

# TELEHEALTH AT JEFFERSON

GAME ON FOR ANYTIME, ANYWHERE CARE



Photo by Karen Kirchhoff



Sang H. Woo, MD, clinical associate professor of medicine and division director of hospital medicine, leads rounds for patient Lily Chen. Chen's daughter participated virtually from California and was able to meet her mother's care providers and ask them questions about her condition.

By Jessica Stein Diamond

Now that you can shop, socialize, transact business and be entertained basically anytime and anywhere, many people have similar expectations for virtual access to health care.

Jefferson is racing toward that future with transformational initiatives using mobile devices, laptops and personal computers and other technologies to offer patients remote access to care. "We're working to take the lead on where medicine is going," says Judd Hollander, MD, associate dean for strategic health initiatives at Jefferson. "Our goal is to figure out how to create the health care of the future."

### Story Summary

- Patients increasingly expect to receive medical care 24/7 via mobile devices and computers, a new practice environment often referred to as telehealth, telemedicine or virtual medicine.
- This shift promises to improve access to care within and beyond Jefferson's inpatient, outpatient and transitional-care settings.
- Newly recruited clinician-scholars at Jefferson will lead research on virtual medicine outcomes to identify best practices likely to shape public policy and influence insurance reimbursements. They will likewise shape innovative new training and certification programs for virtual medicine.

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Jefferson's current and planned enterprise-wide telehealth endeavors reflect extensive input from patients, patient advocates, physicians, allied health professionals and senior health system leadership. "We began with a blank slate to find out how to provide the right level of care anytime and anywhere the patient wants it," says Hollander, who joined Jefferson in 2014 to help direct implementation plans for telemedicine, otherwise known as telehealth or (his preference) "medicine without walls." "Medicine has been too often focused on what doctors and nurses want and not on what patients want. At Jefferson, the medicine of the future is definitely going to be patient centered."

### Beyond the Built Environment

Leveraging Jefferson's clinical expertise beyond its bricks and mortar presence will take many forms and will incorporate evolving technologies as these emerge. A subset of plans underway includes: providing remote access to medical care for Jefferson employees; offering virtual access to multi-specialty rounds for off-site family members of hospitalized patients; enhancing communication among patients and care providers during and after hospital discharge; and expanding the reach and breadth of Jefferson's remote stroke care network to serve patients with other critical care conditions. Concurrently, Jefferson's new National Academic Center for Telehealth is pioneering critically needed research and training to

A patient follows instructions given by Robert Rosenwasser, MD, during a virtual exam.

Photo by Karen Kirchhoff

improve telemedicine healthcare practice methods and outcomes.

“This initiative is still in its early phases yet truly will be transformational,” says John Kairys, MD ’88, senior vice president and chief medical information officer. “The changes underway reflect a convergence of mobile technologies, video conferencing, mobile health devices and integration of electronic medical record systems — plus an agreement among all parties that we need to find a better way to do things. Jefferson will be at the forefront of building the interactive patient experience of the future.”

### Tippling Point

Kairys points to an analysis by the consulting firm Deloitte that identifies 2014 as the likely tipping point toward adoption of virtual health care due to widespread use of mobile technologies, especially among older patients, and continued pressure to improve care and reduce medical costs. Deloitte projects there will be 75 million virtual U.S. doctor visits in 2014, an estimated one-fourth the potential U.S. market for electronic doctor visits (and just a sliver of the many ways patients will access medical care remotely).

In keeping with Jefferson’s philosophy of friends and family first, Jefferson will begin offering its more than 17,000 employees and dependents virtual access to unscheduled medical care in 2015. This service will be available through an app accessible on any internet-capable device. Employees

will be able to access virtual clinical guidance and care around the clock and obtain referrals, when needed, for in-person primary care, specialists and urgent or emergency care. “We’re happy to begin our roll-out by offering our employees the ability to tap into this system,” says Hollander. “We plan to expand this service in the future beyond employees to other patients regionally and ultimately nationally.”

