Broadband connectivity is vital to health care and safety in Texas, as well as economic development and education.\(^1\) Approximately 927,000 Texans lack internet connectivity and up to 90% of rural areas do not have adequate high-speed Internet connections. From sharing records to using telemedicine and providing mental health services, broadband access can help rural providers and hospitals improve care and disease management.

Texas is one of six states that does not have a statewide broadband plan.\(^1\) As the COVID-19 pandemic demonstrated, broadband connectivity is linked directly to access to care. Many Texans in rural areas remain unserved. In 2020, the Governor’s Broadband Development Council recommended that the state create a broadband plan, establish a state broadband office, and develop a funding program to incentivize broadband deployment in unserved areas.

**BROADBAND AS A SOCIAL DETERMINANT OF HEALTH**

Social determinants of health include factors like socioeconomic status, education, physical environment, social support network, and access to health care. In 2017, the American Medical Informatics Association released a letter to the Federal Communications Commission (FCC) urging them to consider broadband access a social determinant of health. The FCC stated in 2020 that a primary objective of increasing broadband coverage would be to “ensure every American has the opportunity to take advantage of the benefits broadband offers, including improved health care, better education, access to a greater number of economic opportunities and greater civic participation.”\(^2\)

The social determinant of access to health care services is key to the issue of broadband in rural areas. One of the many lessons learned during the COVID-19 crisis is that access often involves the ability of providers to meet patients in their home or community. With COVID, providers saw that early intervention, not unlike many acute and chronic illnesses, is essential to effective healing and recovery. Telehealth services offer a solution for many Texans to access care sooner.
HEALTH OF RURAL AMERICANS

People living in rural settings have an increased incidence of chronic health conditions including diabetes and arthritis compared to their urban counterparts, along with a higher age-adjusted mortality for heart disease, cancer, chronic respiratory disease, and stroke. Children in rural settings are 26% more likely to be obese when compared to urban children. The age-adjusted, all-cause mortality level in 2014 for rural communities was 830.5 per 100,000 compared to a level of 703.5 in urban communities.

The rural population also skews older, with a median of 51 years of age compared to 45 years of age in urban areas. Rural communities also have a higher number of people 65 years of age or older (18.4% of the population). Older adults frequently require additional complex health care management which may be difficult to receive within the rural settings. In addition, older adults may have limited mobility and limited access to public transportation.

RURAL HEALTH CARE ACCESS IN TEXAS

From 2005 and 2019, 118 rural hospitals in the United States have closed. In Texas, 26 rural hospitals have closed since 2010. These hospital closures result in rural Texans having to travel farther distances for health emergencies such as traumatic injuries, strokes, and cardiac arrests. In addition to the rural hospital closures, 65 long-term health facilities closed between 2015 and 2019 with 40% of these closures being in rural settings. Furthermore, 28 counties in Texas during 2019 were without a direct patient care physician and 32 counties were without a primary care physician to address the needs of the rural communities.

The Statewide Health Coordinating Council addressed the importance of telehealth and telemedicine as key concerns within the response to the coronavirus pandemic. The draft 2021-2022 document listed three aspects which should be addressed by Texas:

1. Decrease regulations imposed related to telehealth and telemedicine.
2. Magnify health care funding to keep rural hospitals and local practices open and staffed.
3. Maintain loan repayment programs which incentivize health care providers working in rural settings.

However, without broadband access, telehealth and telemedicine are still inaccessible to many living in rural areas.

BROADBAND IN AMERICA

Broadband refers to high-speed internet access that remains on and can transmit information faster than dial-up internet. Broadband includes several technologies, including fiber, satellite, and cable. The FCC requires broadband to have actual download speeds of at least 25 Mbps and upload speeds of at least 3 Mbps. Regarding health care, high-speed, high-capacity internet can better support long-distance services, education, and administration.
In early December, 2020, the FCC announced the winners of the Rural Digital Opportunity Fund Phase I Auction, where 180 bidders won in 49 states, with Texas being one of the states awarded over 360 million dollars. This funding is to provide broadband speeds of at least 100/20 Mbps coverage to over 5 million unserved homes and businesses. This work is primarily being organized by Connected Nation, a bipartisan consulting company that works with state and local entities to expand broadband access. This organization strongly supports the benefits and necessity of telehealth.

**MEETING RURAL NEEDS**

When considering how federal broadband programs address the needs of rural constituents, many believe the spread of broadband will follow a path of slow demand and slower supply. The FCC has expressed concern that although these program subsidies exist, many providers may lack sufficient incentive to develop and expand markets. Extension by private entities is profitable only when demand is significant.
Federal broadband programs have generally assumed demand for broadband service will quickly emerge as broadband providers extend new or upgraded service to these locales. Program rules typically require broadband providers to extend service availability to a certain area within a certain timeframe, but they generally do not require them to achieve specific market development goals for adoption and usage.

Options for congressional consideration may include:

- Measures to address obstacles to adoption and additional incentives for private sector investment in the rural broadband sector, such as expansion of end-user subsidies, both within the broadband sector and other sectors that utilize broadband-enabled technologies.
- Measures to encourage broadband providers to increase investment in persistently underserved rural areas and more aggressively develop nascent broadband markets. These may include adjustment to subsidy rates and program rules, including introduction of adoption milestones for subsidy recipients. Additionally, Congress may consider measures to increase education and outreach.

**INCREASING ACCESS TO BROADBAND IN TEXAS**

In Texas, the state legislature has not yet mandated broadband internet access for rural areas.

