The elderly patient and his wife had been waiting only a few minutes when Dr. Gregory Jicha walked into the room. The couple had come for a consultation. Mr. Jones (the name we’ll use), 91, was having memory problems, and his wife wanted him to talk with an expert on aging and memory.

Jicha, an assistant professor of neurology at UK’s Sanders-Brown Center on Aging, sat across from the couple, introduced himself, and began with some small talk, the unseasonably warm weather, to help put the patient at ease. Jicha comes across immediately as extremely focused and affable. A nurse, who had already taken Mr. Jones’s temperature, blood pressure and heart rate, sat alongside the couple.

Jicha asked Mr. Jones a series of questions—about his educational background, recent memory problems and how these problems are interfering with his daily life, any family history of mental or memory problems, and continence issues. Mrs. Jones answered for her husband, who said little and stared silently ahead from his wheelchair during the exam. He was then asked to draw a clock and place the correct numbers. He couldn’t do this. He was asked to write his name, and this proved, also, to be beyond his ability. All of these questions and exercises are part of the National Institute on Aging’s Uniform Data Set (UDS), a standard set of questions asked of every patient being screened for Alzheimer’s disease.
In addition to evaluating patients in UK’s Telemedicine Clinic, Gregory Jicha sees patients in nursing homes around Lexington. “It’s also important to do in-person care for patients in the community,” he says.

“UK probably has the best telemedicine system network in the world. Our telemedicine clinics allow us to cover the entire state, from Pikeville to Paducah, providing services where they’re needed.”
—Gregory Jicha

Just a routine memory exam, something Jicha has been doing since he came to the University of Kentucky from the Mayo Clinic in 2005. But there is one major difference: the patient was nearly 100 miles away, at the St. Claire Regional Medical Center in Morehead, Kentucky.

The exam took place in a 10-foot-square room in the UK Telemedicine Clinic, where the Joneses and their nurse appeared on a TV screen, the interaction made possible by a small, PC-like box with processing power and a consumer-grade camcorder. The camcorder is essential to Jicha’s visual exam of a patient, since it allows him to focus on specific parts of someone’s body, the hands, for example, to check for signs of tremor.

Mr. Jones is one of 26 patients participating in a project called Telemedicine Assessment of Cognition in Rural Kentucky. Jicha is leading this study. The goal of the project, which began in the fall of 2008, is to adapt and validate the UDS and other measures for diagnosing mild cognitive impairment (MCI) and early dementia in the telemedicine setting. A related and obviously important goal is to determine whether these consultations are as effective as face-to-face meetings with a doctor.

“We know there’s a lot riding on this study,” says Jicha in a resonating baritone from his small, book-strewn office. When Jicha, a rangy 6 feet, 3 inches tall, stretches out from his chair, he seems to occupy this entire space. “We believe that developing and validating this telemedicine approach toward diagnosing and treating MCI and early dementia will become a model for clinician-researchers at other centers serving rural populations.” He adds that UK established one of the first telemedicine programs in the country, in 1984, and has continued to be a pioneer in this approach to helping patients.

Initially he wanted to recruit 40 patients distributed evenly into three categories—those with normal cognition, with MCI, and with early dementia. But Jicha says he may not need that many patients. “We’ve done 26 now and have maintained the distribution we wanted. The diagnostic accuracy is so high already, statistically significant, that we may want to go ahead and publish what we’ve found so far.” Jicha presented preliminary data from this study at the American Academy of Neurology last spring, and the reaction of those attending this
Rob Sprang, director of Kentucky Telecare since 1996, coordinates regular clinics for 25 UK physicians. “We’re in the business of extending health-care resources from UK to the rest of the state,” Sprang says.

session was overwhelmingly positive, he says. “I’m eager to get this out there in the literature so people can begin to adopt and replicate and implement this telemedicine approach in their local area.”

But why this long-distance approach? Why not an in-person evaluation?

“This program is focused on rural or remote areas of Kentucky, where people don’t have access to high-level medical care, especially sub-specialty care in the area of geriatrics, aging and memory, and thinking problems,” says Jicha. “That’s very important. Kentucky has several hundred thousand people who have Alzheimer’s disease, but only a small percentage of these people in rural areas are evaluated, and even fewer than that are treated. This is a big problem.”

Two major factors contribute to this problem. Health-care professionals in rural areas of the state are in short supply. The amenities of urban life tend to attract physicians and nurses to Louisville or Lexington, Jicha says. “Of course people can drive to these cities, but that’s time-consuming and can be expensive. Plus, it’s important to recognize the burden of traveling long distances with a dementia patient.”

