Nurse, hand me the Google Glass

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Dr. Leslie Garson pulls a Google tablet from his blue scrubs and taps on an app icon. On the 7-inch tablet screen, green dots indicate two doctors are online. The supervising anesthesiologist at UC Irvine Medical Center taps on the dot for Dr. Warren Davis, a resident doctor in the operating room of a patient having a knee surgery.

A second later Garson sees what Davis sees: an operating room full of physicians in masks, gowns, equipment and a patient on the operating table. Davis is wearing Google Glass and the app making this possible is Eyesight, made by 8-month-old Austin startup Pristine.

"We could be supervising two residents at the same time," Garson says of the combination of hardware and software. "The [potential] cost savings to the patients, to the system, is phenomenal."

In the few months it's been in the hands of software developers and early adopters, Google has been working out the kinks of its new, wearable computer system. The $1,500 device needs continuous wireless connectivity (usually provided by a smartphone) for any advanced functions. Its battery only sustains a few hours of intense use.

Still, the doctors at UCI already believe the live streaming audio and video functionality could lead to fundamental improvements in the delivery and cost of health care.

What if an army of relatively inexpensive assistants or nurses could visit homes and call in back to the hospital via Glass to coordinate with experienced doctors or specialists? The doctor could see and hear the patient as well as the nurse's observations. Or a paramedic administering CPR at a freeway crash site could hear precise instructions from a doctor while the medic's hands never leave the victim's body.

"It's about a more experienced person helping a less experienced person," said 23-year-old Kyle Samani, CEO of Pristine.

Samani and 21-year-old co-founder Patrick Kolencherry met in high school computer science class and stayed in contact through college. When they saw Google Glass, they were excited by the opportunities for creating apps.

Their first idea was to deliver electronic medical record information to the Glass heads-up display. Like the display in a fighter jet, Glass features a transparent screen that appears in the top-right corner of a person's vision.

"We decided that wasn't going to be a super-compelling business," said Samani.

They changed focus after getting feedback from an anesthesiologist and early investor. The doctor suggested that faster and more effective communications with fellow health care workers was a bigger opportunity. They started building a two-way communication platform that's compliant with HIPAA, the rules for protecting a patient's privacy.

Pristine picked UCI this summer to carry out the trial for its communication software.

The rollout of telemedicine in general has been slow for a number of reasons, including high costs and slow Internet connections that limited the quality of communication, said Herb Rogove, a proponent of the technology and board member at the American Telemedicine Association. But that's being erased by cheaper broadband wired connections and 4G LTE cellular connectivity.

The last few years have seen the rapid adoption of smartphones and the spread of mass-market tablets. The medical industry still lags behind the rest of society, but for some legitimate reasons: privacy considerations, for one thing, and a need to ensure technology is actually enhancing health services.

"The analogy is texting while driving," said Garson of UCI Medical Center. "You don't want it to be a distraction."

Garson graduated medical school in 1982, at the dawn of the personal computer era. But only gradually over the last 10 years has he been able to access more and more medical record information electronically. Now, at least, when he's paged it comes through his phone.

The UCI trial shows how Google Glass could push things forward. When Garson taps on the other green icon, he is connected to Dr. Patrick Hu, who has turned on a heart monitor to begin a demonstration. On the lightweight tablet screen Garson now sees what Hu sees.

The tiny camera on Glass transmits the patterns of the heart rate monitor and streams them clearly to the tablet using the hospital's secure internal wireless networks.

Pristine says it's planning a software update that will dramatically upgrade audio and video streaming quality. The company is exploring rollouts in other medical centers.

UCI seems well placed to run such a test. Shortly after Apple's iPad debut in 2010, the university handed out tablets to each of its more than 100 incoming student doctors. Today every medical student in all four years of study is equipped with a device filled with reference material and notes. Doctors-in-training can pull up a diagram while making hospital rounds to show a patient an organ or information about their condition.

Tablets and Glass working together could create "endless opportunities," according to Dr. Warren Wiechmann, who works on the iPad program.

"The best sort of adoption of these technologies would maximize a physician's potential and reach," he said. A physician "could be in between saving patients in a clinic and help consult with a patient in a home visit. It will be important over the next few years to go through the right steps and figure out how best to create that value."

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