Impact of COVID-19 on Rural America

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In July 2020, rural populations in America were still seeing a lower incidence of COVID-19 cases and hospitalizations compared to urban residents,[1] but this trend is already changing as the pandemic progresses. The rural share of COVID-19 cases continues to increase,[2] with nearly half of the nation's rural counties reporting a higher number of cases from one week to the next.[3]

According to a recent snapshot of Medicare fee-for-service claims data from the Centers for Medicare & Medicaid Services (CMS), there were 402 COVID-19 cases per 100,000 residents for rural areas and 982 cases per 100,000 in urban settings.[1] CMS also found that 99 out of every 100,000 rural residents had been hospitalized for COVID-19 compared to 294 per 100,000 in urban areas. However, it is important to keep in mind the key characteristic of the COVID-19 pandemic: the abrupt surge of critically ill patients in a small geographic area.[4] Urban hospitals are far more capable of handling a deluge of cases. The potential impact of the pandemic on local healthcare delivery systems depends on the proportion of available healthcare resources to the number of COVID-19 patients requiring hospitalization. In other words, a few dozen cases of severe COVID-19 in a rural town could overwhelm a local rural hospital, resulting in shortages of trained staff, ventilators, and intensive care unit (ICU) beds.[4,5]

Over the past few years, there have been sporadic examinations of rural healthcare and the difficulty of sustaining access to healthcare in many parts of America. While many healthcare challenges affect all Americans, those living in rural communities also face unique burdens. In addition to being more geographically isolated, rural residents also tend to be older, present more underlying chronic conditions, and often lack access to quality, affordable care to serve their unique health needs.[6]

COVID-19 may seem like a "big city" problem, but as we're starting to see, it can quickly overwhelm a rural community once it begins to spread.

This brief reviews some of the health challenges and effects of the COVID-19 pandemic on rural communities.

Key Findings From the Brief Include:

- Rural Americans continue to be disproportionately affected by COVID-19
- The risk factors for severe COVID-19 are more prevalent in rural populations
- Access to quality healthcare remains a challenge for rural residents, even with the expanded adoption of telehealth, and while COVID-19 can quickly overwhelm local resources, rural communities already face a shortage of providers, hospital beds, and equipment

Demographics of Rural Populations

Nearly 60 million US residents live in what the US Census Bureau defines as a rural area.[7] Rural residents are generally older, with close to 20% of the rural population over the age of 65 compared to 14% in urban areas.[8] Rural Medicare beneficiaries aged 85 and older are more likely than their urban counterparts to live alone or in a nursing home.[9] While nursing homes have accounted for nearly a third of total COVID-19-related deaths,[10] older residents in private homes are also at high risk. Many may not have access to their informal caregivers (eg, family, friends, neighbors) due to social distancing, leading to unchecked chronic conditions and social isolation.[11]

COVID-19 and Chronic Conditions

Beyond the patient's age, certain pre-existing conditions can provide insight into the degree of risk with respect to the severity and progression of COVID-19. According to the Centers for Disease Control and Prevention (CDC), among COVID-19 cases, the most common underlying health conditions are cardiovascular disease (32%), diabetes (30%), and chronic lung disease (18%).[12] COVID-19 hospitalizations were 6 times higher and deaths 12 times higher among patients who reported at least 1 of these underlying conditions.[12] Specifically, within the Medicare population, the comorbidity associated with the highest increase in mortality was end-stage renal disease (ESRD), increasing the odds of death due to COVID-19 infection from 0.9% to 1.3%.[12] ESRD is often associated with comorbidities of heart disease and diabetes.[13]

Other studies have published similar findings. As noted by Deng et al "…the percentages of hypertension, diabetes, and coronary heart diseases are much higher among the fatality cases than among the confirmed cases. This may indicate that the comorbidities probably are important factors that resulted in death of COVID-19 patients."[14] Leveraging clinical data of hospitalized COVID-19 patients across 10 hospitals in China, researchers found that severe illnesses due to COVID-19 were independently associated with a known history of type 2 diabetes and high body mass index.[15]

The risk factors for severe COVID-19 are also more prevalent in rural populations. Cardiovascular disease is more common in rural areas,[16] and high blood pressure is a major risk factor for heart disease.[17] The prevalence of high blood pressure is 40% in most rural areas compared to 30% in most urban areas in the US.[18] Heart disease death rates (age adjusted) are 18% to 20% higher for residents of rural counties compared to suburban residents.[19] Diabetes is also nearly 20% more prevalent in rural areas.[20] Severe metabolic complications of pre-existing diabetes have been observed in patients with COVID-19.[21] Similar to heart disease, diabetes affects an individual's ability to fight off viral infection.[22]

