

# CAP TODAY

PATHOLOGY ♦ LABORATORY MEDICINE ♦ LABORATORY MANAGEMENT

## Hear me now? Another audition for speech recognition

**Kevin B. O'Reilly**

When Pete Fisher, MD, says his name aloud, the speech-recognition system he uses spits out the words “deep fissure” on the screen. And there are times when he says “note that” and “note fat” pops up instead. Despite the occasional hiccups, he loves the software and the freedom it affords him to do his work without being bound to a transcriptionist’s timetable.

Switching from transcription to speech recognition is “one of the best decisions we ever made in my practice here,” says Dr. Fisher, medical director of the Kalispell Regional Medical Center laboratory near Montana’s Glacier National Park. He is part of an independent pathology group that provides services to the hospital.

“It’s kind of revolutionized how we do the whole process of signing out cases,” Dr. Fisher says of the system he uses, Voicebrook’s VoiceOver. “What happens is, I sit at my desk with the computer and my case. As I speak, I watch the text spit out on the screen, read it, review it, hit the button and it’s gone. It goes to the hospital and the doctors—it’s all done.” Before, he had to dictate it, send it to a transcriptionist, who might get to it in an hour or a few hours, “and then I had to read it again.”

“Now when I sit down to sign out a bunch of cases, it’s *pew! pew! pew!*—one after the other—and they’re gone,” he says, mimicking the sound of a “Star Trek” phaser pistol. Dr. Fisher’s allusion is appropriate given how the late, great Leonard Nimoy, as First Officer Spock, used his voice to

command the starship *Enterprise*’s computer.

While Spock would undoubtedly have deemed the speech-recognition systems now available to laboratories to be rudimentary, recall that he had access to 23rd-century technology. Here in the 21st century, a growing number of labs and pathology groups are using speech-recognition

software, and not just because the software is getting better but because cost pressures and a shortage of talented pathology transcriptionists are making it difficult to keep doing things the old way.

Yet many in anatomic pathology still have trepidations about speech recognition systems, and understandably so. Early efforts required users to speak much more slowly, had greater

difficulty understanding speakers with heavy accents, and were poorly integrated with AP laboratory information systems. Skeptics claim that despite improvements, speech-recognition software is still prone to error that could harm patients—or at least lead to embarrassing amended reports—and that it can require more time per case from the medical professionals whose labor cost is highest.

Meanwhile, experts with experience using and studying speech-recognition software argue that another look is overdue.

“It’s definitely time to revisit, with the new enhancements in technology and automation and workflow,” says Anil V. Parwani, MD, PhD, director of the Division of Pathology Informatics at the University of Pittsburgh Medical Center’s Shadyside Hospital. For many reasons, he says, the future

Scott Goldsmith



Dr. Anil Parwani (left) with Juliet Filter, PA(ASCP). “Using speech-recognition software helps my workflow,” says Filter, who used a Dictaphone earlier in her career. “It is much more highly effective—examining your dictation immediately on a computer screen rather than hours later, after it has been transcribed.”

portends greater use of speech recognition in pathology.

"Maybe your pathology group is doing a lot of biopsies. With speech recognition, you can improve your turnaround time. And cost is a consideration. If your transcription service is going away or becoming more cost prohibitive, this may be the way to go," Dr. Parwani says. "I would see it as a natural for me. When I'm looking at the future, the image is on my monitor now and not on the microscope. I can describe what I see on the monitor on the left-hand side where I have the image. And on the other side, I have another screen that shows the software's recognition of what I'm saying."

The peer-reviewed literature on use of speech-recognition software in pathology is sparse, but Dr. Parwani and his colleagues at UPMC are among those who have contributed to it. They examined the turnaround time and transcription errors involved in the gross examination of 1,109 specimens before UPMC implemented Voicebrock's speech-recognition system, compared with performance in 937 cases after they used VoiceOver.

With VoiceOver, the average turnaround time fell by 81 percent, from 554.4 minutes to 102.8 minutes. The median TAT was slashed at an even greater rate of 85 percent, dropping from 203.5 minutes to 30. Most gross descriptions were completed within an hour using speech recognition. But surely the rate of "deep fissures" must have been greater using the technology? No, Dr. Parwani and his colleagues found. Transcription errors fell by 48 percent (Kang HP, et al. *Am J Clin Pathol.* 2010;133[1]:156-159).

