



HANDHELD COMPUTERS IN HEALTHCARE

PDA planet

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Handheld computers offer DOs, students timesaving shortcuts

Veronica TenCate had some experience with personal digital assistants (PDAs) prior to starting the clinical rotations that mark the beginning of the third year of osteopathic medical school. But as she travels from rotation to rotation each month, she is becoming increasingly dependent on her handheld computer.

TenCate is far from alone. DOs and osteopathic medical students are realizing the potential timesaving applications for PDAs in the field of medicine.

Mark Notman, PhD, reports that physicians have an average of 11 clinical questions a day and that most of those questions deal with treatment decisions, including pharmacological issues.

"Many of those questions go unanswered because physicians don't have a ready source of information at the point of care," says Dr Notman, who is a member of the American Osteopathic Information Association's Technical Advisory Committee and a board member of the new American Osteopathic Academy of Medical Informatics.

"PDAs can help the human mind to store and retrieve an array of information in order to solve problems, communicate with colleagues and assist physicians in running their practices," notes Dr Notman, the executive director of the Office of Medical Informatics at the Michigan State University College of Osteopathic

Medicine (MSU-COM) in East Lansing.

During the Michigan Osteopathic Association's annual postgraduate convention and scientific seminar in May, R. Taylor Scott, DO, shared with convention attendees many of the possible clinical applications for handheld computers.

"At the most basic level, PDAs can be used as date books and personal organizers," says Dr Scott, who is an assistant professor of family and community medicine at MSU-COM. "But PDAs can also be used to record on-call notes, store physicians' pager numbers, provide drug reference information and track patients.

"PDAs' tiny pocket-sized portability make them easy to carry and convenient to access. And because the data stored on your PDA can be linked to the desktop of your PC, there do not have to be any discrepancies between the information on your two computers."

TenCate maintains that carrying a lightweight PDA in her coat pocket is much more convenient than lugging around several different pocket-sized reference books. She notes that the popular ePocrates™ program is the application she most frequently consults on her PDA.

"In school we learned the generic names for all the drugs," says TenCate, a third-year student at Midwestern University's Chicago College of Osteopathic Medicine in Downers Grove, Ill.

"In the hospital, most of the physicians use the brand names. If I don't recognize the brand name for a drug, I can quickly find the generic name in my PDA through the ePocrates program."

Dr Scott agrees that ePocrates is quite popular among medical professionals.

"The ePocrates program and programs like it provide information on drug dosages, drug interactions and contraindications," he says. "I often pull out my PDA when I'm in the exam room with patients. No one has ever given me a hard time for using it. Patients appreciate seeing me look up possible drug interactions."

Dr Scott notes that the latest versions of ePocrates include drug formularies. This feature allows him to identify the least costly drug covered under his patients' insurance plans while cutting back on phone calls he or his office staff otherwise would have had to make to insurance companies.