Additionally, a higher proportion of rural residents—nearly 10%—have been diagnosed with chronic obstructive pulmonary disease (COPD), a disorder that persistently obstructs air flow to and from the lungs, compared to just 5% of residents in large metropolitan areas.[23] Patients with COPD have an increased risk of severe complications and higher mortality with COVID-19 infection.[24] Critically ill COVID-19 patients with COPD had a 63% risk of severe disease and a 60% risk of mortality, while critically ill patients without COPD had only a 33% risk of severe disease and 55% risk of mortality.[24]

Access to Care for Rural Populations

Unfortunately, the healthcare delivery system has historically struggled to meet the needs of rural populations. Over 4.7 million people live in 460 nonmetropolitan counties in the US where there are no general medical or surgical hospital beds.[5]

Hospital closures in rural areas hit their highest point in the past decade in 2019, with 19 rural hospitals shutting down.[25] Additionally, 1 in 5 rural hospitals is currently at risk of closing,[26] and many more are expected to close as a result of COVID-19.[27] Surgery and elective procedures were once a key source of revenue for rural hospitals, but as resources shift to address COVID-19 patients' needs, rural hospitals' income has plummeted.[28]

As with much of the American healthcare system, COVID-19 has shown us how close to capacity our system runs on a daily basis, and that is acutely felt in rural communities. Limited availability of specialty health services in rural communities means it is common for residents to be admitted to a local rural hospital and then transferred to regional or urban facilities for more complex care, which can lead to more widespread community transmission of COVID-19.[29] Nearly half of rural hospitals—many of which are designated as Critical Access Hospitals, with 25 beds or less—were regularly operating at an annual financial loss even before the additional challenges associated with COVID-19 emerged.[30,31] COVID-19 patients may overwhelm rural hospital ICUs, which average 10% fewer ICU beds available compared to metro areas (when adjusted for age and population).[32]

Access to healthcare providers can be challenging for rural residents, who are almost 5 times as likely to live in a county with a shortage of primary care physicians.[33] Relatedly, 52% of rural counties do not have a single general surgeon, 61% have no obstetrician/gynecologist, and nearly 58% have no pediatrician.[34] Compounding the issue of limited access to quality care, residents of rural counties also lack health insurance at higher rates compared to those living in urban areas.[35]

Telehealth and COVID-19

One silver lining emerging for rural communities from this crisis is the expedited adoption of telehealth and improved access to medical care.[36] The volume of telehealth utilization in Medicare was up over 100 times in the early days of the pandemic.[37] Telehealth services, which have enabled the continued provision of care for patients in rural and underserved communities and patients pre-pandemic, have expanded to become the primary method to screen for and manage COVID-19-related illness in the outpatient setting.[38]

As patients with severe cases of COVID-19 often require costly mechanical ventilation, telehealth has been used to screen for respiratory issues, which are an early indicator of a potential diagnosis. This widespread adoption provides critical benefits to both patients and society: it reduces unnecessary visits to emergency departments, primary care clinics, and provider offices, because such in-person visits risk exposure to other patients, staff, and healthcare providers.[39] Telehealth has also helped address the ongoing healthcare needs of patients with chronic illnesses in order to reduce in-person clinical care visits.[39] In addition to limiting clinical contact with patients at a critical time, expanded telehealth also preserves personal protective equipment and resources for healthcare workers on the frontlines of this crisis.

The increased utilization and attention to telehealth services during the COVID-19 public health emergency continues to drive executive and regulatory action. In August, the Trump Administration issued an Executive Order seeking to extend coverage of certain telehealth services for Medicare beneficiaries beyond the public health emergency.[40] In conjunction with the Executive Order, CMS offered several updates to Medicare Part B payment requirements for telehealth services within the proposed Physician Fee Schedule for 2021.[41]

And while telehealth might be a stop-gap in care for many Medicare beneficiaries in rural areas, particularly during this pandemic, it is not a panacea. Rural Americans and other populations, such as racial and linguistic minorities, continue to be disproportionately affected by lack of access to adequate medical care.

The Opportunity: Expand Access to Quality Care for Rural Populations

As policymakers continue to explore a variety of solutions to mitigate the negative economic and health impacts of COVID-19, it is important to consider the interests of rural and other underserved populations during these discussions. Consumers have become accustomed to the availability and promise of telehealth and will expect future public policy to continue facilitating this momentum.

Beyond telehealth, additional efforts should be made to invest and improve care in rural hospitals, ultimately ensuring a quality healthcare delivery system for America's rural residents that is resilient in the face of a public health crisis. These policies and investments should be developed with insight from a variety of stakeholders, including rural patients and rural healthcare providers. As members of the community, small, physician-owned practices can provide a greater level of personalization and responsiveness to patient needs, which can help manage chronic conditions and lower the average cost per patient.[42] Expanding similar efforts can sustain rural healthcare delivery and ensure patients in rural communities get access to the care they need.

The future of healthcare delivery in rural areas will look different than it does today. The unique challenges require a multi-dimensional, population-specific approach that enables access to convenient and affordable care that improves outcomes.

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This work was supported by Pharmaceutical Research and Manufacturers of America; editorial control was maintained by Xcenda.

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