

Technology Opens Promising Portals

By MARK CRAWFORD

Hospitals and health care systems are pushing themselves to implement new technologies, integrate services and facilities, embrace accountable-care-organization and medical-home models and overcome staffing shortages — all while under extreme pressure to keep costs down.

As a result, telemedicine is hitting its stride for helping the health care ministry treat more patients with better, more integrated care, at less cost, especially in underserved areas that suffer from a shortage of doctors, nurses and health care facilities.

Approximately 200 telemedicine networks with 3,500 service sites operate today in America. The feasibility of such networks is limited only by availability of appropriate bandwidth, proponents say.

“Telemedicine helps providers deliver a higher level of care to patients by enabling more frequent touch points with them and reducing the travel and time barriers associated with office visits,” said Peter Rasmussen, MD, medical director of distance health at Cleveland Clinic in Ohio. “It also provides new avenues for patients to access health care in a scalable way that offsets the increased demand for health care services.”

WHAT IS TELEMEDICINE?

According to the American Telemedicine Association, telemedicine is the “use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status. This includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools and other forms of telecommunications technology.”

Patient consultations can be held via video conferencing, transmission of still images, discussions through patient portals, remote monitoring of vital signs, consumer-focused wireless applications and nursing call centers.

For providers, telemedicine eliminates the need of putting a patient in a room for an office visit, reducing operational costs. Patients like it because it can save them travel time and income lost from work and give them a quicker physician response. Early or timely intervention in many situations can result in better health outcomes and reduces major costs, like hospitalization.

Telemedicine also can bring advanced health delivery resources — for example, specialists, technology, treatment methodologies — into care and community settings where they would not normally be available.

“In this way,” said Jim Roxburgh, director of the Dignity Health Telemedicine Network in San Francisco, “telemedicine helps us achieve our mission of providing excellent care with kindness and compassion to those most in need in the communities we serve.”

FASTER DELIVERY OF CARE

Once considered primarily a tool for treating patients in remote areas, telemedicine has become a key health care approach across all settings. It is limited only by the availability of a reliable broadband connection and is especially

well-suited for ongoing disease management and self-monitoring at home.

“Telemedicine is moving beyond rural care and becoming integrated into new care models in traditional health care settings,” said Win Vaughan, vice president of business development and financial planning for Catholic Health Initiatives (CHI) in Englewood, Colo. “For example, our virtual pharmacy model started as an after-hours solution for small facilities that could not afford or find pharmacists at night and on weekends. Large, urban facilities are now implementing our virtual pharmacy solution to free the onsite pharmacists from their computer screens in the pharmacy department to be on the patient floors, working with physicians on high-value clinical activities impacting quality and cost of care.”

“It is much easier to move electrons across the country than it is physicians, nurses and patients,” said Thomas Hale, MD, executive medical director for Mercy Virtual in St. Louis. “At the same time, telemedicine also preserves the personal relationships between providers and patients and fulfills the Institute for Healthcare Improvement’s ‘Triple Aim’ — better service through improved access, higher quality and lower costs.”

In fact, telemedicine can enhance those personal relationships, said Cleveland Clinic’s Rasmussen. “Providers and patients have more frequent contact, which results in better patient compliance, fewer complications and reduced utilization of the emergency department,” he said.

SPECIALTY CARE

Mercy operates the world’s largest single-hub electronic intensive care unit, according to Hale. From one location in St. Louis, critical-care physicians and nurses monitor more than 450 beds in 15 hospitals across five states. By watching over patients with an extra set of expert eyes — provided by both clinicians and technology — Mercy is on pace to eliminate intensive-care unit complications such as ventilator-associated pneumonia and central line blood stream infections and to reduce ICU length of stay by 20 percent.

