

## **Broadband: The Critical Infrastructure for Delivery of Today's Health Care**

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The Internet impacts every facet of the modern citizen's life, including how they receive health care services. Because of the Internet, health care is no longer confined to the four walls of a hospital, clinic, or doctor's office. Today, a patient in Ahoskie, North Carolina, with a short-term illness can access the University of North Carolina's Urgent Care network via a Skype-like video call 24/7 [1]. Patients with chronic diseases like diabetes or high blood pressure can track their symptoms and vitals through an app on their smartphone that communicates data to their provider, rather than visiting the doctor for frequent check-ups [2]. Providers can even remotely support a person recovering from opioid use disorder through apps that allow doctors to monitor adherence to the prescribed treatment protocols [3].

Physicians and health care professionals can more easily connect, advise, and provide consult to each other now too. Through the NC Statewide Telepsychiatry Program (NC-STEP), an emergency room physician in Scotland County can consult with a psychiatrist from East Carolina University on treatment methods for a patient presenting rare behavioral health symptoms [4]. Radiologists can quickly and easily send MRIs to doctors across the world, and physicians can quickly view notes recorded at a patient's last visit through Electronic Health Records (EHR) [5].

These, and a wide variety of other services, all fall under the umbrella of telehealth. The Office of the National Coordinator for Health Information Technology defines telehealth as "the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration [6]." The field is rapidly evolving,

progressing, and is increasingly more mainstream—CVS recently announced patients in nine states can soon use mobile applications on smartphones to access their MinuteClinics [7].

The potential benefits from a comprehensive integration of telehealth services and other broadband-enabled technologies into the state's health care system are vast. Research has shown that telehealth services can decrease costs for consumers and health care providers while simultaneously driving down overall health care costs [8].

A majority of North Carolina's 100 counties have health care professional shortages in the three categories—mental health, primary care, and dental health—the federal and state government track. In 90 of the 100 counties there is a shortage of mental health professionals; in 82 counties there is a shortage of primary care professionals; and 74 counties have a shortage of dental professionals (personal communication, John Resendes, analytics and innovations manager, Office of Rural Health in the Department of Health and Human Services, August 2018). Telehealth can help overcome the health care disparities caused by these gaps in care by connecting patients with providers outside their communities.

However, the citizens who would benefit from telehealth services the most are the households most likely to lack access to the technologies and skills necessary for using telehealth services. As of December 2016, at least 259,000 North Carolinian households did not have access to adequate broadband in their homes [9]. Of those without access, 95% live in rural areas. In addition, 49.8% of North Carolina's households do not subscribe to broadband because they cannot afford it, do not have the skills to use it, do not have a device at home to use it with, or do

not see its relevance to their lives [10].

These households fall into what's called the "digital divide," or the gulf between those who have access to computers and Internet and those who do not [11]. Those in the divide are often low-income, minority led, or elderly households. They are also often in rural towns or communities. Those in the digital divide will not be able to encounter the benefits of telehealth services and so long as telehealth cannot be widely accessed, it will fail to fully relieve the health care system of the inefficiencies it promises to solve.

To realize the full potential benefits telehealth promises in North Carolina, the digital divide must be closed. Our team at the Broadband Infrastructure Office of the North Carolina Department of Information Technology works to ensure all North Carolinians have access to affordable high-speed Internet, anywhere at any time. Expanding affordable access to broadband to the unserved citizens and those who do not adopt it requires strategic, innovative, and dedicated partnerships, policies, and programs. Programs such as the newly established Growing Rural Economies with Access to Technology (GREAT) program designed to facilitate the deployment of broadband to unserved areas of the state will contribute to increasing broadband availability and closing the digital divide [12]. Partnerships with subject matter experts like ours with the NC Department of Health and Human Services Office of Rural Health are important ways to address the unique challenges that a lack of affordable access can have on a citizen's ability to interact with and benefit from certain aspects of 21st-century society. To enhance access to health care in North Carolina, it will be necessary to form additional strategic partnerships, programs, and policies while simultaneously dedicating more resources to closing the digital divide. NCMJ

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