Rural Health and COVID-19

Introduction

According to the U.S. Census Bureau, approximately 60 million Americans live in rural areas, defined here as “sparsely populated, have low housing density, and are far from urban centers.”1 Many rural communities are experiencing increases in COVID-19 cases and similar challenges as are urban areas, but rural healthcare systems also face unique challenges that require different considerations than their urban counterparts. Workforce and other resource shortages, socioeconomic factors that compound resident health risks, and other public health issues often complicate the ability to plan for and respond to natural and human-caused disasters and public health emergencies in many rural areas.

For a variety of reasons (e.g., revenue pressure, patient population with more complex medical issues, and recruitment and retention challenges), many rural hospitals are facing financial crises and are on the brink of closure. One study found that hospitals in Tennessee, Oklahoma, Mississippi, Alabama, and Kansas face particularly high risks of closure (O’Brien 2020). In the last decade alone, 128 rural hospitals have closed.2 An additional 453 hospitals were identified as vulnerable to closure based on a model developed by the Chartis Center for Rural Health.3

Accessing healthcare can be challenging for residents of rural areas.4 This can be due to one or a combination of factors, including financial challenges, the need to travel long distances to facilities, communication challenges (e.g., geography/location, language barriers, inconsistent access to internet service), and lack of trust in the healthcare system to receive quality care. Workforce shortages and insurance challenges compound these barriers.

As of May 2020, the Rural Policy Research Institute at the University of Iowa’s College of Public Health found that 6.9% of COVID-19 cases and 4.5% of COVID-19 deaths were in rural counties.5 Similarly, this interactive article, published April 8, 2020 in the New York Times graphically displays how rural areas have been affected by the spread of COVID-19 since February 20, 2020. The authors note that “more than two-thirds of rural counties have confirmed at least one case.” In some rural communities, one COVID-19 patient could overwhelm all the available resources.

This resource provides an overview of the challenges faced by rural areas specific to COVID-19. This resource is intended to help hospital and health system emergency planners as well as state and local public health emergency planners better understand the challenges their communities may face. The challenges are grouped into two main categories: those specific to healthcare facilities, and those related to at-risk residents. Proposed solutions or mitigation steps for meeting each challenge are also provided.
COVID-19 Challenges Specific to Rural Healthcare Facilities

Limited Financial Resources

Almost 50% of rural hospitals operate at a loss. Much like metropolitan area healthcare systems, rural healthcare systems have delayed elective procedures in response to the COVID-19 pandemic, which traditionally provide a significant amount of annual revenue. In fact, outpatient services at rural hospitals account for an estimated median of 71% of the hospital’s revenue.6

Rural healthcare systems operate on thin profit margins and most do not have sufficient cash on hand to cover operating costs. The median number of days all-rural hospitals (combined Critical Access hospitals, Rural and Community Hospitals) can operate with cash on hand is 33 days.7

Potential Mitigation Actions

• To assist the rural healthcare system during this challenging time, on May 1, 2020 the U.S. Department of Health and Human Services announced $10 billion rural distribution. These funds will go to support rural acute care general hospitals and Critical Access Hospitals (CAHs), Rural Health Clinics (RHCs), and Community Health Centers.8

Limited Human Resources

Rural hospitals have less staff in the facility and in the immediate area to draw from if there is a need for staff to quarantine or patient surge overwhelms the facility. Exposure to one COVID-19 patient may create an insurmountable gap in staffing that cannot be backfilled as quickly or easily as a larger healthcare system could.9 A small number of severe cases could quickly overwhelm a hospital’s resources.

Emergency Medical Services (EMS) systems in rural communities are often staffed by volunteers with multiple jobs. Several agencies typically support a region, and they are often supported by hospitals with similar challenges, particularly during a public health emergency. The physical distance, topography, and volunteer nature of rural/frontier EMS all provide challenges during a pandemic.

Data management and communications is also a challenge for many rural healthcare facilities. The communications infrastructure is fragile, IT systems in use in facilities may not be able to be altered quickly to provide additional data points for data reporting. Oftentimes, there are simply not enough human resources available to care for patients and manage the data reporting requirements placed on healthcare facilities during a public health emergency.

Potential Mitigation Actions

• Working with other hospitals and pooling resources in relative proximity to identify and use a central facility for the treatment of COVID-19 patients may help ease some of the capacity issues.10
• Pre-identifying and developing agreements with just-in-time staffing firms, other healthcare facilities in the area, and community organizations may help as a mitigation measure.
• Developing a standard list of essential elements of information from each facility early in a response is helpful to set expectations and limiting communication to facilities to the established local incident command chain of communication would limit multiple requests for the same information to the same facility.