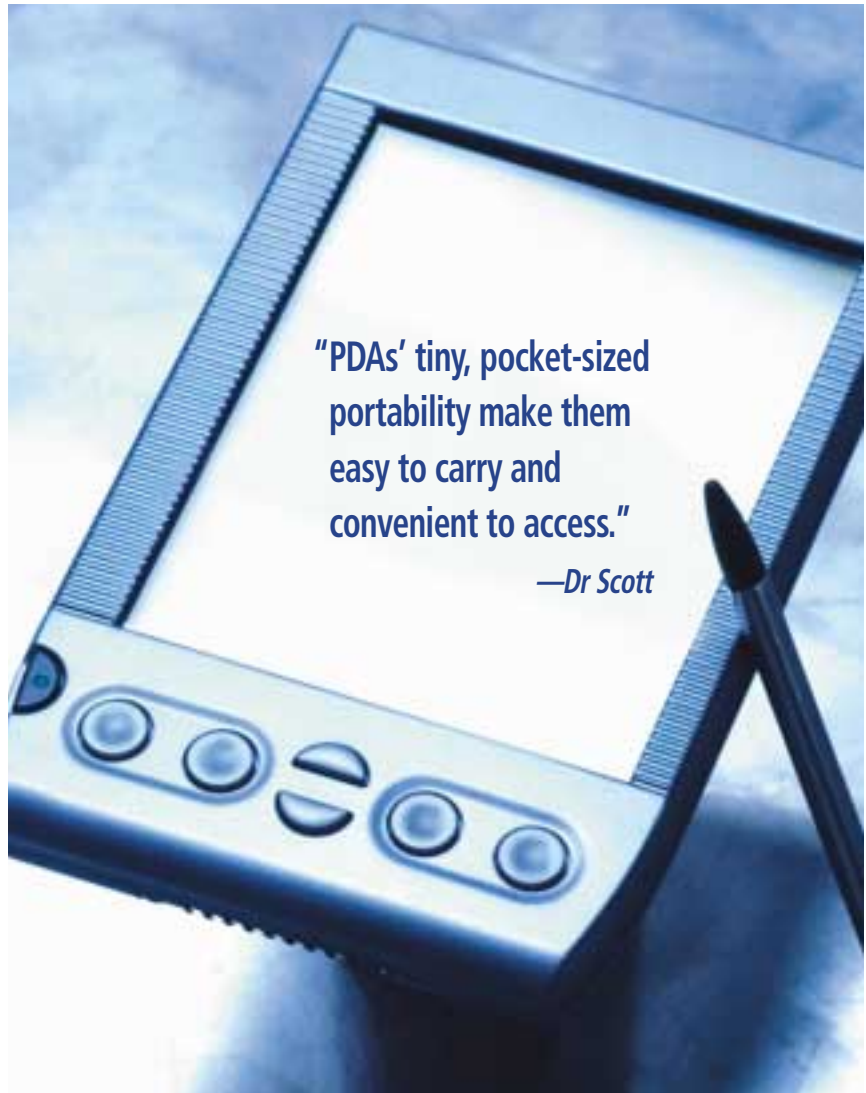
David N. Nilsen, a third-year MSU-COM student, uses his handheld computer every day. Currently, Nilsen is completing a pediatrics rotation.

"I use my PDA to perform a number of calculations regularly," Nilsen says. "Because I am on pediatrics this month, I use my PDA to measure fluid loss and maintenance to assess whether a baby is eating enough based on his or her weight. I also use my PDA to assess whether a child's height and weight match the growth pattern."

Convenient tools

Though the storage capacity of a PDA can range anywhere from 2 megabytes to 1 gigabyte, the small devices hold a great deal of information. Many PDAs have expansion capabilities enabling users to add more memory.

In addition to clinical references, Dr Scott keeps Abbott and Costello's infamous *Who's on First?* bit in his handheld to enjoy a light moment during breaks in his hectic schedule. He also has the front page of *The New York Times* and *The Wall Street Journal* transmitted to his handheld daily for easy access.



"One nice difference between a handheld and a laptop is that with handhelds you don't have to wait for the computer to boot up," Dr Scott explains. "Five seconds can make all the difference in the world to me. If I had to wait for a computer to boot up, I wouldn't use it. PDAs have an instant-on function."

A 1999 survey of fourth-year MSU-COM students revealed that more than half of them were already using PDAs for personal and school needs. The survey revealed students' top four uses for PDAs were to run practice-related software, compose to-do lists, maintain electronic calendars and store contact information.

To respond to the growing interest among students in PDAs and other technology issues, a group of MSU-COM students formed the Technology and Osteopathic Medicine Association (TOMA). In its third year now, TOMA strives to promote the use of technology through student education and research. TOMA has worked with a number of vendors to negotiate discounts on PDA purchases for MSU-COM students.

TOMA has also established a Web site located at <http://studentdoctor.com.msu.edu/toma>, which provides links to information on handhelds and other computer technology. MSU-COM's Office of Medical Informatics also has

Robert C. Woodbury, DO (left), and Jose S. Figueroa, DO, consult a personal digital assistant during the AOA's End-of-Life Care National Osteopathic Workshop II, which took place in Portland, Ore, in June.