“Home telemonitoring also allows us to monitor chronically ill and high-risk ambulatory patients,” said Hale. “When issues are identified, versatile and intelligent monitoring technology allows us to quickly intervene as the need arises

and before a patient shows up in the emergency room. Our ‘Nurse on Call’ connects patients with clinicians who help patients decide the best course of action when faced with an illness or injury. This triage service offers expert health advice 24 hours a day, every day, reducing the need for an emergency room visit or specialist consultation by 43 percent.”

Medical specialties particularly conducive to telemedicine include endocrinology, neurology, gastroenterology, pulmonology, cardiology, low-level primary care, behavioral health, pre- and post-surgery screening and wound checks. Telemedicine is proving to be particularly beneficial in emergency settings, especially for diagnosing and treating strokes.

“Through our telestroke network, we know that stroke expertise can be effectively provided remotely via telemedicine to discern which

TELADOC BY THE NUMBERS

Teladoc, one of the largest digital-health providers in the country, contracts with insurers and large employers to provide members and employees 24/7 access to a network of doctors for non-emergency medical issues. Doctor visits are carried out via phone, online video, mobile app or through “HealthSpot” kiosks. Founded in 2002, the company has 8 million members and provides more than 250,000 consultations annually. Teladoc recently raised \$50 million from investors, indicating both consumers and health care providers see value in the rapidly expanding telemedicine field. Below is a Teladoc chart of savings it attributes to its telemedicine services.

Savings by Type of Visit	Cost	Savings
Primary care visit	\$130	\$90
Specialist visit	\$190	\$150
Urgent care visit	\$160	\$120
Emergency room visit	\$1,500	\$1,460

Average Savings Per Consult

Average savings per patient consult	\$455
Including cost of lost productivity (about four hours lost at average wage of \$35/hour)	\$140
Total average savings per patient consult	\$595

patients are having strokes and which would benefit from early intervention via clot-busting medication,” said Rasmussen.

The benefits to patients are incalculable.

“For example, the national average for the administration of tPA [tissue plasminogen activator] to break up clots following strokes is 3 percent to 5 percent,” said Dignity Health’s Roxburgh. “In community hospitals that have telemedicine access to neurologists who can read the brain scans of stroke patients and determine proper treatment options, the rate climbs to 20 percent or

“The approach used for each patient is tailored to the patient’s individual needs and coordinated with the patient’s care plan.”

— Samantha Lippolis

higher — comparable to the usage rates in major stroke centers. For patients, prompt and appropriate administration of tPA can mean immediate therapeutic benefits and avoiding long-term disability.”

Social workers, behavioral health specialists and pharmacists are among the other health care professionals who use telemedicine. “For hospital-based telemedicine services, we do know that the cost to provide telepharmacy is at least half of having a full-time pharmacist on site,” said Chris Jones, vice president of strategy for CHI’s Fargo division in North Dakota. “Secondarily, as the use of telepharmacy grows, there will be increased focus on the local pharmacists spending more time with patients prior to discharge doing medication education and letting the telepharmacy service handle the back-office functions of a pharmacy.”

For patients with chronic disease such as congestive heart failure, asthma, chronic obstructive pulmonary disease and diabetes, telemedicine is effective for remote patient monitoring (RPM) and has been shown to reduce readmissions and other costs. Centura Health, a regional network sponsored by CHI and Adventist Health System, delivers telemedicine services in Colorado and western Kansas to patients’ homes through remote home monitoring that includes ongoing

remote measurement of vital signs and automated, phone-based checkups of physical and mental well-being.

“The approach used for each patient is tailored to the patient’s individual needs and coordinated with the patient’s care plan,” said Samantha Lippolis, telehealth manager for Centura Health. “We’ve also seen an increase in medication compliance through RPM. Health care organizations and insurers are stratifying patient populations to determine which patients are at greatest risk for readmissions and enrolling them in RPM.”

Telepsychiatry has proven to be another innovative application of telemedicine. (See story on page 28.) Across the country, mental health issues often are underdiagnosed and undertreated. Mental health frequently is the primary diagnosis for much of the chronic care that is provided on an episodic basis.