Limited Space and Equipment and Location Challenges

Healthcare facilities in rural areas have limited bed capacity, equipment (especially ventilators), and personal protective equipment (PPE) needed to combat COVID-19. One hospital in rural Louisiana recently explained how they responded to a surge of critically ill patients with limited resources by renting, borrowing, and converting other equipment to ventilators and re-engineering hospital access and flow to facilitate visitor and staff screening.11 Intensive or critical care is a particularly scarce resource. In total, rural hospitals have 6,309 Intensive Care Unit (ICU) beds, or approximately one for every 9,500 residents of rural areas.12

Clinics are also often located far from the closest laboratory. As a result, submitting tests, transporting clinical samples to labs, and receiving results may take significantly longer than it does in more urban areas.

Potential Mitigation Actions

• Working through healthcare coalitions or in partnership with other facilities can help increase purchasing power.
• Identify regional partners willing to share or lend necessary resources.

Medical Supply Chain

While large healthcare systems may have the staff and money to work outside of the traditional supply chain and acquire PPE and other medical supplies directly from the producers, most rural hospitals and healthcare systems more than likely would not have these resources and experience different challenges in acquiring supplies.13

Sustained use of PPE and patient surge cause a higher burn rate for all medical supplies. However, as rural health systems already operate on thin margins with limited just-in-time resupply, using additional funds to acquire more supplies may not be financially viable.14

Rural hospitals may also have a limited supply of COVID-19 testing kits or may be missing components necessary to complete the testing (e.g., nasal swabs, viral transfer media, and reagents for virus detection). In some cases, test results may not be available for seven days or longer. Without quick testing, symptomatic patients are being treated as presumed positive, increasing the use of PPE supplies even further.15

Potential Mitigation Actions

• Collaborating with other rural hospitals to source medical supply vendors and share equipment may be necessary and helpful.16
• Partnering with other healthcare facilities for larger purchasing power may help increase the priority of shipments to rural communities.
• Using telehealth to screen patients prior to arrival may reduce the use of PPE and ease surge.

Telehealth

COVID-19 has accelerated the use of telehealth in many ways. Telehealth can be a useful tool in rural areas to provide patient triage, pre- and post-operative visits, and remote patient monitoring. The U.S. Department of Health and Human Services (HHS) launched the HHS Telehealth Website to provide information for both patients and providers on telehealth programs. While telehealth supports healthcare in rural areas, many areas still lack broadband internet or wireless bandwidth to support video capabilities. While the Federal Communications Commission (FCC) has expanded previously reserved wireless ranges in rural areas to support increased bandwidth usage, many people still do not have technology to support it. The FCC found that as recently as 2018, 18 million Americans lacked physical access to minimal broadband internet connections. Another study found that as of 2019, only 69.3% of rural areas have access to high-speed broadband internet and only 71% owned a smartphone. The FCC recently provided telecommunication companies with temporary access to unused wireless broadband spectrum to support the increased demand on wireless services related to COVID-19.

Potential Mitigation Actions

• Many telecommunications service providers have increased data on existing customer wireless plans and have temporarily increased broadband access.
• Identify areas in a community where residents can safely go to access telehealth services.
• Schedule home health visits with telehealth components to connect rural patients to providers.

Challenges for At-Risk Populations in Rural Communities

Rural communities have diverse populations, some with characteristics that put them at more risk of illness than others. Residents in rural areas tend to have higher comorbidities which makes them even more vulnerable to COVID-19. Prevention, mitigation, and early identification are key steps to outbreak management; identifying these populations and working with public health officials to put mitigation measures in place is critical.

Food Insecurity

Food insecurity affects residents in many rural communities. This insecurity is amplified with schools out of session through fall 2020 and compounded by delays in the food supply chain. In many parts of the U.S., food banks are receiving fewer donations due, in part, to many residents being out of work for several weeks (or months), or being afraid to shop or bring their donations to these locations for fear of contracting the novel coronavirus. Though not unique to rural communities, these challenges are exacerbated by the distance between communities and food banks and the added transportation issues.
Potential Mitigation Actions

- Advertising to encourage continued food donation and increasing access to donation centers or drives (while maintaining appropriate social distancing) is one practice employed in some communities.
- Many schools have worked with their state education departments and the U.S. Department of Agriculture to provide school lunches to families in need, through drive through and other pick-up mechanisms.

