Fast Internet connections and high-definition video streaming are rapidly changing the way doctors work. Using HIPAA-compliant audio/video equipment, they can diagnose, treat, educate and manage care for patients who are perhaps hundreds of miles away at their local clinic, hospital or home. Telemedicine is one type of telehealth—a broad field that includes connecting to patients by telephone, remote monitoring, text-only e-visits, and email through patient portals like MyChart or MyCare.

Telemedicine has come a long way since 1994, when Minnesota received grant funding from the Office of Rural Health Policy to demonstrate how the technology could bring needed care to medically underserved populations. First used for a narrow range of services, such as connecting specialists in urban areas to stroke patients in smaller hospital emergency departments to determine if they’re eligible for tPA and doing remote exams of newborns in distress, telemedicine is now used for everything from examining post-surgical wounds to conducting psychiatric visits (see “Telemedicine in Minnesota”).

Convenience and access
Telemedicine has long been touted for its benefits to patients, as it allows persons living in rural areas, nursing home residents and individuals with disabilities to receive specialty care without having to drive long distances to a tertiary care center. “Sometimes I think we in health care underestimate how stressful, costly, time-consuming and disruptive it is for patients and their families to travel long distances, often in bad weather,” says Maureen Ideker, director of Duluth-based Essentia Health’s telehealth department.

It also has been shown to improve care and outcomes for patients. For example, stroke patients in rural areas with access to telemedicine are more likely to receive tPA, preserving function and quality of life. Intensive care patients can avoid risky, expensive transport to another facility. And physicians are able treat patients earlier, before their condition becomes more serious.

Telemedicine offers benefits for physicians, too. For one thing, it eliminates the downtime associated with traveling to far-flung clinics, allowing them to devote more time to seeing patients. It also reduces the number of no-shows at clinics.

Given a choice, many patients choose televisits over in-person visits. A 2013 survey by Intel found 72 percent of consumers said they’re willing to see a doctor via
video conferencing for nonurgent appointments. In addition, satisfaction with such visits is high across specialties, according to medical group leaders who served on the MMA’s Telehealth Task Force. The task force developed telemedicine guidelines and recommendations in 2015 (see p. 13).

Not surprising, the use of telemedicine is growing. Essentia Health, for example, which began its telemedicine program five years ago, has seen the number of remote visits grow by 25 to 30 percent each year. In 2015, its hospitals conducted 722 video visits between patients at one hospital and clinicians at another for stroke and other specialty care. Its clinics conducted 2,525 video visits involving 22 specialties, with medical weight loss, child psychiatry and dietitian services being the most common.

Reimbursement parity
Use is expected to increase even more after January 1, when state law will require commercial payers to reimburse video visits in the same way they do in-person visits. Minnesota is one of about 30 states that now require commercial payer parity.

Medical Assistance, the state’s Medicaid program, already started providing payment parity in January of this year. It also began paying for additional sites, services and licensed providers. Previously, it reimbursed for telemedicine visits by physicians, nurse practitioners, physician assistants, nurse midwives, nurse anesthetists, dietitians, psychologists and licensed social workers. The law change now requires Medical Assistance to also pay for telemedicine services provided by speech-language pathologists, audiologists, optometrists, dentists, certified diabetes educators, physical and occupational therapists, and almost all other licensed health care providers who receive payment for in-person encounters.

In addition, Medical Assistance now pays for telemedicine visits at assisted living facilities and group homes as well as for “asynchronous visits,” which rely on the exchange of images and information through email-like communications rather than real-time video, to evaluate dermatologic conditions and wounds. Even though it’s not being done much yet, Medical Assistance now pays for televisits in a patient’s home. So far, most health care systems haven’t noticed a significant increase in Medical Assistance telemedicine visits.

Regardless of what payer parity ends up looking like in Minnesota, health systems say it’s the right thing to do because it

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TELEMEDICINE IN MINNESOTA

A look at how four specialties are using it.

BY HOWARD BELL

Telemedicine has found a place in a number of specialties. Here are a few of the ways it’s being used by physicians in Minnesota.

Weight loss services
As a family physician who’s practiced primary care and emergency medicine in northern Minnesota for many years, Stephen Park, MD, saw the toll poor eating habits took on patients. “By 2020, half of all adults in the United States will be diabetic or prediabetic,” he told an audience at the Minnesota Academy of Family Physicians’ spring refresher earlier this year. Wanting to help patients prevent diabetes and other obesity-related health concerns, he became board-certified in obesity medicine 10 years ago.

Park is one of nearly 1,600 physicians in the United States to earn the certification and one of only three who offer non-surgical weight loss services for Essentia Health. His challenge: how to provide services to patients throughout the Essentia system, which has clinics in northern Minnesota, North Dakota and Wisconsin.

Four years ago, Park, who is based in Ely, Minnesota, turned to telemedicine.

