

KILLER APPS THAT SAVE LIVES

The new must-have device for today's doctors: the iPhone

BY KATIE ENGELHART • Dr. Phillip Yoon loves—nay, *needs*—his iPhone. Yoon, district chief of emergency medicine for Halifax's Capital District Health Authority, refers to his phone as his "peripheral brain." "It's part of my body now," he trills. "If I lost it, that would be trouble." Yoon's love affair should be a familiar one to his colleagues. The smartphone—and in particular, the iPhone—has left the realm of electronic plaything, and become an almost required medical tool. According to Manhattan Research, a health care consulting firm, the percentage of U.S. physicians using smartphones stands around 64 per cent and is projected to hit 81 per cent by 2012. In Canada, the trend is the same. Smartphone use in hospitals "is almost ubiquitous," says Dr. Dante Morra of Toronto's University Health Network.

Today, doctors with a few dollars to spare and a smidgen of electronic know-how can download applications at the iTunes store that can transform their iPhones into drug-dose calculators, fetal monitors, or remote receivers for patient records. Yoon could purchase the Anatomical Diagrams app for 3-D illustrations of the human body. He could use Medical Spanish so he can advise Spanish-speaking patients—or check Medscape to review alternatives to the lab test he wants to order.

Rural docs are especially quick to jump on the iPhone bandwagon. In India, the iPhone is being used to mount a campaign against a retinal disease that afflicts premature babies. The effort takes place mostly at remote outposts, where lab assistants use iPhones to take pictures of preemies' eyes. They then send the pictures to pediatric eye surgeons in Bangalore for diagnosis. Some press reports refer to India's "EyePhone."

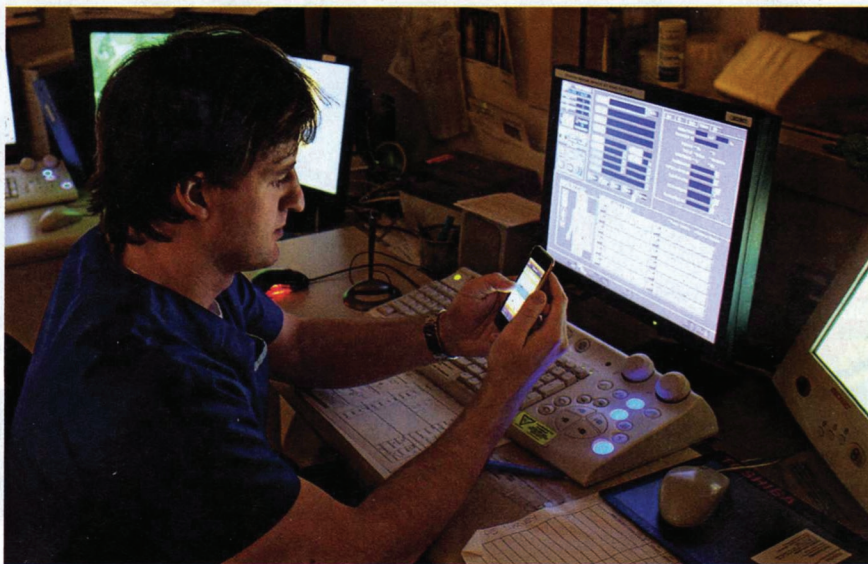
Closer to home, ER physicians are catching on too. Dr. Haidar Samiei, a U.K. pediatrician, sets the stage: "You're in a dark ward in the middle of the night away from everything." The phone rings. There's been a trauma involving a six-year-old girl. What do you need to get done before she arrives? First, Samiei says, you guess how much she weighs. (The old standby formula is: $[age\ in\ years + 4] \times 2$.) Then you make a list of possible drugs—approximating the correct dose for each. All this in a room brimming with stress: "And

errors happen," says Samiei. "What we get a lot with kids [is a dosage that is] 10 times off." To reduce that error, Samiei and two colleagues designed the Paeds ED app, which allows docs to accurately predict a child's weight, review available drugs, and calculate doses with precision—quickly ("within three or four finger swipes").

Now a new generation of physicians is coming of age with smartphones firmly in hand. Before moving to Halifax, Yoon taught a course at the University of Alberta that "prepared medical students to make the transi-

Dr. Geoffrey Rutledge, chief medical officer for Epocrates Inc., says Apple approached his company to discuss the development of such a guide before the iPhone was even launched. Today, Rutledge claims Epocrates RX is used by one in five U.S. doctors. "The core of the application is a drug reference," he explains. It also helps docs navigate a growing and complex web of prescription drugs, with a feature that can spot "interaction problems" between a patient's multiple meds.

Still, there are concerns about iPhone use. One worry is over doctors using personal



IN A FLASH, the iPhone can double as a drug-dose calculator or fetal monitor

tion from school to the hospital." One module addressed smartphone-based medical applications. Mark Baerlocher, a fifth-year radiology resident at the University of Toronto, says that smartphone use in medical school is now the norm. And the U of A even has institutional licences for certain apps.

Baerlocher himself created Radiation Passport, an app that lists the exposure associated with various radiology exams, like CAT scans and X-rays. RP can also calculate a patient's lifetime radiation exposure, and the associated cancer risk. Other young techies are entering the market. Last year, the University of Saskatchewan became the first Canadian school to offer a course dedicated to designing iPhone apps. Chad Jones, a former Apple employee, taught the class. He boasts that two of his students worked with a local doctor to create an app that is now being courted "by major medical companies."

What paved the way for all of this was the reformatting of a huge medical database into a downloadable app known as Epocrates RX.

phones to view or store patient records—which raises questions about patient privacy, the integrity of medical files, and so on. There are also questions about specific apps; iTunes has no medical standards—individual doctors decide what to download. In response, some hospitals have guidelines on smartphone use. John Gillis, media relations adviser for Halifax's Capital District Health Authority, says his doctors are forbidden from using any apps that require "patient-specific information." Others do not. A spokesperson from Toronto's Sunnybrook hospital noted: "Our director of IT let me know that he is not aware of any doctors at Sunnybrook that are using iPhones in their practices." But Maclean's spoke to one resident who says he's used Apple apps while on rotation there.

Yet most doctors are confident having more access to information is good for patient care. "Medical practice has changed," Yoon proclaims. It's no longer about the physician and the patient; it's "the physician, the patient, and an information technology device." ■