

San Jose Mercury News

BAY AREA NEWS GROUP
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Wednesday, August 4, 2010

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SMARTPHONES IN HEALTH CARE

Doctors: An app a day

Having medical data at their fingertips changes way physicians practice medicine



NHAT V. MEYER/MERCURY NEWS PHOTOGRAPHS

Dr. Kathy Corby, center, shows her iPhone 4 to anesthesiologist Pat Lauder in the ER at Hazel Hawkins hospital in Hollister.

By John Boudreau

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The mother charged into the emergency room unannounced carrying her 8-year-old daughter, who was having seizures and couldn't breathe. As she placed the girl on a gurney, Dr. Kathy Corby instinctively reached for her iPhone.

"It was very tense," recalled Corby, an emergency room physician at Hazel Hawkins Memorial Hospital in Hollister. "If you can't terminate a seizure within an hour or two, the person can sustain brain damage and it can ultimately be fatal."

The child has a rare hereditary disease, and Corby needed to become an instant expert. So she began scanning a number of medical apps loaded onto her iPhone to access "everything you can't remember on your own in the midst of something like this."

While medical reference information has long been available through the Internet on computers, physicians such as Corby say the ability to instantly access data in any situation and through one-touch technology is changing the way they practice medicine. Asked to choose between having a stethoscope or a smartphone, some doctors say they would choose the latter.

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SMARTPHONE MEDICINE

Dr. Kathy Corby, an emergency room doctor at Hazel Hawkins Memorial Hospital in Hollister, relied on seven iPhone apps to guide her treatment of a girl experiencing a severe seizure. A look at four:



Pedi Stat: To determine drug doses based on her weight in kilograms and the size of the endotracheal tube inserted down her throat to help her breathe.



Eponyms App: To quickly learn about the girl's rare hereditary condition. Corby also used Safari to access Wikipedia to get more information about the girl's disease.



Epocrates App: To determine what medication the girl could receive that would not trigger a dangerous reaction when it interacted with drugs already in her body.



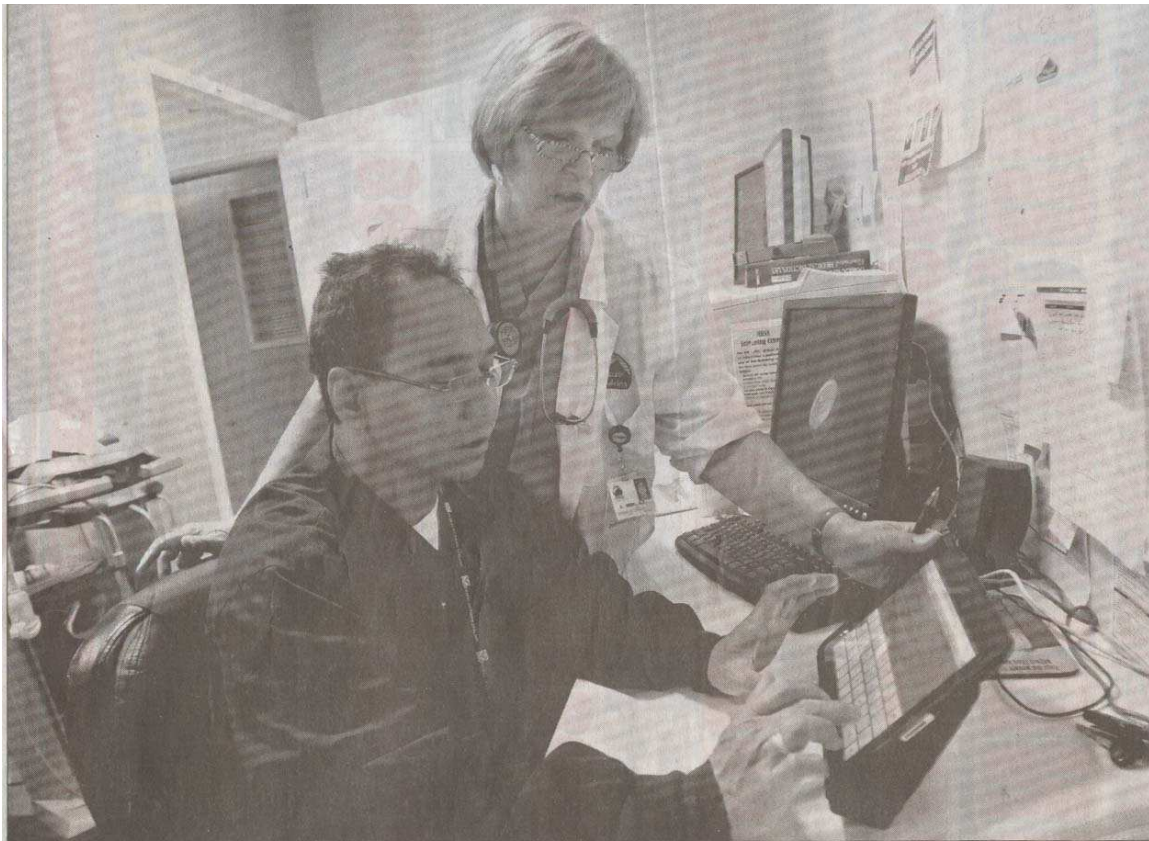
WeatherBug Elite: To figure out whether the weather would allow the girl to be transferred to Stanford Hospital in a helicopter once she was stabilized.

"You've got a whole medical library right in the palm of your hand. It's really transformative."

