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Making the EMR User-Friendly Enough to Use

By Richard Noffsinger

Physicians are sometimes unfairly labeled as being wary adopters of technology, most recently in slower-than-anticipated adoption of wireless mobile devices in the clinical setting. Wireless devices clearly hold huge potential for the delivery of medicine, because there is probably no other profession in the world that combines greater demands for intensive knowledge and continual mobility.

This leaves pundits scratching their heads about why physicians aren't lugging laptops throughout their rounds or filling their pockets with personal digital assistants (PDAs).

I believe the lack of adoption so far has been a matter of form factors. While a laptop might be portable, it isn't truly mobile. A physician entering a patient's room would first have to move flowers and ice pitchers from the bedside tray to find a flat working space, and it is hard to establish a patient-physician relationship with a computer monitor somewhere in between.

Form factors also have been the downfall of PDAs. While a PDA can serve as a powerful tool for defined tasks such as creating electronic prescriptions or accessing reference material, there simply isn't sufficient screen size to accommodate patient records, lab results and the display of X-ray, MRI and other images.

An Inflection Point

The tablet PC should provide the inflection point, the technological break that will provide the combination of portability and screen space required for real-life clinical use. Unlike a laptop, it can be held in one's arm like the metal jacket of a patient chart, with data entered with a penlike device. This completely replicates the mode of data collection physicians have used for generations with an important difference: They have immediate access to data that fills mainframes.

Unlike the PDA, the tablet PC has the screen size required for a rich display of the patient record, including a spectrum of diagnostic images. It is the logical extension of the electronic medical record (EMR).

The argument in favor of the EMR is so clear and obvious that it will only be a matter of time before it is a ubiquitous part of practicing medicine. No matter how reassuring it might be to have a patient's physical record in hand, there's nothing efficient about searching a thick folder for past test results or other historical data which, once found, may be in handwriting that is a challenge to read.

The biggest drawback of paper-based records is that they can be so difficult to have in hand. With traditional paper-based records potentially scattered between medical centers and physician offices, and with diagnostic images stored in their own libraries, the EMR provides the one-stop source that gives physicians the completeness of information they need to best treat their patients.



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The biggest shortfall of the EMR is getting the information the last 50 feet—from the desktop computer into the hands of the physician at the bedside. One reason PDAs have seen so much acceptance in healthcare is that, despite the limitations of their screen size, they have served as a tentative bridge between desktop EMR systems and the bedside. But a PDA simply doesn't have enough workspace for most physicians to feel comfortable.

The tablet PC provides the sheet-of-paper screen size that physicians need, with the flexibility to populate that space with simultaneous data displays that can be automatically updated—with fresh lab reports, for instance—even as a physician walks into a patient's room.

Maximizing the Benefit

So, is the battle over? Has the perfect physician's companion arrived? The answer, of course, is no. While the tablet PC provides the best form factor seen so far, form is just half of the solution, the other half being function—the application software that runs on the hardware.

Software solutions that are basically desktop applications recompiled for the tablet PC hobble the physician with an interface that is constructed around the keyboard-mouse paradigm of menus and commands. Even with this type of old school interface, the tablet PC will be more efficient than a laptop or PDA, but to truly set the physician free, the interface must be built around two key design elements: pen and paper simplicity, and the logical flow of a physician-patient encounter.

Pen and paper simplicity means making the electronic chart as much like the paper chart as possible, only better. Although a keyboard can be used with the tablet PC, the penlike input device is the key to helping the physician gather new data and reference existing data as unobtrusively as possible.

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The pen is used in place of the mouse to begin and modify processes. It also can be used to enter information using either handwriting recognition—which translates information on the fly into electronic text—or as “digital ink,” which captures the notes as if photocopying a page for later reference.

The logical flow of a physician-patient encounter should dictate the user interface of the tablet PC. Simple taps of the pen should provide hierarchical decision-tree branching that mirrors the basic inquiries of the physician. Such an interface can serve as a reinforcing guide for physicians to reduce errors and improve outcomes, while providing complete flexibility so it is a constant enabler of the physician wherever the patient's query responses may go.

It is the pen and paper simplicity of the tablet PC that allows a physician to engage the patient as naturally as if taking notes into a traditional record, while placing the complete patient record, and a world of medical reference knowledge, at his fingertips.