### Fan Favorite

Jefferson has also begun a pilot program that offers virtual access to multi-specialty rounds for hospitalized patients. Family members click on an app or link on a smartphone, tablet or computer when rounds begin, listen to the discussion and have a designated period of time when they can ask questions. “We refer to this as the ‘fan favorite’ among virtual medicine opportunities,” says Hollander.

While this virtual access is likely to affect pacing for rounds, the additional time needed will be factored in, says Hollander. “We believe this is something patients and family members will love. The physician response has been ‘this is great’ as well, because they recognize this will reduce the number of phone calls and questions they need to answer later in the day from patients’ family members.” Virtual rounds are also expected to reduce hospital readmissions because families will be more aware of the progress and course of a patient’s treatment. This pilot began

on an oncology floor where a team of engaged physicians and nurses assessed workflow and technology issues; they are now refining this new, more patient-friendly virtual rounds process, addressing issues iteratively as they emerge.

“We want to make sure we’re doing this well before we scale it up,” says Hollander. “It would be great to reach a point where every patient who comes into the hospital could have their family members present at virtual rounds.”

Virtual appointments to make sure surgical incisions are healing properly are another way Jefferson is using technology to improve access. Kairys, a practicing endocrine surgeon, sees patients in his office up to two weeks after a surgery. He typically offers a second post-operative visit six to eight weeks later. “That visit is primarily for reassurance and takes just three to five minutes,” he says. “I’m amazed at how many people will take the day off from work, drive into the city, pay \$25 or more for parking and wait in the waiting area and patient room for that. Technology gives us a wonderful opportunity to offer that reassurance in a more time- and cost-effective way. This also potentially opens up more appointment slots so we can then see additional patients and further grow the practice.”

Jefferson neurosurgeons recently began offering similar virtual follow-up post-operative visits to check incision healing after surgeries such as craniotomies. “If we can make this work safely and successfully for a

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specialty like neurologic surgery, which is resource intensive, high-acuity and high-risk, then intuitively this should work for other areas of medicine,” says Robert Rosenwasser, MD, the Jewell L. Osterholm Professor and Chair of the Department of Neurological Surgery and steering committee member for the telehealth program.

### Bridge Communication Gaps

Virtual house calls and virtual discharge rounds are also being developed and will likely be offered by Jefferson within a year to improve post-transition care after hospitalization or surgery. Using a yet-to-be-determined technology, this would bridge communication gaps among primary care doctors, home healthcare workers and family members for instance for heart failure and other high-risk patients. Anticipated outcomes include improved community-based care, better medication and medical records continuity and decreased readmission rates.

Parallel to these transformative telemedicine initiatives, Jefferson’s Board of Trustees has approved implementation of Epic software to replace the majority of its enterprise-wide medical records systems. “This is an exciting and challenging time,” says Kairys, noting that each virtual medicine use case integrates with both the current and the future infrastructure, which will also eventually integrate data from mobile health devices such as Apple’s HealthKit. “Our greatest challenge is to learn how to extract the value of the truly important data from the background noise,” he says. “The winners in this game will be those organizations that recognize data and present it to caregivers and patients in ways that are meaningful and actionable.”

In this changing environment — with new technologies and corporate alliances also evolving — Jefferson’s

commitment to providing high-quality patient care remains constant. Jefferson’s new National Academic Center for Telehealth has recently recruited several clinician-scholars, including Kristin Rising, MD, and Brendan Carr, MD, who will lead foundational research to identify best practices in virtual medicine and amass the solid base of evidence needed to shape delivery and funding justification for this emerging mode of healthcare delivery.

### Recruiting Advantage

Jefferson’s Institute for Emerging Health Professions is likewise rapidly developing training programs, fellowships, certificate and continuing medical education programs, apps and online resources. “Our expertise in the education needed for virtual health care is emerging as a major recruiting advantage for Jefferson,” says Hollander. “We’re confronting the question head-on of whether our people will be trained in the medicine practiced in 1985, 2014 or 2025.”