Today, he does 100 percent of his patient visits, including most initial evaluations, remotely from his home office. Patients, who come to one of 20 clinic sites in places such as Deer River, International Falls and Jamestown, North Dakota, sit in a regular exam room, where an audio/video cart is waiting. Specially trained nurses at the rural clinics operate the equipment. Using Essentia’s secure broadband network, Park sees and talks with the patient on one screen and can access their medical record on another.

During the physical exam part of the visit, the nurse conducts a guided assessment, during which Park gives step-by-step instructions. A video camera zooms in closely to examine a specific area and pans so Park can see the patient walk. Electronic stethoscopes digitize and transmit sound. Electronic otoscopes send

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acknowledges telemedicine’s efficiencies. "Reimbursement parity is a good thing, but it’s not a major driver for us," says Ideker, who explains that telemedicine has been part of Essentia’s business plan for a long time. “Some of our health care professionals who will now be reimbursed, but didn’t use to be, will start using telemedicine, which will increase the number of patients who choose video visits.”

Tele-free-for-all
With a plethora of competing platforms on the market, the U.S. telehealth industry is predicted to grow from $240 million in revenue in 2013 to $1.9 billion in 2018, an annual growth rate of more than 50 percent, according to a recent study from business information provider IHS. An- (continued on page 14)

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video and still images. Blood pressure readings are transmitted digitally.

Park has extended conversations with his telemedicine patients just as he does in person, orders lab tests and e-prescribes medication including controlled substances using a fingerprint scanner.

Advanced practice nurses and dietitians who’ve shadowed Park to learn his protocols do the follow-up and on-going support via video, freeing Park to take on new patients without making his workload unmanageable.

“There is zero difference in outcomes between video visits and in-person visits,” Park says. “And patient satisfaction is as high as it can get. You can build a trusting doctor-patient relationship by telemedicine just as well as you can in person. It increases access because many weight-management patients can’t travel or are reluctant to. The only drawback is I can’t touch their hand or give them a hug, because obesity is an emotional condition some have struggled with for decades.”

Surgical follow-ups
High-definition videocameras and streaming have greatly improved image clarity since Minneapolis VA general surgeon, Steven Waisbren, MD, started doing post-surgical follow-up visits by video with patients at clinics outside the Twin Cities nearly two years ago.

Prior to that, many patients had to travel more than four hours for post-op appointments at the Minneapolis VA that often lasted no more than 10 minutes. Today, patients can go to their local VA clinic for follow up.

As Waisbren and his patient talk by video, a technician photographs the patient’s wound. (Waisbren prefers sharp still images instead of video for examining post-op wounds.) Within seconds, the digital image appears on Waisbren’s computer screen in Minneapolis. This type of telemedicine is called “asynchronous” because there is a delay—in this case a brief one—between when the image is sent and received. During that brief delay, Waisbren talks with the patient using audio/video conferencing. A record of his interpretation of the image and the patient’s follow-up treatment plan goes into the patient’s medical record. The patient receives a copy of the plan at their local clinic.

Complication rates for telemedicine post-op visits are no different than those for in-person visits. A California VA study of 115 open hernia surgeries and 26 laparoscopic cholecystectomies published in JAMA Surgery in 2013 showed no complications for the cholecystectomies followed up remotely and a rate comparable to in-person visits for hernias. Waisbren says he’s been able to spot any problems that arise. “We’ve never failed to find a complication for routine abdominal, neck and soft-tissue operations,” he says. Waisbren does post-op telemedicine evaluations for all types of general surgery, but uses in-person visits “when patients need to be examined with more than our eyes.” Some wounds, he says, must be felt and probed to make sure they’re healing well.
Waisbren lets his patients choose between a video or an in-person follow-up visit. About half choose video. “Those who do love it,” he says. “Patient convenience is the main benefit.” Waisbren along with two of his VA colleagues and a nurse practitioner who also conduct video visits are collecting data on the miles, time and money saved, and surveying patients about their satisfaction with telemedicine follow up. “Many avoid the expense and time of overnight travel and driving for hours,” he says.

For Waisbren, video visits actually take longer than in-person visits because of the time it takes to get his audio/video equipment up and running before each visit.

Although smartphones and tablets can take photos that are clear enough for wound evaluation, the VA doesn’t allow patients to send images from their personal devices because of security concerns. Waisbren doesn’t think this policy will change any time soon, but if it does, he says, “patients can be at home during the visit, as long as I used absorbable sutures, which don’t require a nurse to remove.”

**Dermatology**

Smartphones are proving to be essential for bringing telemedicine to dermatology. Minneapolis dermatologist Neil Shah, MD, has been using them in his practice at Clarus Dermatology for more than a year. He uses uploaded images taken by patients with their smartphones mostly to evaluate rashes and acne and to see whether treatment is working. He does not use such images to evaluate other spots that often require a biopsy to confirm a diagnosis.

