UA, Mayo Clinic adapting telemedicine to smartphones

By Lorri Allen
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Until now, telemedicine has largely involved capital-intensive studios and cameras isolated in one area of a hospital. But the Mayo Clinic and a University of Arizona center dedicated to telemedicine are pioneering work aimed at moving care to smartphones.

That means practicing medicine in remote and underserved communities will become cheaper, quicker and more effective, according to Dr. Bart Demaerschalk, a neurologist at Mayo Clinic Hospital.

"What we're attempting to do is to make it even easier for the clinical specialist to insert themselves in a virtual manner for the patient in the remote environment," he said. "A mobile device should fulfill that goal."

Dr. Ronald Weinstein, director of the Arizona Telemedicine Program, sees it as a natural progression.

"Telemedicine is rapidly evolving into being next-generation or even a generation beyond by going to mobile health or e-health, and the concept du jour is that the smartphone is the telemedicine workstation," he said.

That's happening at Benson Hospital, where health-care workers use Skype on iPads to save time.

"It's very low-cost, and it's to facilitate communication between our ER docs and admissions," said John "Rob" Roberts, information technology director.

Applications being tested range from ones anyone can download to those created for medical reasons.

For example, the Department of Defense developed an app called PTSD Coach used by patients with post-traumatic stress disorder, according to Weinstein.

"It's been a very large success — bringing coaching, medication alerts and access to call centers by soldiers who are in need of those services," he said.

Demaerschalk recently completed research to see if assessing stroke patients could be done accurately with smartphones.

"We confirmed with iPhone FaceTime video conferencing that we can perform a reliable neurological examination on patients with stroke," he said.

His team also compared neurological interpretations of a CT scan on an iPhone with an adapted medical app to interpretations by radiologists and found agreement to be between 92 and 100 percent.

"What we're proposing from our research is that one can successfully conduct an emergency stroke telemedicine evaluation with devices as small as an iPhone or an iPad which allows tremendous portability and mobility," Demaerschalk said.

For a future study, he said he'd like to test whether fewer people would die if a stroke expert were involved from the moment a 911 call is received.

"Imagine if a stroke neurologist was watching over the activity and a diagnosis could be reasonably certain before the patient even arrived," he said, "so there was less time spent re-assessing the patient upon arrival and instead one could launch right into treatment, for with stroke, every minute counts."

A factor preventing widespread adoption of practicing telemedicine on smartphones or tablets could be doctors themselves, according to Demaerschalk.

"It's not something I was ever taught in medical school," he said. "Physicians are inherently cautious because there are a number of obstacles that still need to be overcome before this could be employed as a universal tool."

One of those obstacles is security.

But someday a smartphone will be as common as a stethoscope, Demaerschalk said.

"I'm convinced the doctor of tomorrow may not even regard telemedicine as telemedicine. They may regard it as medicine and not be so fixated on technology," he said. "It won't be long before physicians will accept telemedicine as a natural extension of their practice."