

SPEAK and Deliver



When some hospitals talk productivity, speech is the word.

by Pamela Tabar

Talk, talk, talk. That's all caregivers at Jacobi Medical Center, Bronx, New York, will want to do if CIO Daniel Morreale has anything to say about it. Medical professionals are used to hearing about speech recognition technology for medical transcription. But at Jacobi Medical, speech-based documentation is being tied to everything from electronic medical records (EMRs) to billing codes.

Jacobi Medical started with desktop speech systems in radiology. But about 2,000 medical charts per day still had to be circulated around the medical campus, Morreale says. "My motivation was, I wanted to stop delivering paper charts." So the organization implemented VoiceOver from speech integrator Voicebrook, Lake Success, N.Y. VoiceOver is a server-based version of the Dragon

core engine with a customized front end that integrates with applications that weren't built for speech, explains Michael Cipriani, Voicebrook's chief technology officer.

Voicebrook developed an interface for the hospital's EMR (Patient1, recently purchased from Per-Se Technologies, Atlanta, by Misys Healthcare Systems, Raleigh, N.C.) and created treatment templates for each discipline that were designed to mimic a clinician's workflow. Morreale says users love the customization, but he admits that a significant change in future Dragon software might require overhauling the templates, too.

Voicebrook also linked speech recognition to medical coding through templates, sealing a big dollar-leak, Morreale says. "By getting the doctors to go through a more structured progress note, I'm capturing all that they're doing. That will allow me

to bill at a higher rate of service and improve the reimbursement by several million dollars a year.”

Morreale has added voice-input capabilities to more than 400 enterprise workstations so far. He explains that he told employees he'd give them all new PCs and connectivity, but he wanted them to do all their documentation online. “I gave them three choices: You can type it, you can use voice recognition, or you can go practice medicine somewhere else.” He calls his strategy the “Catherine de Medici” approach to compliance—based on “bribery, flattery, compulsion and persuasion.” But, he adds, employees were offered a lot of hand-holding, and their case loads were negotiated to allow the extra time needed.

Yes, speech recognition can cut transcription costs, especially if caregivers edit their own documentation. But some organizations view it as a tool to boost business productivity across the enterprise, especially in combination with an EMR, Cipriani notes. “As we see it, what's driving interest in speech is on the electronic medical record side.”

Other voice recognition and EMR vendors besides those mentioned are reaching out a hand to each other. ScanSoft, Peabody, Mass., which owns Dragon NaturallySpeaking, already offers interfaces for EpicCare EMR from Epic Systems, Madison, Wis., and Praxis EMR from InforMed, Woodland Hills, Calif. More partnerships are to come this summer, says Matt Revis, product manager for Dragon NaturallySpeaking. The impetus is workflow, he says: “It's what the integration with the EMR and HIS is all about. It's thinking about how speech recognition changes the way healthcare professionals interact with those systems.”

Talk Technology, Bensalem, Pa., a subsidiary of Belgium-based Agfa-Gevaert Group, lists several healthcare IT vendors as partners, including Cerner Corp., Kansas City, Mo.; IDX Systems Corp., Burlington, Vt.; GE Medical Systems, Milwaukee; and Siemens Medical Solutions, Malvern, Pa.

This summer, Dictaphone Corp., Stratford, Conn., is planning to introduce its natural language patient record, touted as an EMR-like enhancement to Dictaphone's new Enterprise Workstation. It comes complete with templates and self-editing tools, explains Don Fallati, senior vice president of marketing and strategic planning.

Here, there and everywhere

As the speech market melds desktop, server-based and mobile input modalities, much of healthcare still needs a choice of platforms. For desktop users, Scansoft released DragonNaturallySpeaking 7 Medical (DNS 7) in April. Along with streamlined text rendering and a more resourceful engine, DNS 7 includes a new Microsoft installer and administration tools for pushing out updates and vocabularies to desktops over the network, Revis says.

About 18 months ago, in a nod to the importance of speech in pervasive computing, IBM moved its speech group

into its Somers, N.Y.-based Pervasive Computing Division. According to translation and voice offerings manager Brian Garr, IBM's ViaVoice Pro version 10 comes with an improved headset from Santa Cruz, Calif.-based Plantronics Inc., support for more digital recorders and better voice models for digital recorder files.

For those who use a PDA, the ScanSoft and IBM systems are compatible with the most recent versions of iPAQ Pocket PC from Compaq (now owned by Hewlett-Packard, Palo Alto, Calif.).

Jonathan Snider, M.D., a physician at Hopkinton Family Practice, Hopkinton, Mass., uses his desktop version of Dragon NaturallySpeaking daily to speed up referrals and to “talk” his email. Since he communicates regularly with a core set of referral physicians, he trained the system to recognize their names and spell them correctly. “Because I can type so fast, I thought it wouldn't save time,” Snider says. “But you can talk and have your hands free for other things. It helps you multitask a bit.”