Patients can initiate a televisit anytime by going to the Clarus website, where they complete a questionnaire, then upload a photo of the area of concern that they take on their phone or tablet. Shah gets back to them within 24 hours during the work week. He also can e-prescribe from the Clarus secure web-based platform and import the visit summary into the patient’s medical record.

Shah, who typically does three to five televisits a week, says they’re preferred by patients who are at ease with smartphones as well as those who have high-deductible health plans, as these appointments cost less than in-person visits. Shah charges $55 for televisits, compared with $75 to $175 for in-person visits.

Dermatologists have used telemedicine for more than a decade, according to Shah, who adds that “a well fleshed-out” body of scientific literature shows that outcomes for in-person and televisits are the same. “For the right conditions,” Shah says, “a televisit is no different than an in-person visit. It’s not second-quality care—it’s the future.”

**Psychiatry**

Psychiatrist Kathryn Lombardo, MD, has used telemedicine in her practice at Olmsted Medical Center in Rochester for four years—mostly with patients at rural branch clinics or in nursing homes. “Telemedicine has allowed me to treat many patients who otherwise wouldn’t have (continued on next page)
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received psychiatric care,” she says, noting that teledmedicine is well-suited for psychiatry because it requires no complicated physical exams or special tools.

Lombardo connects with patients at Olmsted’s 10 branch clinics using a HIPAA-compliant audio/video conference software package. Each branch clinic has a designated teledmedicine exam room with audio/video equipment. A nurse at the branch clinic takes the patient’s vitals and completes a depression screening before the start of the visit.

Lombardo and her partners complete about 10 to 15 such visits each month.

After each appointment, she asks the patient, “Do you believe telemedicine is as effective as an in-person visit?” Nearly all say yes. “You actually have a better quality appointment sometimes because many patients are more at ease when they’re at their regular clinic or in the nursing home where they live,” she says.

According to Lombardo, Olmsted Medical Center is planning on expanding telepsychiatry visits to patients living in group homes in the near future.

Many more uses
In addition to psychiatry, Olmsted Medical Center uses video visits for endocrinology, wound care, pre-op appointments and educating patients about diabetes management. The Minneapolis VA also uses it for mental and behavioral health, gastroenterology, neurology and other subspecialty care. In fiscal year 2016, Essentia Health’s clinics conducted 2,525 video visits involving 22 specialties, with medical weight loss, child psychiatry and dietitian services being the most common.

Other health systems are looking at how they might incorporate remote visits. For example, Hennepin County Medical Center (HCMC) in Minneapolis has been cautiously analyzing how best to use teledmedicine and for what purposes. Its otolaryngologists currently use it to evaluate post-surgical scarring following tumor removal and assess severe trauma-related injuries. They also use videoconferencing to plan a treatment strategy with the patient. Chief medical officer William Heegaard, MD, MPH, says HCMC is also planning on using it to offer mental health visits to patients being seen in its primary care clinics. Its ALS Center plans to offer video visits to patients in their homes. HCMC leaders are also researching home video visits for stroke, acute care and burn management, as well as ICU and emergency department video visits to rural hospitals. “There’s tremendous potential here,” Heegaard says. MM
a report to their regular provider. Doing so requires encryption and interoperable EMRs.

The two JAMA studies also showed that patients are more apt to receive best-practice guideline-adherent care when telemedicine is offered through their regular physician rather than an independent DTC company that has no affiliation with their doctor.

Another concern is that patients are using DTC telemedicine to bypass their regular doctors. To combat “leakage” of patients to independent DTC companies, many Minnesota health systems and health plans are offering their own DTC services or are partnering with DTC companies. For example, Blue Cross and Blue Shield of Minnesota has relationships with Doctor on Demand and American Well. Both offer urgent care through telemedicine, often through employers.

Meanwhile, HealthPartners is working with VirtuWell to offer text-only e-visits. HealthEast uses RetraceHealth's technology to offer patients 24/7 access to physicians through video.

North Memorial Health Care in Robbinsdale, CentraCare in St. Cloud, Lakewood Health System in Staples and Fairview Health System in Minneapolis use the Zipnosis platform to provide asynchronous telemedicine services to their patients, mostly for conditions such as fever, rashes, sore throats, sprains, urinary tract infections and asthma flare-ups.

Other Minnesota health systems are looking at developing their own DTC products for urgent care e-visits, with an eye on eventually adding audio/video capabilities. Sometime soon, Ideker says, Essential will offer DTC urgent care e-visits to patients in their homes using its own text-only platform. “Real-time e-visits are an important growth area and the wave of the future,” she says. “Patients prefer to go to their own clinic, and one way or another, Minnesota clinics and hospitals are going to offer direct-to-consumer telehealth.”

Given its efficiencies and convenience, telemedicine and its related technologies are proving their value for many. And for physicians, they represent one more way to connect with patients. MM

Howard Bell is a medical writer and frequent contributor to Minnesota Medicine.