- 2019: HB 1960 authored by Four Price, creating the governor’s broadband development council
- 2020: Governor’s Broadband Development Council submits first report to the Texas Legislature

The progress of developing broadband access to underserved areas of Texas requires a statewide broadband plan. This plan would include funding streams that would facilitate the development of the broadband capabilities in rural Texas. Legislation would also extend the scope of practice for those levels of providers and technicians that would be performing this type of care.

The backbone of health care delivery depends on being able to access the internet. The electronic medical record is the means of sharing patient information between all aspects of health care providers. With the expansion of broadband capabilities, it can be available to all providers across the state. Access to remote delivery of health care is especially important for the elderly population who have limited mobility and lack the capability to travel for long distances to reach a provider.

Engagement at the state and local levels involving stakeholders can build a policy framework that has identified specific goals such as planning and capacity building. Ideally, funding would be in place to support these changes and there would be efforts to evaluate the progress and success of the program.

The Governor’s Broadband Development Council 2020 Texas Report identifies several major barriers to expanding broadband in rural areas, including economic, technical, infrastructure, and regulatory issues.

**FISCAL CONSIDERATIONS FOR EXPANDING ACCESS**

The fiscal impact of developing broadband access to rural areas involves all aspects of broadband usage, from developing infrastructure to bring capacity to rural areas to the high-speed transmission technologies involved,
including digital subscriber line (DSL), cable, fiber, wireless and satellite. Each has its own intrinsic characteristics that make its use in remote, underserved areas costly.

Beyond infrastructure, Texas needs to consider the capability to extend it to the end user. Internet providers are not available in many areas due to the low demand for the technology, so communities must work to enable access to their areas. In addition, the end user must obtain the service and have a means of accessing that service. This includes having a device that can be connected to the internet and the technical knowledge and skill to utilize the technology to access the internet.

Funding must be made accessible to address the economic, technical, infrastructure, profitability and “backhaul” costs—costs for the company to connect with the global internet—in order to incentivize development in rural, underserved areas of Texas. Funding exists from the Federal Communications Commission and the U.S Department of Agriculture to support the building the infrastructure in these high-cost areas.

REGULATORY CONSIDERATIONS FOR PROVIDERS

The use of telehealth and telemedicine has shown to be a valuable asset during the pandemic and should be available, with appropriate regulatory and rules changes for providers, following the pandemic. According to the American Nurses Association, telehealth—including telemedicine, remote management and mobile health capabilities—can make “health care more efficient by electronically connecting clinicians to clinicians, patients to clinicians, and patients to other patients.”

The January 2021 Texas Board of Nursing Bulletin addressed the importance of nurses in the delivery of remote health care and recommended including telehealth content in bachelor’s degree programs and the roles of nurses in delivering remote health care. The Future of Nursing Report in 2011 predicted there would be a shift in the time and place of health care delivery that would have significant implications on how nursing would be delivered remotely.

From a regulatory standpoint, legislation and rulemaking must direct these efforts. Several bills filed in the current 87th Legislative Session move toward improving broadband access in underserved areas. These bills include language that would establish a broadband office within the Public Utilities Commission, use existing funding, establish an investment grant program, and expand broadband services in certain areas. Other bills relate to the reimbursement for telehealth and telemedicine services and expanding the use of telehealth and telemedicine.

SOCIAL IMPACT OF INCREASING ACCESS

The geographical layout of Texas means people are separated by much farther distances in rural areas than urban areas. The COVID-19 pandemic has exacerbated this isolation by limiting close contact and interaction among people. The ability to establish contact using visual technology where you see the person with whom you are communicating can ease some of the stress and isolation felt by many people. From a social perspective, expanding broadband services would greatly improve the quality of life for those with limited mobility, such as the elderly population.
The ability to access health care via telehealth can further social ease as patients can see and interact with their care provider to develop a relationship and receive appropriate follow-up. Expanded use of telehealth during the pandemic has shown the value of services provided via broadband technology to meet the needs of those that require health care intervention but are unable to have physical face-to-face interaction with their provider. Extending this capability post-pandemic will have a positive effect on the health of rural populations.

THE FUTURE OF TEXAS HEALTH CARE

Overall, the outlook of an expanded broadband capability in the rural underserved areas of the state would include beneficial effects on economic, social, and health status for the whole state. Having a statewide broadband plan and an office to oversee the implementation of the plan will mean a coordinated effort and appropriate use of funding to incentivize the expansion of broadband across the state.

With developed broadband access, health care could be delivered via digital means that would extend to underserved areas of Texas. Rural Texans would have the ability to access a provider for diagnostic and directed care using videoconferencing. Texans would be able to manage health care conditions with regularly scheduled appointments. Mental health providers would be able to improve the quality of life for rural Texans. Nurses with mobile capability to visit a patient could perform basic diagnostic procedures and be able to access a provider through the broadband network for additional care. Smaller rural hospitals would be able to connect with specialists for consultations.

Movement forward in the effort to expand broadband in rural, underserved areas has already begun. In addition to the present efforts, there must be interest in finding technology-neutral solutions—options that do not rely on immediate broadband deployment—to expanding access to broadband connectivity. For example, the state could designate "broadband ready" communities to help providers gauge the barriers to entry. Local communities have a vested interest in the benefits of broadband access. By recognizing communities that have worked to eliminate or reduce barriers, the state could encourage providers to expand broadband into that area.

Another option could be helping people increase digital literacy through libraries that can provide training on how to use the internet and lend equipment such as tablets. Some groups such as the elderly and those who have not had internet access previously may lack the digital literacy to use broadband effectively when it is available, which has great implications beyond telehealth to banking, social interaction, and education. All of these elements affect the social determinants of health and are critical to a community’s and an individual’s daily living and quality of life.