Health care remains one of the few services that require people to have a face-to-face interaction to obtain access. But more and more consumers are questioning that reality, and change is on the way. In January 2015, the Centers for Medicare and Medicaid Services (CMS) issued a new provider reimbursement code for non-face-to-face health care services for patients who have chronic medical conditions. A new CMS code may seem like a tiny matter, but this one embodies a larger shift toward delivering health services independently of time and place, enabled by technologies such as smartphones, sensors, and wireless health-monitoring devices—what we in the field call telemedicine.

The concept of telemedicine is not new (its roots go back to the late 1950s). In the 21st century, the widely held goal of improving health care outcomes while lowering costs is accelerating the shift from a one-to-one to a one-to-many model of care delivery, which telemedicine makes possible. Understanding telemedicine has now become crucial for decision makers in the health care industry, and I aim to help in that effort. Let me start by exploring some industry fundamentals.

The rising prevalence of chronic illnesses in an aging population puts pressure on the supply side of health care. Clinicians are not being trained fast enough to keep pace with the rate of service demand. In addition, given the rising cost of care, new models for reimbursing hospitals and other providers have begun to emphasize quality and efficiency rather than units of delivery. And consumers are increasingly shopping on open markets for health insurance policies that require significant deductibles and out-of-pocket expenses. These trends underpin the need for a one-to-many model of care delivery that offers flexibility and transparency.

Telemedicine is well positioned in this environment, particularly given patients' growing comfort with technology in their consumer endeavors. The core technologies of telemedicine include those that collect data (such as wearable and ingestible sensors, and vital-sign and health-status monitoring) and those that enable communication (videoconferencing, text-messaging, mobile apps, and voice calls). These types of virtualized services will become an integral part of care delivery. Indeed, several commercial payers are now reimbursing providers for video-based visits, not to mention the CMS's new telemedicine-friendly reimbursement code.

How does telemedicine work in practice? Here are some common examples:

1. When patients with congestive heart failure use a home-based weight scale and a blood pressure cuff, and then check in routinely by phone with a nurse, their survival rates improve, and costs decline. A nurse can care for hundreds of patients at a time in this way, keeping them healthy and happy in their homes and away from costly emergency rooms and hospital beds.

2. For patients with mental illness, video follow-up visits with a mental health provider have been shown to improve quality and efficiency of care. The provider can more easily assess environmental influences on the patient's condition, and patients more accurately reveal their daily state of being because they don't always have to endure the stress of traveling to an office and the social anxiety of sitting in a waiting room with other patients.

3. Text-messaging interventions can aid in smoking-cessation efforts. My institution is collaborating on a texting intervention for smokers who try “practice quits” (quitting for a short period, such as an hour or a week). Timed text messages help the smoker cope with cravings, encourage longer practice-quit commitments, and applaud successes. The smoker can also text in the word “crave” and receive text-based coaching on the spot. Relatively automated systems like this one have great potential for improving public health.

4. Both Walgreens and CVS offer virtual video care as an extension of their retail clinics. Many health plans, led by UnitedHealth Group, are doing the same. These offerings will push hesitant providers to offer these services as well.

Despite those examples, most telemedicine efforts are still in early, small-scale phases of implementation. Countervailing forces, like these, stand in the way:

- Although most young doctors are digitally savvy, they represent a much smaller group than the physicians who were trained in an era when a face-to-face interaction with a patient was the only option.
- Fee-for-service reimbursement, still the dominant payment model in the U.S., is fundamentally at odds with a one-to-many model of care delivery.
- Some doctors worry that virtual care will mean greater liability, even though most malpractice insurance carriers are telemedicine-friendly and the case law on virtual care is almost nil.
- State physician-licensure laws in the U.S. create false geographic barriers that have impeded some forms of telemedicine. For example, some laws require that a physician be licensed in the state where his or her patient is located.
- Many health insurers fear that telemedicine will lead to overutilization—such as a doctor looking at an image of a patient's mole, submitting a bill for the virtual service, and then saying he needs to see the patient in person to be sure.
- Frequent users of health care services are typically disproportionately less technosavvy and place great value on their social interactions with their clinicians.
- Privacy concerns about remotely delivering care persist.
I am excited about the possibility of automating certain care-delivery processes and using technology to enable patients to obtain better care. The advertising industry now has a model for collecting and analyzing consumers’ digital fingerprints so that ads can be personalized. In a somewhat similar vein, people can now have their walking steps counted, purchasing behavior tracked, and mood and other health indicators monitored to create a highly personalized messaging program that motivates them to improve their health.

If we do telemedicine right — with the direct and enthusiastic consent of the patient — I believe that most people will make the privacy tradeoffs. Realizing the potential of telemedicine will indeed require those tradeoffs if we want to improve the current system of health care delivery.

Even if all of these obstacles are overcome, face-to-face care visits will not become obsolete, given the complexity of some patients’ clinical profiles and illnesses, especially when a doctor needs to arrive at an initial diagnosis. And some highly sensitive communications (such as news of a newly diagnosed cancer) are obviously best conveyed in person. But for health care interactions that are algorithmic in nature (think: blood pressure checks and acne follow-up visits) or that have a low emotional impact, virtual encounters can be ideal for both parties.

Pressure to lower costs also bodes well for innovation in telemedicine’s one-to-many model of care delivery. Early results suggest that new payment models that reward providers for higher quality and efficiency (including virtual care) are working.
We live in a world where our personal devices—whether they’re in our pocket, car or home—can seamlessly share real-time data with each other. But the same cannot be said for a much more important area of our lives—healthcare. That’s because many of the systems that record and store healthcare data across the care continuum are not integrated. Erasing this so-called integration deficit is a critical next step in healthcare’s evolution as we transition to value-based healthcare.

While many stakeholders see the potential for improved collaboration, the misaligned incentives of many healthcare systems make the prospects for integration a significant challenge. Repeated tests, recurring readmissions, and an incomplete picture of a patient’s overall health are often the result. By working together to manage patient care holistically, the healthcare industry can improve clinical and financial outcomes.

So if the lack of integration is the problem, how do we start working toward a solution? More connected medical technologies—implanted and otherwise—can and should play a crucial role, as will better use of data to help healthcare professionals see a broader view of their patients. Today, many of Medtronic’s technologies are actively generating data, and we are working with the global healthcare community to take our technology, services, and insights and fashion them into solutions that either augment the delivery of care through better patient care management or improve overall system efficiency.

In the spirit of progress and partnership, our work includes:

- Utilizing insulin pump technology, sensors and mobile applications to better manage patients outside of the hospital setting in the Netherlands,
- Combining implanted heart failure technologies, diagnostic sensors, and nursing support to keep heart failure patients out of VA hospitals,
- Collaborating with IBM Watson to identify better care management for diabetes patients by using the patient’s own data,
- Working with hospitals to allow quicker patient discharges by giving doctors and nurses the ability to monitor patient care and progress remotely,
- Partnering with hospitals to manage their cath labs for better patient throughput and outcomes, and
- Working on-site at hospitals to drive improvements in efficiency, quality, clinical outcomes, and patient experience, all within an outcomes-based payment model.

As we’ve seen in our efforts, the successful integration of patient care will require collaboration between providers, suppliers, physicians and payers. At Medtronic, we believe we have an important role to play in the integration of healthcare. There’s an opportunity to harness the data and insights our technologies produce to create a more integrated, patient-centered healthcare system—one that ultimately is set up to achieve and reward the long-term outcomes that are central to a value-based healthcare system.

Learn more about our perspective on integrating care and value-based healthcare here.