— **Meredith Ressi** of Manhattan Research, a health care market research firm, on smartphones. She says 70 percent of doctors use a mobile device and, of those, 80 percent say the device is essential to their work.

ONLINE EXTRA

Do you like doctors using iPhone apps to help guide your treatment? Vote in our poll at www.mercurynews.com/extra.



NHAT V. MEYER/MERCURY NEWS

Dr. Kathy Corby helps anesthesiologist Pat Lauder with her iPad in the emergency room at Hazel Hawkins hospital in Hollister. They were using the iPad to search a medical website called MD Consult to look up a rare congenital disease concerning a patient in the ER.

Medical apps

Continued from Page 1

"You've got a whole medical library right in the palm of your hand," said Meredith Ressi with Manhattan Research, a health-care market research firm that studies doctors' use of technology. "It's really transformative."

Doctors no longer have to spend time thumbing through fat manuals stuffed in lab coats or rely on memory in the heat of emergencies. The ability to easily exchange photos — and engage in video chats — with colleagues using a smartphone is adding a new dimension to consultations.

Eventually, doctors may be able to access electronic patient records on their pocket devices, experts say. Already, emergency rooms and other hospital areas are being equipped with iPads so medical staff can quickly get critical information. The Stanford Medical School plans to provide all first-year medical and Master of Medicine students with an iPad this fall.

Still, the sudden plethora of medical apps — there are hundreds on the market and more coming virtually every day — has caused government officials to consider whether new regulations are needed to ensure that accurate information is being disseminated digitally. "When it comes to reference medical apps, you really should only trust the ones from the companies that have been in the ecosystem for a while," said Itifat Husain, founder of www.imedicalapps.com, a review site.

Physicians are three times more likely to use smartphones than the general adult population in the United States, Ressi said. More than 70 percent of doctors in the United States now use advanced phones or personal digital assis-

POPULAR MEDICAL APPS

Medscape: Includes drug references, a drug interaction checker, diseases and conditions section and information about clinical procedures

Epocrates: Includes drug references, drug interactions information, pill identifier and medical calculator

iRadiology: Includes a catalog of more than 500 radiology cases

MedPage Today Mobile: Provides breaking medical news

Medical Radio: A product of ReachMD, which provides XM Satellite Radio broadcast feeds; the app offers live audio medical programs and provides updates on changing clinical guidelines

MedCalc: A medical calculator

NeuroMind: Includes information about basic neuroanatomy and the World Health Organization's safe surgery checklist

Drug Trials: Provides information about ongoing drug trials, including location maps

Eponyms: Designed to help medical students memorize obscure diseases or pathologies

MSK Radiology Teaching File: An app for those studying radiology

Source: www.imedicalapps.com

tants, and of those 80 percent say the devices are essential to their work, she said.

Medical professionals had viewed such technology as more foe than friend because it was clunky and complicated to use, said Margaret Laws, an executive at the California HealthCare Foundation in Oakland. But when Apple launched the iPhone in 2007, and then offered the software tools for developers to customize applications for the new platform a year later, it was an "aha" moment in medicine because the new device and software were easy to use, Laws said. Makers of other smartphones, from BlackBerry to Android devices, are now providing similar intuitive technology.

"We want the data right at our fingertips," said Dr. Lars Grimm, who is completing his residency at Duke University Medical Center.

Global medicine

Grimm recently relied on infor-

mation gleaned from his iPhone to treat an executive suffering from extreme diarrhea and vomiting after being exposed to a bacterial toxin during a business trip to India. The doctor had read a medical alert about antibiotic-resistant bacteria in India. So he changed the standard antibiotic prescription for the man and immediately began treating him. Two days later, the patient walked out of the hospital.

Dr. Joe Becker said medical apps play a critical role when he treats patients in India and Nepal as part of a global health fellowship through Stanford University. "I am not as familiar treating typhoid fever as I am heart attacks," said Becker, a faculty member at Stanford University's Department of Surgery, Division of Emergency Medicine.

Dr. Lee Rogers, a podiatrist and associate medical director at Valley Presbyterian Hospital in Van Nuys, recently conducted an emergency 45-minute surgery to save the foot

of a diabetic patient while two other specialists, both in Arizona, used iPhone 4 video chat technology to look on and make recommendations about tissue removal.

"They say a picture is worth 1,000 words, but a video is worth 100,000 words," he said. "It's amazing how your opinion can change when you're looking at a video."

Smart to be cautious

Smartphone medicine, though, has triggered some concerns.

Dr. James Chu, a Monterey endocrinologist, said using a smartphone for a doctor's professional and personal life means getting deluged with data, such as routine lab reports, day and night. "It's almost like a leash tying you to work 24/7," he said. "There are advantages (to smartphone medicine), but I haven't needed one."

Other experts caution that the exchange of medical cases between doctors through smartphones could place a patient's privacy at risk.

Hollister emergency room physician Corby is convinced the new technology is critical. When the 8-year-old girl arrived at her hospital about a year ago, she used her iPhone to access an array of medical data, from respiratory management — Corby had to calculate the size of the endotracheal tube she needed to slide down the girl's throat so she could breathe — to figuring out what medication she could give her that would not trigger a dangerous reaction when it interacted with what she was already taking. In all, she flipped through seven apps, including one that told her the weather would permit a helicopter to transport the girl to Stanford Hospital once she was stabilized.

"I did all of this," she said, "without taking my eyes off the child."

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