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# Valuation of Rural Health Clinics: Technology

Over the past decade, there has been a rapid adoption of technological innovations in the U.S., which has fundamentally changed the healthcare delivery system, improving the quality of patient care, as well as the efficiency of healthcare processes and practices.[1] Research indicates that implementation of *healthcare information technology* (HIT) may lead to improved efficiency and quality management,[2] especially in rural areas.[3] This *Health Capital Topics* article will discuss the various technological advancements that may assist *rural health clinics* (RHCs) in providing more tailored and advanced care to a greater number of patients.

HIT "*uses technology to store, secure, retrieve, and transfer protected health information electronically*," and includes a variety of software applications, such as:

(1) *Electronic health records* (EHR);
(2) Digital networks to electronically transmit medical test results and patient records;
(3) Electronic communication between providers, as well as with their patients;
(4) Electronic prescribing/ordering;
(5) Digital support systems;
(6) Billing software; and,
(7) Staffing models.[4]

EHR systems in particular are linked to clinical improvements,[5] and have the ability to ameliorate cost savings, quality, and coordination of care, as well as increase efficiencies,[6] which could financially benefit the operations of RHCs. Specifically, the *Office of the National Coordinator for Health Information Technology* (ONC) asserts that HIT can help rural areas in the following ways:

(1) Improving access to and coordination of care;
(2) Improving the surveillance of disease;
(3) Improving health education; and,
(4) Helping in the compilation of regional data.[7]

Despite the obvious capabilities of HIT, the technology has a number of drawbacks, especially for smaller facilities with limited resources and expertise (such as RHCs), including capital requirements and the ongoing maintenance.[8] In addition to the prohibitive cost of purchasing and implementing the HIT,[9] the technology (like most software) requires constant maintenance, including updates and optimization to the HIT.[10] However, rural providers have access to a number of resources that may help alleviate these issues, including various grant programs and funding opportunities, as well as toolkits and technical assistance, from the ONC and other governmental entities.[11]

In addition to EHR systems, the utilization of *telehealth* in rural areas has the ability to significantly increase patient access to healthcare. *Telehealth* is broadly defined as "*the use of information and telecommunications technology to provide health care across time and/or distance*," and is often used interchangeably with the term *telemedicine*.[12] Telehealth can take a number of forms, including:

(1) Provider/patient videoconferencing;
(2) Remote patient monitoring (which may be the most common form of telehealth in rural healthcare);
(3) The "*store and forward transmission*" of medical data and information; and,
(4) Mobile health communication (mHealth), such as through various smartphone apps.[13]

Telemedicine has grown significantly over the past fifteen years, with rural Medicare beneficiary visits increasing at an annual growth rate of 28% between 2004 and 2013, with nearly 80% of these telehealth visits for the purpose of treating mental health conditions.[14]

The ONC lists the following as telehealth benefits for rural providers:

(1) "*Give[s] health care clinicians instant access to information to make timely, vital decisions and save lives*
(2) *Decrease[s] travel time for patients and their families*
(3) *Help[s] rural hospitals use remote clinicians, pharmacists, and staff to improve and extend access*
(4) *Simplif[ies] efficient transfer to other facilities for vital services*
(5) *Facilitate[s] post-hospitalization care close to patients' families and primary care clinicians*."[15]

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Perhaps most importantly, the technology allows specialists, who are disproportionally located in urban areas, to remotely connect with and consult on patients in rural areas, and improve the access to and quality of care in specialties including, but not limited to:

(1) Audiology;
(2) Cardiology;
(3) Dentistry;
(4) Dermatology;
(5) Obstetrics;
(6) Oncology;
(7) Ophthalmology;
(8) Psychiatry; and,
(9) Radiology.[16]

Much like EHR systems, telemedicine models have certain drawbacks that may restrict rural providers' adoption and implementation of the technology, including:

(1) The restrictions on Medicare reimbursement of telemedicine services (including geographic /originating site, provider, and service type);

(2) Interstate licensure issues; and,

(3) The lack of access to broadband (i.e., internet connection with sufficient upload/download speeds to support the transmission of data) in rural communities – according to the *Federal Communications Commission* (FCC), nearly 40% of Americans in rural areas lack access to adequate broadband.[17]

As regards the last drawback, i.e., inadequate broadband access, the FCC recently announced plans for a $100 million pilot program to promote the provision of telemedicine services.[18] Named the *Connected Care Pilot*, the three-year program would support various projects focused on defraying the costs of broadband to promote the provision of telemedicine services to low-income Americans and veterans.[19]

The market for rural health services is expected to experience increasing demand in the coming years, due to an aging U.S. population and an increasing number of people with insurance through the ACA. Both of these factors may increase the number of people seeking healthcare services. As demand increases, the supply of physicians is anticipated to decrease, due to an imbalance between the number of these physicians who are moving toward retirement and the number of residents that are entering these fields.[20] While this may lead to a shortage of primary care services, especially in areas that are already underserved, RHCs and other rural providers have an opportunity to mitigate this shortage through technology such as EHR systems and telemedicine models, which allow providers to see more patients, and to augment their practices by remotely including specialists in patient care, thereby continuing to provide an invaluable service to areas that may not otherwise have access to primary and specialist services and increase the quality of care in their communities.

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