To meet the needs of people in rural areas faced with these challenges, the University of Kentucky began a telemedicine program in 1984. The Memory Disorders Clinic is one of 12 ongoing telemedicine clinics at UK; others include cardio-thoracic gastroenterology, child psychiatry, dermatology, and surgery. “Many people don’t realize it,” Jicha says, “but UK probably has the best telemedicine system network in the world. Our telemedicine clinics actually allow us to cover the entire state, from Pikeville to Paducah, providing services where they’re needed.” The infrastructure to do this is supported by the commonwealth’s annual $20 million commitment to high-speed networking.

In addition to specialty cameras and diagnostic tools such as electronic stethoscopes, physicians in all of these clinics evaluate new and follow-up patients, and then send recommendations to the primary-care provider. A specially trained nurse attends the “video visit” with the patient and acts as the physician’s “hands.”

Jicha stresses that telemedicine is not only important for the immediate health of the patient, but also includes a strong educational component for doctors. “As soon as this program began, I started receiving calls from doctors who were referring patients with suspected memory problems. So I would evaluate a referred patient via teleconferencing, make a diagnosis, and send back detailed reports of the testing we had done, how we approached the situation, available treatment options, and my recommendations.”

Jicha recalls one doctor who, based on Jicha’s report, sent a second referral and was able to accurately diagnose the patient as having mild cognitive impairment likely caused
likely caused by Lewy bodies. These accumulated bits of protein inside the nuclei of neurons in the brain control particular aspects of memory and motor control.

“The doctor’s referral note was in essence as correct and in-depth as my consultation note back to him,” says Jicha with a smile. “So I didn’t necessarily turn this individual doctor into a behavioral neurologist, but I had provided enough information that he could make very detailed dementia diagnoses and establish appropriate treatment regimens. Now he no longer sends me classic, straightforward Alzheimer’s disease patients. This kind of impact will change the level of medical care across the state.”

Jicha adds that the project’s educational component isn’t focused strictly on care providers; he also wants to educate the general public about the aging process. “Unless people are educated to realize that memory and thinking problems are not part of the normal aging process, that they represent instead a disease of the brain and that there are treatments that can help, we will continue to see patients in a first evaluation who are almost mute and incontinent and in the end stages of disease. I’ve seen this way too often. I’ll ask the family, ‘Why did you wait so long?’ They usually say, ‘We didn’t realize there was a problem.’ To which I say, ‘C’mon.’”

To educate the general public about aging, Jicha is taking several approaches. Volunteers from Sanders-Brown and the Kentucky Alzheimer’s Association are running telemedicine clinics for groups of Alzheimer’s caregivers in 14 Kentucky counties. One recent program focused on end-of-life issues and hospice. And to promote educational programs in Appalachia, volunteers also hold live sessions focused on aging. The Alzheimer’s Association put a small ad in a local newspaper announcing an event, and the attendance at that site jumped from 12 to almost 50 people in the audience that evening. “And of course there is some word-of-mouth in these rural areas about our telemedicine clinics, which always helps,” Jicha says.

**The Limitations of Telemedicine**

Jicha is obviously a cheerleader for telemedicine, but aren’t there limitations to this form of doctor-patient interaction? What about the built-in problem of the impersonal technology? Patient confidentiality? The fact that relatively few people even know telemedicine is a possibility for them?

“Of course the technology itself is impersonal, but what’s important is the doctor-patient relationship. Sometimes in a face-to-face exam—we’ve probably all experienced this—a physician can be a cold fish. There’s just no rapport. So in any kind of medical examination, the level of rapport depends on the personality and training of the physician,” Jicha says emphatically. He adds that, on the contrary, some patients feel more comfortable, or secure, because of the distance.

Confidentiality is an issue, Jicha admits, underscoring the importance of having a secure, protected system. “But this is not an issue for us. We have a dedicated line with secure access to the various clinical facilities. Every patient is totally protected.”

But what good is this technology if only a few patients use it?

Jicha laughs. “Well, we’re working on that one. And you have to keep in mind that as far as the Memory Disorders Clinic’s telemedicine examinations, we’ve only been doing this for three years. We started out in Morehead and Hazard, and now reach out to 15 facilities around the state.

“The bottom line is, our goal is to ensure that though telemedicine is not better than an in-person evaluation, it’s as good as an in-person evaluation. And ours is the first study in the nation that has convincingly shown that to be true.”

—Gregory Jicha