

Speech Recognition Speeds Data Entry

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[December 2007](#)

[Technology](#)

For many physicians, electronic medical record (EMR) systems offer the potential to improve the quality of health care they deliver and reduce costs as well. However, many factors inhibit widespread adoption of EMRs, and one of the most significant roadblocks for physicians is the high installation and operating costs of these systems. EMR systems also can be inflexible and have other limitations that often prevent physicians from using them. Many physicians find that EMR systems are more effective with the help of enabling technologies.

For the physicians at the Lifetime Health Medical Group, an example of enabling technology is speech recognition software to assist with transcription. We installed speech recognition technology shortly before implementing EMR systems in our offices in Buffalo and Rochester, N.Y., and experienced a smooth integration of the two technologies. The Rochester offices began EMR implementation in late 2006, while Buffalo began implementation early this year. In both places, speech recognition technology was implemented prior to EMR, and then integrated into the system. In both cases, the results were pleasantly surprising.

Save Time and Money

Recognizing that transcribing dictated notes can be costly and time consuming, our physicians embraced speech recognition technology to describe patient encounters in their own words through free-form dictation. The use of speech recognition at Lifetime Health complemented data entry via the keyboard, and led to increased report accuracy and substantial cost savings.

Prior to implementing speech recognition technology and our EMR, the providers engaged in a variety of documentation methods, ranging from hand writing notes to dictating into cassette tapes which were then sent to transcriptionists. Annual transcription costs at six Buffalo health centers ranged from \$750,000 to \$800,000, or about \$15,000 per provider per year. In addition, getting notes and tapes transcribed could take as long as three weeks, delaying the flow of information needed to deliver care effectively.

Facing the financial challenges that many physician practices encounter, we needed to reduce transcription costs and purchased one copy of Dragon NaturallySpeaking Medical from Nuance Communications, Inc., in Burlington, Mass., to assess its ability to meet our

group's needs. The functions and recognition accuracy of the system impressed our early users, who decided that all providers in Buffalo should use it.

Implementation Steps

Speech recognition technology was rapidly implemented among 69 providers, many of whom became accustomed to the technology quickly. As added motivation for those who were less eager to adopt the "once-and-done" mode, we instituted a modest penalty for using traditional transcription after a certain deadline. In a short time, all providers were using speech recognition to dictate a large portion of their daily patient documentation.

System architect Marc Reinhardt said the system's functions were impressive, and users become familiar with them quickly. "You're always sure that the spelling of some inane spelled medication will be correct," Reinhardt said. The speech recognition technology comes with 14 medical vocabularies covering 60 subspecialties and templates and macros specific to medicine. Using simple voice commands, the team has created additional templates, dictionaries, macros, and shortcuts for formatting and inserting text.

The software can be integrated with any Windows-based EMR system or Microsoft Office application without adding additional middleware or interfaces. It also can be used on any personal computer, and includes tools for network deployment, such as support for Citrix thin-clients. To input data, providers use their computers' integrated microphones, external USB headsets, or wireless Bluetooth-enabled microphones.

At Lifetime Health, the doctors and other providers use the software on tablet PCs. Documents were initially created using Microsoft Word and stored on network servers. We now dictate directly into the EMR. Roaming user profiles allow health care practitioners to access their voice files, templates, finished reports, and related files at any location on the network or via an Internet connection. The program automatically synchronizes and updates any adaptations created locally with files stored on network servers.

Increased Satisfaction

Providers are extremely satisfied with the benefits we've attained as a result of pairing speech recognition with our EMR system. "I use it every single day in a lot of different ways," said Donald Brown, DPT, manager of physical therapy. "It's such an efficient system, I couldn't imagine going back to dictating and waiting. It's good for quality and good for communication between colleagues." Many providers are getting recognition accuracy rates of 98%, which helps them complete their notes quickly.

By finishing notes more quickly than he did in the past, Brown can spend more time with patients, which can enhance customer satisfaction and improve patient outcomes. "By spending more one-on-one time with them, we can get patients better faster," Brown said. Speech recognition also helps to overcome one of the disadvantages of having EMR systems in exam rooms. Many physicians complain that entering data on a PC forces them to focus on the computer while meeting with patients. But by being able to work

anywhere, physicians can dictate notes while more effectively engaging patients, Brown added.

One other significant benefit is the savings associated with eliminating transcription across the Buffalo health centers. In the first year of using speech recognition, Lifetime Health saved \$415,000 in transcription costs. In the second year, the group expects to save \$680,000. The impressive and rapid transcription savings translated into a return on investment within only 1.5 months. Most technology investments take two to three years to break even.

More Accurate Coding

Speech recognition also has facilitated more accurate coding within our group. When a physician is recording his or her notes, it is easy to check that all aspects of care are documented appropriately, and if necessary, code levels can be revised to improve coding accuracy. “However you document a visit, the documentation of that visit is the key, and supporting the code that you submit with that is essential,” commented Arthur Orlick, MD, Lifetime Health’s chief operating officer and chief medical officer.

Even in the early stages of EMR implementation, the value speech recognition adds to electronic records is clear. A physician who worked at another practice found it difficult to enter notes when using a typical “point and click” interface. But speech technology was much easier because it allowed physicians to enter a note by speaking to supplement point-and-click data entry instead of typing.

While some information is still captured via the point-and-click method, such as choosing from a list of medications or allergies, the substance of an encounter requires a physician to explain the visit using the spoken word. Clinical findings, patient descriptions, past medical and social history, and correspondence all require that a physician enter data using unrestricted free text. The ability to incorporate narrative dictation into a note is critical to documenting why a provider has chosen a certain diagnosis.

For all of these reasons, the physicians at Lifetime Health have found the EMR system is more effective when driven by speech. Searches, queries, and filling out forms are done faster with voice commands than when using a keyboard. Charting, prescribing, aftercare instructions, order entry, database searches, and clinical documentation are all highly conducive to control by speech.

Looking Ahead

Currently, Lifetime Health is introducing the EMR to all 110 providers in our 10 health centers. “Our vision is to be paperless,” said Bob Krenitsky, Lifetime’s chief information officer. “Without a tool like speech recognition, we could never achieve that vision. It is a pinnacle piece to making our electronic medical records a success.”

The group envisions that virtually all providers at the Buffalo health centers will be using EMR and speech recognition in tandem soon. But given how much speech technology has helped to improve our use of EMRs, the physicians hope to find other uses for speech

recognition technology in ways that will meet our needs and serve our patients as well. For more than three decades, we have pioneered innovative ways to deliver care, and we plan to continue to integrate technology that can improve the patient experience.

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