For now, Snider uses handwritten charts, but he says he hopes to migrate to an electronic chart eventually. “Then I can dictate the subjective and dump it right into the EMR.”

From radiology to enterprise

Many hospitals first experienced speech recognition in the radiology department. Talk Technology's TalkStation and Dictaphone's PowerScribe lead the pack in this niche, according to a January study by KLAS Enterprises, a Provo, Utah-based healthcare IT researcher. TalkStation includes editing tools, quick links to ICD-9 codes and a report-checking feature. PowerScribe Radiology version 4.5, scheduled to launch this summer, adds more Web-based features for remote users and simplifies training techniques, Fallati says.

And Dictaphone is starting to reach out across the healthcare enterprise. Its EXSpeech, introduced in 2001, allows for telephone-based dictation, transcribed by speech recognition software at the server level. The system provides a speech-recognized draft document and an audio file to help transcriptionists become editors instead of typists, Fallati explains.

Rockford Health System, Rockford, Ill., installed EXSpeech earlier this year and has conducted months of parallel tests to see how many physician users dictate via telephone well enough to achieve good accuracy rates. So far, nearly 75 percent of its 500+ physicians fare well with automatic transcription, reports Rockford's CIO and vice president Dennis L'Heureux. The best part, he says, is the system's transparency to users. “When physicians in our organization pick up the phone to dictate, they wouldn't know whether their dictation is being voice-recognized or not.”

The health system transcribes about 16 million virtual lines per year, so getting physicians to use automatic

transcription will streamline productivity and allow restructuring of costs, L'Heureux explains. "We were at a cost of about 21 cents per virtual line. We think that with all the [process] changes we're making, we can get it to about 12.5 cents per virtual line."

Maturing technology

One of the most annoying chores for speech recognition users is having to say punctuation cues aloud. Scansoft's DNS 7 contains an optional "natural-punctuation" feature, which uses probability and length of pauses to provide punctuation automatically. For example, if a sentence begins with "why," chances are it'll end in a question mark. Revis admits that the new feature is still rough around the edges, but it can help users who tend to repeat certain types of punctuation.

Today's systems include sophisticated context engines capable of discerning between similar-sounding words and phrases based on the other words in the sentence. Part of this is built-in and part is learned—the system keeps track of which words are most often found together and makes increasingly intelligent guesses at the correct word.

But this is tricky stuff. For accuracy in a patient note, for example, the system must be able to discern the difference between a physician saying, "take a leave" (a rest period) and "take Aleve" (the Bayer drug).

Voicebrook's Cipriani says speech recognition systems perform best when users train themselves to speak logically and consistently—and to provide the crucial keyword context. If physicians get used to saying "take a leave of absence" and "take Aleve tablets," the system will quickly learn to associate the proper choice with the words surrounding it.

For anything that falls through the cracks, most desktop systems allow users to create a macro, forcing the system to choose a specific word. In that case, saying "macro Aleve" will limit the system to a single choice: Aleve.

Someday speech recognition systems might be interpreting more than our voices. The Superhuman Speech

Project at IBM's Yorktown, N.Y., research facility is developing ways to combine speech recognition with visual data, such as lip and mouth formations, and maybe even with emotional emphasis, notes IBM's Garr. The company also is working on ways to combine multiple methods of sending and receiving data, including a combination of VoiceXML and XHTML, he explains. This might mean requesting information verbally but viewing the results in text, or vice versa. "Speech is evolving to be in many places. It's not just going to be on a desktop or on a server. It'll be in everything you do," Garr says.

Your money where your mouth is

Jacobi Medical has been busy trying to see that everyone can be heard. As of May, speech was an input option for histories and admission notes in the adult primary care clinic, the women's health facility, the pediatric outpatient center, sports medicine and the urology clinic. Morreale's next targets are cardiology and perhaps OB/GYN. His goal is to provide speech as an input option anywhere documents are created in hopes that users will choose to talk rather than type.

"But I have to mitigate the cost, because it's not cheap," Morreale says. "I have to provide a robust workstation, special mikes and software licenses, and the training, maintenance and support. I have to move forward somewhat cautiously, but it's a good position to be in." He adds: "I know that my bandwidth needs are going to grow exponentially, especially with more voice recognition and imaging going back and forth."

Since speech recognition can make documentation available to the enterprise so rapidly, some wonder if it will eventually become linked to best practices and physician expectations. "We have small examples with that here already," Morreale says. "We process most of our lab results within an hour. People are used to that, and they'll complain if their results are taking too long." ■

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