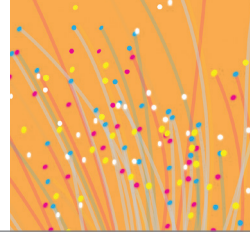
“While we have started with hospital-based psychiatry, primarily in the emergency room, we continue to develop plans to move outside of the traditional health care environments into new environments, to try and get psychiatry services to people who are in need as early as possible,” said CHI’s Jones.

MOVING FORWARD

Telemedicine will continue to be integrated into the ongoing operations of hospitals, specialty departments, home health agencies, private physician offices and consumer’s homes and workplaces. Extending patient-centric care to a 24-hour, 7-days-a-week basis will help accelerate the shift of care from the hospital to the ambulatory setting.

“This does, however, require significant investment in information systems, leadership, clinical expertise, data support/analysis and systems architecture,” said Hale. “In general, the investment in telemedicine is similar to what is needed to build and run hospitals.”

However, according to Hale, every dollar spent utilizing tele-ICU to monitor critically ill patients results in savings of \$4 by decreasing the length of stay, reducing complications and improving outcomes. “The investment can be daunting at first,” he added, “but through collaboration between health systems, it can be done — providing equitable and high quality care to everyone.”



Advancements in telemedicine technology will make it possible for physicians and clinicians to provide more functionality when treating the ongoing health care needs of large employee populations, communities or individual patients. Case and disease managers, social workers and coaches also can provide education to complement the treatment plans that physicians and nurses provide for patients, especially those with chronic conditions.

Because most members in all population groups have basic technology skills, telemedicine can be effective in both urban and rural settings, with a very short learning curve. As a result, more health care systems are starting to partner with medical device companies and other manufacturers to develop new telemedicine tools. For example, Dignity Health currently is working with technology companies to develop more remote-care tools to extend care to the homes of patients who frequently use its emergency services.

“We want to provide these patients with education and support, engage them in their care and send them home with the tools and resources they need to monitor their health and prevent unnecessary subsequent hospitalizations,” said Roxburgh.

One of the biggest risks of telemedicine, cautioned Jones, is using it without providing enough communication between onsite providers and virtual providers to ensure continuity of care.

“A significant amount of effort has been invested to create medical-home models and to ensure there is communication among traditional models of health care delivery,” he said. “The introduction of virtual providers only makes the coordination of care that much more complex. We are continuing to figure out how to crack that nut. An additional risk exists, as with any disruptive model, with local providers feeling like they are being replaced by virtual providers. Any provider-type telemedicine service must have a strong local physician champion.”

Telemedicine also brings the same security risks as other electronic forms of communication, such as the transmission of electronic medical records. Physicians and clinicians who use telemedicine services must ensure that the same standards and best practices of patient privacy are met during a video or Internet consultation as when

conducting a face-to-face clinic visit.

“Health systems must remain vigilant in ensuring the security of their network and protected information, including meeting all regulatory requirements for data encryption,” said Lippolis at Centura Health.

Telemedicine solutions overcome barriers, such as geography or time, which prevent people from having easy access to health care. Thoughtful integration of telemedicine into care systems has the potential to substantially improve outcomes and lower costs — the primary goals of the Affordable Care Act. Although the ACA has provided increased support for telemedicine, additional legislative and regulatory advances will be necessary to support the full deployment of telemedicine-enabled care.

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— Chris Jones

medicine is to expand care in a timely, convenient and efficient way,” said Hale. “Increasing the financial alignment and improved rewards for delivering improved outcomes at lower costs will be necessary for accelerating telemedicine solutions.”

Finally, telemedicine also is the perfect complement for fulfilling the mission of Catholic health care — to provide care to all, especially those without access to care, either because of financial, social or geographic limitations.

“Telemedicine supports mission by connecting providers to communities that may not have viable models for receiving care,” said Jones. “To some extent, I envision telemedicine as an evolution of [the Catholic] sisters traveling across the country, addressing health care needs where they were not being met.”

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