



Wireless speech recognition in the ER: when a physician's vision turns into reality

Customer Story

Thanks to the popular TV series, ER, the emergency room seems a familiar place to many of us: bustling with activity and noise - patients, nurses and physicians always on the move. But what looks cool on TV can be challenging in reality, especially when it comes to documenting care in an overcrowded, noisy environment. This is what decided Dr. Stephen Rosenthal of Montreal's Sir Mortimer B. Davis - Jewish General Hospital to introduce a wireless document creation and management system that uses PDA devices and speech recognition to accelerate the delivery of critical information at the point of care. Now, doctors and nurses are where they want to be: with patients. And up-to-date reports are available to other clinical staff prior to the physician leaving at the end of their shift.

Dr. Rosenthal's vision

Dr. Rosenthal's vision is simple and logical: "We introduced PDA devices that interface with the emergency and patient index system, as well as the speech recognition server. Physicians can now access up-to-date patient data (bed location, priority, chief complaint, etc.) and record their findings all from one single device."

Simplicity is an in-depth understanding of workflows and technology that allows tailoring systems to the needs of the people who have to use them. "I'm a big believer that technology has to work the way people work," says Dr. Rosenthal, underlining that physicians have a reputation for not being the easiest user group. "We don't buy in quickly - if a system is complicated, we simply won't use it."

So how do emergency physicians work?

"The Jewish General Hospital operates one of the busiest emergency departments in Quebec, and we are often at 150% capacity," explains Dr. Rosenthal. "Physicians are everywhere, patients are everywhere - you do one step, you're stopped four times." Radiologists have a dedicated room, a desk and a computer, where they sit down, read the film and dictate their reports. In the ER, everybody is on the move, says Rosenthal: "We need to be with patients, we need to be mobile; we can't be tied to a desk."

Despite or rather because of the fast-paced nature of this department, physicians need structured processes. "Patients are often in a critical condition, and we're trying to put together the pieces of a puzzle. We follow a certain track, if we're stuck we go back to the beginning and 'debug'. Conditions change and evolve, lab results lead to new findings - all of this needs to be documented," explains Dr. Rosenthal.

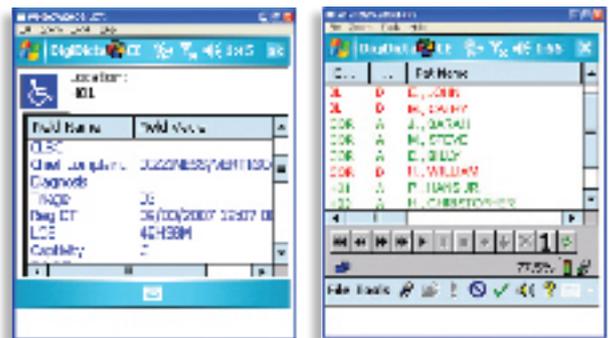


Image 1: Screenshot

Emergency physicians are provided with up-to-date patient data on their PDAs - any place, any time.

A "joint mission"

The hospital had originally implemented DigiDictate-CE from Crescendo in 2003. Instead of having to leave the patient, go to a phone, type in a number and dictate, DigiDictate-CE allowed physicians to simply take the PDA out of their pocket, select a patient from the list and dictate. The application also offers all the traditional dictation functions (play, edit, insert, overwrite, delete, and add cue marks) required to edit voice files directly from the PDA.

Already a great relief to the stretched ER resources, the digital dictation system was taken one step further with the integration of speech recognition technology. Together with his provider of choice, Crescendo Systems Corporation, Dr. Rosenthal has turned his vision into reality: "I'm very people oriented. To me people are more important than products because it is they who make things work. Together with the Crescendo team, we've been able to build something that's top-quality."

The Montreal-based company offers SpeechMagic, the industrial grade speech recognition technology from Philips, as part of its portfolio of healthcare software solutions. "Dr. Rosenthal provided us with valuable insight, which allowed us to develop, as a team, a first-of-its-kind system in North America," said Costa Mandilaras, president and co-founder of Crescendo. "We embarked on a joint mission: they have the technology, we have the insight. Workflows, needs and requirements are only understood by the people who work with the system on a daily basis," adds Dr. Rosenthal.

Walk ,n talk

With their PDAs linked to the speech recognition server, physicians have a 24/7 solution. The tremendous noise levels don't affect recognition quality, they say, neither does the large vocabulary needed to describe the variety of conditions typically found in an emergency room. Corrections are minimal, making the whole documentation loop much faster. But the biggest benefit is that the ER now has documents that are readable, searchable and that deliver suitable information for the electronic chart.

All recordings are streamed live to the central SpeechMagic server; no information



Image 2: Diagram Interfaces between the central admission system, speech recognition server and PDAs.

is ever stored locally. If a PDA is lost, it's a hardware loss – patient data or recordings are safely stored on the central server at all times.

Dr. Rosenthal underlined that the Jewish General Hospital's system is 100% future-proof and delivers the foundation for evidence-based medicine, because it leads to searchable documents with standardized information. Physicians can look for infections, allergies to antibiotics, and so



Image 4: Speaking at the partner event A North American first, internationally acclaimed.

on. "I want to know what's going on and why; I can't search scribbled notes," said Dr. Rosenthal in a presentation at the Philips'

partner event in Berlin, Germany, where he was invited to speak to more than 150 speech recognition experts from around the world. "Scribbling is a common source of errors, he said, but still, it's state-of-the-art in most ER departments around the world."

As the President of Emergency Specialists in Quebec and a member of the standards committee of Infoway Health Canada for Interoperable EHR, Dr. Rosenthal's vision reaches far beyond the Montreal hospital's walls. "Standardizing information with the help of speech recognition can help eliminate the lack of immediate access, providing physicians with better decision support across provinces, even countries", he noted.

Good is what's good for the user

Dr. Rosenthal says he only gives technology to his team when he feels comfortable with it. "If you have something successful, people want to get on board." Testing the system on the users doesn't work – the solution must be robust and solid before it goes live.

Success breeds success

Other departments are now looking to follow the emergency room. Dr. Rosenthal is now sharing best-practice procedures for a hospital-wide system, flexible enough to meet the specific requirements of every department. "Not everybody needs a PDA, not everybody needs speech recognition, you need to build in flexibility," he says. Some might want handwriting recognition on tablet PCs, others will need to fill in standard forms using voice commands. "And all of this is OK." In a first step, the emergency inpatient unit located floors above Dr. Rosenthal's emergency room, has introduced the PDA-based wireless speech recognition system.

Links to press coverage:

- CTV News: ["Where most doctors want to be"](#)
- Health Imaging & IT: [Voice Recognition Proving its Power](#)
- Health Imaging & IT: [Top 25 Innovators in Healthcare](#)