Amid this rapid pace of change, “the major challenge is to take the 8 million ideas flying at those of us leading this effort and decide which ones we do when,” says Hollander. “You just can’t sit in your office figuring out your corporate strategy based on what you want to do or make decisions based on current technology. Academic medical centers, hospitals and private practices have long existed in an environment that said, ‘you play by my rules and come see me when I want to see you.’ That’s just not going to work anymore.”

“The bottom line is that if you want to be practicing medicine, provide better care for your patients and be the entity people want to go to for health care 10 years from now, you have to move the needle,” he says. “Everybody realizes this is the Jefferson of the future.”

**Jefferson alumni who would like to explore opportunities to provide care virtually may contact Kate Fuller, program manager, at [kate.fuller@jefferson.edu](mailto:kate.fuller@jefferson.edu) for additional information.**

## Jefferson Neuroscience Network: Inspiration for Virtual Expansion

Charlyn Kiley, 68, remembers the onset of her acute stroke in February 2014. Moments after finishing a Spam sandwich, a cup of coffee and a cigarette, she noticed that her speech sounded garbled and her left side felt heavy. A resident of East Stroudsburg, Pa., she lives more than 100 miles from an accredited primary stroke center.

Soon after, Kiley arrived at Pocono Medical Center and spoke through a screen to an attending physician with Jefferson's Neuroscience Network who assessed and directed her care team virtually so that she received timely treatment for an acute ischemic stroke with clot-busting tissue plasminogen activator, or tPA. Less than a year later, she is relieved to have regained her ability to speak clearly, put curlers in her hair, walk her dog and enjoy her favorite pastime, fishing. "It would be misery to not be able to walk or talk," Kiley says. "And it wasn't bad talking to a doctor through a screen. That was pretty cool."

Kiley is among the more than 5,000 stroke patients at 30 participating regional hospitals in Pennsylvania, New Jersey and Delaware who have received care virtually through the Jefferson Neuroscience Network. Established in 2009 by Robert Rosenwasser, MD, chair of neurological surgery, the network serves acute stroke patients who live hours away from hospitals that offer 24/7 stroke care.

"This has been nothing but a tremendous success for the patients, our partner hospitals and Jefferson," says Rosenwasser, medical director of the network, which is staffed around the clock by 11 attending vascular neurosurgeons, vascular neurologists and neuro critical care specialists who routinely save lives and prevent disability. They are virtually present at the bedside in participating hospitals through a robot-like device with a screen.

Ninety-seven percent of Jefferson Neuroscience Network's eligible patients received tPA within the recommended window of three hours from stroke onset — a vast improvement over the 3 to 5 percent of eligible patients who receive this therapy nationally. Because the ability to distinguish between an ischemic or hemorrhagic stroke is a life-and-death matter, an estimated 65 percent of physicians nationally feel uncomfortable prescribing tPA without a specialist consultation: use of tPA for a hemorrhagic stroke would increase bleeding and brain damage.

Responding to requests from the network's participating hospitals, in 2015 Jefferson will begin offering additional critical care specialty expertise services at some of these hospitals, which collectively log more than 1.5 million emergency room visits annually (not just for stroke). This expanded network will be staffed by senior, board-certified attending physicians who will speak directly to patients and on-site medical teams at the bedside. This strategic expansion will allow Jefferson to amass foundational evidence and experience for a possible future virtual Jefferson emergency department.

According to Rosenwasser, an appointee to the Pennsylvania Telemedicine Roundtable, expertise in remote specialty consults is of keen interest in Pennsylvania, where Medicaid spending on transportation alone is \$90 million annually. "When you treat the patient, keep them in their community cared for by their local physician and hospital and still deliver a high level of care, everybody wins," he says, noting that the network has already helped seven participating hospitals become accredited as primary stroke centers.



Jefferson neuroscience specialists can evaluate acute stroke patients at community hospitals virtually using robotic devices like this one.