-19, a multidisciplinary emergency preparedness team should

already be in place in various rural counties to launch preventive activities. Public health practitioners and policy makers should set up an active surveillance system to identify cases that meet the clinical definition of COVID-19. Once these cases are identified, they must be tested immediately. Individuals whose test is positive will be linked to care. All their contacts will be mapped, tested and monitored. Public health practitioners and policy makers should start mobilizing community members in dealing with this pandemic. Community members must be informed about the Centers for Disease Control and Prevention (CDC's) general measures to prevent exposure to coronavirus (Madani, Althagafi, and Alraddadi, 2020). These measures include:

- Regular hand washing with soap, particularly after touching surfaces in public. Use of hand sanitizer containing at least 60 percent of alcohol is recommended as an alternative if the hands are not visibly dirty.
- Wearing cloth mask to protect oneself against airborne droplets from cough or sneeze.
- Avoiding touching the face (in particular eyes, nose, and mouth).
- Avoiding crowds (particularly in poorly ventilated spaces) and if possible, stay 6 feet away from ill individuals.
- Cleaning and disinfecting objects and surfaces that are frequently touched with recommended disinfectants.

Finally, the emergency preparedness team should work with state and federal officials to get essential resources to equip the existing institutions, such as community centers and hospitals, for any eventuality. Hospitals must have test kits to diagnose COVID-19 cases, protective personal equipment (PPE) for healthcare workers, and other equipment based on the level of care that can be administered on site.

### Policies

Government policies in the face of the ravaging pandemics must be aimed at bridging the health disparities that already exists (Satcher, 2011). Establishment of a food and toiletries supply chain that targets the elderly and vulnerable in the society must be made paramount. Policies that promote the non-disruption of water and electricity supply due to lack of payment must be considered promptly.

### Telehealth

Telehealth has been advocated to reduce the shortfall in health care providers especially in rural areas (Smith et al., 2005). However, in the wake of this pandemic, telehealth may become the right tool to address the shortfall in manpower, especially in rural settlements. There is a strong need to keep patients who may have other clinical presentations away from the hospitals and in keeping with the social distance strategy, telehealth readily becomes an alternative to health care provision among rural dwellers (Smith et al., 2020). People can consult health care professionals and caregivers via a safe and effective medium while keeping to the recommended government directives. Diagnosis can also be made upon careful evaluation, in conjunction with health care professionals.

Similarly, telehealth can also provide mental support to victims and family members of those affected by the coronavirus, just as it can serve as a medium of communication between health professionals in order to render the best possible care to the individuals at risk (Zhou et al., 2020). Furthermore, the proper and adequate use of telehealth can be a right tool for dissemination of proper preventive practices and guidance to the unsuspecting populace (Snoswell et al., 2020).

## CONCLUSION

Significant disparities in social determinants of health exist between the rural and urban areas. They are likely to increase mortality rate to COVID-19 if the disease reaches the rural areas. Deliberate and proactive measures are needed acutely to prevent the spread of this disease to rural areas. Contingency plans must be in place to deal with the disease should it eventually get there.

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