

Telehealth and Telemedicine: Using Technology to Extend the Reach and Offset the Insufficient Supply of Health Care Professionals

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Editor's Note: This is the first in a series of articles by Dr. Nigam on the use of digital information and communication technologies, commonly referred to as telehealth and telemedicine. In this article the author distinguished between these terms and identifies the potential contributions of digital information and communication in meeting healthcare challenges facing society today.

In future articles, Dr. Nigam will address regulatory issues and the future of telemedicine. The series concludes with a comparison of the use of telemedicine in North America and the international community.

The terms telehealth and telemedicine are commonly used interchangeably. As [defined](#) by the U.S. Department of Health and Human Services (HRSA) and World Health Organization, telehealth is a broad-based application of technology-enabled services to support long-distance healthcare. Telehealth includes Telemedicine, which specifically involves diagnosis, treatment, assessment, monitoring and education. Telemedicine can get to a greater level of efficiency and quality by incorporating sophisticated data analysis and decision-support tools. Other telehealth applications include remote non-clinical services, such as provider training, administrative meetings, and continuing medical education.

When one thinks of telehealth, companies such as Teladoc[®] and Doctor on Demand[™] come to mind. In fact, there are approximately 17 telehealth [companies](#) operating in the US today that provide remote physician access. Each increases the opportunity for contact between patients and the medical system in real time from remote locations. Elsewhere on *Telehealth and Medicine Today*, Clint Carney discusses telmedx[™], a telehealth service used in Ghana.

Telemedicine can leverage automated data collection and analytics—ultimately providing clinicians with actionable information to apply to patient care. Examples, according to Dell and Intel, of what is possible in research and treatment, using data analytics in the context of Internet of Things (IoT) was discussed in a recently published [brochure](#). These include greater medical device interoperability, better treatment decision making via analytics, and identification of cause and effect relationships affecting patient outcomes.

A [program](#) at Boston-based Partners Healthcare had more than 3,000 patients with congestive heart failure use at-home monitoring devices to send updates of their weight, blood pressure and other metrics to Partners. Clinical decision support software then helped identify patients that needed interventions. A panel of three or four nurses provided care for 250 patients and ultimately reduced readmissions among the participants 44%, with a cost savings of more than \$10 million.

More recently [Independence Blue Cross](#) working with [ReAdmission Solutions \(RAS\)](#) reported downward trend in readmissions and reduced ER visits as a result of [analytics-driven remote monitoring and care coordination program](#) in high risk CHF patients in one of the largest on-going programs of its kind with over 2000 members enrolled. Case studies cited in this recent announcement bring alive the benefit experienced by heart patients suffering from multiple comorbidities as a result of timely coaching or coordination activities provided by RAS nurses using real-time alerts and analytics in conjunction with patient's own physicians.

Falling Behind the Demand for Healthcare Services

The emerging ecosystem of technology, analytics and service providers is good news for everyone because of healthcare professional's limited ability to act or access patients in their homes after discharge. Additionally more than 60 million people—approximately one-fifth of the U.S. population—live in areas with a physician [shortage](#).

This observation is supported by the 2012 [report](#) by the Association of American Medical Colleges (AAMC) titled, *Recent Studies and Reports on Physician Shortages in the U.S.* Based on more than 60 state, national, and specialty studies of the physician workforce, AAMC pointed out that shortages in specialties include allergy and immunology, cardiology, child psychiatry, dermatology, endocrinology, neurosurgery, primary care, and psychiatry.

The Promise of Digital Technology in Healthcare

Growth in the application of digital information and communication technologies through both telehealth and telemedicine offers a means of helping to deal with this shortage. These technologies offer widespread access to national and international physicians who would otherwise be inaccessible. They extend provider's reach outside their four walls, reduce the cost of healthcare, and importantly, most telemedicine applications have [shown](#) no difference in the ability of the provider to obtain clinical information, make an accurate diagnosis, and develop a treatment plan that produces the same desired clinical outcomes compared to in-person care when used appropriately.

Next, Dr. Nigam discusses regulatory issues and future advances in telemedicine

Tags: analytics, communication, digital information, health care, healthcare, insufficient supply, interoperability, Nigam, professionals, technology, telehealth, telemedicine

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