Older Americans

According to U.S. Census data more than 20% of Americans 65 and older live in rural areas. Thirty-three states have a higher concentration of older Americans in rural areas, and in Arkansas, Maine, Mississippi, Vermont, and West Virginia, more than half of the older population lives in rural areas.\(^{22}\) Importantly, older age has been identified as a risk factor for severe disease and death from COVID-19. Also, older adults are more likely to have one or more chronic illnesses that may mask some of the more common symptoms of COVID-19 leading to delays in seeking treatment.\(^{23}\)

Potential Mitigation Actions

- Providers who care for older populations should conduct outreach to educate their patients on COVID-19 risk factors and social distancing
- Providers should also encourage their older patients to continue seeking care for chronic medical conditions to avoid any exacerbation.
- Long term care facilities should implement infection control procedures within their facilities.

People with Substance Use Disorders

People who live in rural areas and are addicted to legal and illegal substances (e.g., alcohol, tobacco, methamphetamine, and opioids) are also likely to have relatively limited access to prevention/treatment assistance.\(^{24}\)

People with substance use disorders may also have lung damage or other physical injuries associated with abuse that puts them at greater risk for severe infection due to COVID-19.

Persons in recovery may experience relapse as programs available prior to COVID-19 may be unavailable or less accessible due to social distancing. Stay-at-home orders may contribute to feelings of isolation and literally prevent residents from accessing traditional treatment.\(^{25}\)

Furthermore, mental and behavioral health problems can present or be exacerbated during this time and access to clinicians is limited in rural areas.

Potential Mitigation Actions

- The use of telehealth in treating addiction, such as for opioid use, has advanced quickly in response to COVID-19 and has been expanded to support other behavioral health issues.\(^{26}\)
Transient Workers and Unique Working Conditions

While rural communities have fewer densely populated areas, essential facilities, such as meat packing plants, may be primary sources of employment. Some of these facilities have recently been deemed COVID-19 “hotspots.”27 Such facilities have many of the CDC categorized exposure factors that contribute to these outbreaks, including: distance between workers (minimal); duration of contact (prolonged); and type of contact (close, with shared tools, workstations, and the like).28

Many rural areas are also home to farming and migrant workers, who have been significantly affected by COVID-19 outbreaks due to the close quarters they work in and the congregate nature of their living spaces.29,30

Potential Mitigation Actions

• CDC has issued guidance for these facilities and many states produced additional, separate guidance that addresses social distancing in the workplace, housing, and healthcare for the workers in these facilities.

Tribal Communities

Some tribal communities have experienced a relatively high rate of COVID-19 cases. As of May 27, 2020, for example, the Navajo Nation reported 4,842 positive cases.31 While there are stay-at-home orders in place, on some tribal lands, water is sourced from areas central to the community and far away from residences. Some people may have to travel more than 50 miles from home to collect drinking water, get groceries, and do their laundry.32 According to the 2018 Broadband Deployment Report, only 64.6% of tribal communities have access to high-speed broadband internet.33

Potential Mitigation Actions

• In March 2020, the U.S. Department of Health and Human Services announced their intent to provide funding to tribes to support their COVID-19 response.34
• To help residents from the Zuni tribe and Navajo Nation with accessing telehealth services, the Federal Communications Commission recently granted use of unassigned wireless spectrum.35
• Look into staff augmentation options from federal, state, and other local sources and non-governmental organizations.

Conclusion

Rural healthcare systems face distinctive challenges in responding to COVID-19. As the pandemic evolves, it is critical for rural healthcare systems to proactively identify and prepare to respond with their unique needs in mind.
Additional Resources


COVID-19 Resources for Rural Health

Health Resources and Services Administration. COVID-19 Frequently Asked Questions - Federal Office of Rural Health Policy

HHS Telehealth Website

Rural Emergency Medical Communications Demonstration Project

Rural Health Information Hub: Rural Response to COVID-19

The Impact of COVID-19 on Small and Rural Hospitals

Update for Rural Partners and Communities on the Coronavirus Disease 2019 (COVID-19) Response

Sources Cited

1 America Counts Staff. (2017). One in Five Americans Live in Rural Areas
17 Federal Communications Commission. (2020). New Data Shows Digital Divide is Closing and Broadband Competition is Increasing. [Link](https://www.ruralhealthinfo.org/toolkits/telehealth/1/barriers)


34 United States Department of Health and Human Services. (2020). HHS announces upcoming action to provide funding to tribes for COVID-19 response