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## With new smartphones, doctors reinvent the house call

**bcalvan@sacbee.com**

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Dr. Javeed Siddiqui, an infectious-disease physician, was on the job at UC Davis Medical Center when his iPhone rang with an urgent call. A colleague's niece was in distress, her right eye swollen from a dog bite.

Siddiqui asked the girl's father to send a digital photo of the 8-year-old's wounded eye – directly to the doctor's iPhone. He quickly viewed the injury and issued a soothing diagnosis: No need for an emergency room. Antibiotics, which he prescribed by phone, would do the job.

Over the next few days, Siddiqui monitored the injury via photos sent to his cell phone.

Beyond their cool quotient, smartphones such as the iPhone and other hand-held devices are becoming as handy as stethoscopes in a doctor's arsenal.

With the ability to view X-rays, zoom in close on images of wounds and peruse pharmaceutical libraries, these brainier cell phones are putting new tools at the fingertips of doctors, pharmacists and health care workers.

"So much about medicine is about making the right decision at the right time," said Siddiqui, an associate director at UCD's Center for Health and Technology.

Gone are the days when pagers ruled. While they remain standard issue at hospitals such as University Medical Center, many younger physicians see pagers as remnants of old-school technology on the verge of becoming obsolete.

"My iPhone puts things right in the palm of my hands, and I'm able to access things quickly during my day-to-day work," Siddiqui said.

Perhaps soon, a patient's pulse and heart rhythms – even the contractions of a pregnant woman – could be monitored remotely via cell phone.

"We haven't even scratched the surface," said Dr. Gregory Janos, 60, a pediatric cardiologist and medical director for children's services at Sutter Memorial Hospital.

Some call it a revolution. Janos calls it an evolution that is transforming how doctors do their jobs in an increasingly wireless society.

Privacy laws are holding back some potential advances, such as the ability to beam sensitive patient data over wireless networks. But cell phone access will eventually come, Janos predicts.

"As more and more patients are assuming responsibility for their own health care, they'll be able to share information with their doctor more quickly and efficiently," he said.

Stroll down almost any hospital corridor these days and you'll see the evidence: doctors pecking on tiny keyboards or tapping at images on their hand-held devices.

Surprisingly, just 54 percent of all physicians own smartphones or other hand-held devices, according to a survey late last year by New York-based Manhattan Research, which analyzes trends in the health care industry.

Janos, however, believes the number is higher at his hospital.

More medical schools are requiring personal digital assistants, or PDAs, but many students arrive already equipped with cutting-edge personal technology.

"Physicians my age went through medical school with PDAs in their hands," said Dr. Steven Chang, 31, a resident at the University Medical Center's Department of Family and Community Medicine. In 2007, Chang led a successful petition to persuade the Cupertino-based Apple to allow third-party developers to create medical applications for the iPhone.

Since then, more than 170 applications have been developed – with more on the way – geared toward doctors and other health care professionals.

Chang routinely consults one such application, "Epocrates," on his iPhone, allowing him instant access to crucial pharmaceutical information, including dosages and potentially dangerous drug interactions.

Another application, an electronic version of "Netter's Anatomy," allows him to display images of the human body to patients in his care.

"For young physicians who are still learning so much, and who can't remember everything, our devices are good reference tools," Chang said.

For Zachary Rymland, whose daughter's eye was wounded by a dog during a family vacation, the diagnosis-by-cell phone helped calm the family.

"It was certainly nontraditional," said Rymland, a Berkeley-based animator who prefers a BlackBerry over an iPhone.

"But actually, I guess I do it all the time," said Rymland, whose sister is a Sacramento nurse practitioner. "I'll send my sister an e-mail of a messed-up fingernail, and she tells me what to do. So maybe it's no longer that nontraditional."

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*Call The Bee's Bobby Caina Calvin, (916) 321-1067.*