Dr Woodbury specializes in osteopathic manipulative treatment in Seattle, Wash, and Dr Figueroa practices pain management in Des Moines, Iowa. (Photo by Carolyn Schierhorn)



Veronica TenCate uses her personal digital assistant to organize her schedule.

TenCate is a third-year student at Midwestern University's Chicago College of Osteopathic Medicine in Downers Grove, Ill. (Photo by Jacquie Goetz)



aggregated PDA resources on its Web site at www.commsu.edu/omi/handhelds.

The great debate

The Palm Operating System® (OS) is the original handheld operating system and the current market leader. Not far behind is Microsoft's operating system known as the Pocket PC™. Symbian's EPOC operating system is also making a name for itself among handheld users.

Nilsen told MOA convention attendees that the Palm OS versus Pocket PC debate is not unlike the Macintosh vs PC debate of yesteryear.

"Some people love their Mac and know nothing else," says Nilsen, TOMA's founder. "It's similar with handhelds."

Nilsen notes that because Palm OS was the original operating system, physicians have tended to cling to it.

"It has a large medical user base," Nilsen notes. "Physicians were early adopters of the Palm operating system, and much medical software has been developed for the Palm OS."

Still, Nilsen urges DOs and osteopathic medical students in the market

for a PDA not to overlook the Pocket PC.

“The Pocket PC often includes more features, such as Internet Explorer, Microsoft Word, Excel, a handwriting recognition program, an MP3 player, a voice dictation feature, and more,” Nilsen says.

“Palm has more software available, but it’s usual to find similar software for PDAs that run on the Pocket PC operating system. Features and prices change constantly.”

Nilsen says he learned a valuable computer lesson years ago while working in the information technology industry. That lesson was that it is not the features of a computer or PDA that matter so much as its usefulness to the individual user.

“You may have an expensive PDA with lots of neat features, but if you can’t use it or those features aren’t right for your needs, you’re not going to use it,” he says.

Nilsen encourages those in the market for PDAs to hold out if possible because technology and capabilities are constantly improving. Physicians who already own PDAs need not run out and purchase the latest models but should buy new PDAs only when theirs lack the functionality they need, he says.

“Many students tend to purchase their PDAs right before they begin their clinical rotations,” Nilsen adds. “I encourage my classmates to get them earlier so that they can become comfortable with the technology prior to starting their rotations. It will be a more effective tool if they practice with it ahead of time.”

Nilsen notes that the differences among PDA operating systems are becoming fewer and fewer. “The major difference is that you can’t run one operating system’s software on the other,” he says.

Regardless of one’s PDA preference, these devices allow users to share data with other users through infrared beaming technology.

“Let’s say you’re covering 10 patients,” Nilsen proposes. “You can beam patient



During the AOA House of Delegates’ meeting in July, New Hampshire delegate Nate DeLisi, DO, uses his personal digital assistant to stay organized. (Photo by Carolyn Schierhorn)

information to the physician relieving you, letting him or her know where the patients’ lab results are and other relevant information.”

And important in the age of the Healthcare Insurance Portability and Accountability Act of 1996 is the need for patient privacy.

Nilsen notes that some handhelds have thumbprint-recognition scanners to protect access to PDAs.

Helpful assistants

Though handheld computers have numerous features, users are quick to point out the ease in using PDAs.

“I’m one of the least computer savvy people I know,” TenCate kids, “but I have no trouble using my PDA. It’s very straightforward and easy to use.”

TenCate notes that with the volume of information students and physicians must remember, PDAs can be a lifesaver.

“Sometimes you just need a little something to jar your memory about a certain disease or condition,” she notes. “Using the handheld versions of *The Washington Manual* guides and *Five Minute Clinical Consult*, I can quickly look up a disease and in seconds have its symptoms in front of me as well as the methods for treating it and appropriate drug dosages.”

Though it is commonplace to see PDAs in the hands of medical professionals, the devices aren’t absolutely essential yet.

“You can definitely get by without a PDA,” TenCate insists. “No one is required to have one, but they certainly can be helpful.”

Nilsen agrees.

“You may think your PDA is indispensable, but it’s not,” he says. “It just makes things that much easier.” 