Another study, conducted at the Stony Brook University Medical Center Department of Pathology, showed TAT improvements, with a 63 percent rise in the percentage of cases signed out within a day following VoiceOver implementation for gross description and final diagnosis. Two-thirds of cases were signed out within two days, up from 54 percent using transcription (Singh M, et al. *Arch Pathol Lab Med.* 2011; 135[11]:1476-1481).

Though Dr. Parwani and colleagues have not published more on speech recognition, he says internal data reveal that UPMC's rate of amended reports also fell by nearly 10 percent after implementing VoiceOver. Despite the strong results in the gross room with speech recognition, UPMC has not taken the tack of requiring pathologists to adopt the technology. Some handling high volumes of dermatopathology cases have made the switch, he says, but overall fewer than 10 percent of the health system's 90-plus pathologists are using the technology.

"We still have traditional methods of reporting available to them," Dr. Parwani says. "When it comes to adoption of technology, even when the technology is good, if there's an alternative available that's already in place and that people are accustomed to, people are resistant to change. . . . That's my experience with any technology, and I've deployed many different types of technology across the hospital."

"With this new technology, even though there are strong features and you can see the benefits—that you can have the report ready and sign out your case with a faster turnaround time—it does require training," he adds. "It's very painful in the beginning."

Most of the pathologists and pathologists' assistants interviewed for this article reported a learning curve of one degree or another in the switch to speech recognition, yet for some the transition was fairly painless. That was the case for William G. Watkin, MD, and his 20-plus AP colleagues at the NorthShore University HealthSystem in Chicago's northern suburbs.

"Within three weeks of implementation, we had zero transcriptionists," says Dr. Watkin, who notes there was skepticism about the switch to VoiceOver. For that software, Voicebrock uses Nuance Communications' Dragon Medical platform as the speech-recognition engine, rolling it within a layer of features such as voice-driven commands and customizable templates. In its promotional materials, Voicebrock says labs adopting VoiceOver typically see a return on their software investment within six to 18 months.

"There were a lot of people who couldn't believe we could do it," Dr. Watkin says. "Our pathology group has a pretty broad age range, from people in their early 30s to people over 70. Some of them are not that technological, some of the older people. Having said that, we've now been using this for several years, and there's not a single person who would go back to transcription."

A decade ago, Dr. Watkin would have struggled to fathom using speech recognition successfully in his practice.

"We had actually looked at it a number of times. Ten or 15 years ago we looked at somebody who was using Dragon. It didn't seem like the voice recognition was that good—at least for us. We didn't think it was ready, at that point, for prime time."

Beyond the perennial administrative impetus to cut costs where possible, Dr. Watkin says the real driving force behind the lab's 2009 move to speech recognition was a shortage of gifted pathology transcriptionists.

"We did struggle a lot with maintaining high-quality transcriptionists," he says. "That was a big challenge for us. We had a lot of turnover in the transcription pool, and many of the people we were able to attract were not formally trained, professional medical transcriptionists. They were people we often trained on the job for what we needed."

Dictated cases often went untranscribed for hours "because we didn't have enough people doing the typing," Dr. Watkin says. He notes that other labs and pathology groups may have better luck with their transcription pool, but leaders within medical transcription say the NorthShore University HealthSystem's experience is not unusual.

Linda Brady is CEO of the Association for Healthcare Documentation Integrity, formerly known as the American Association for Medical Transcription. The organization changed its name several years ago but still represents the interests of medical transcriptionists, including those who specialize in transcribing pathology cases.

The association is embarking on a study to track how health care organizations handle document workflow, including how many use speech-recognition software, traditional transcription, or a combination of the two. Industry-wide figures are not yet available, though Voicebrook reports that the number of lab sites using its product has risen from fewer than 150 in 2011 to nearly 350 today. VoiceOver has more than 3,500 licensed users; half of them are pathologists, 20 percent are residents, and the remainder are PAs or lab technicians.

While hard data on speech-recognition use in lab medicine is scarce, Brady says it is clear from anecdotal reports that transcriptionists across medical specialties are having a rough go of it. First, a wave of outsourcing hit compensation rates hard. Then, the rising use of speech-recognition systems across all medical specialties took its toll. The Bureau of Labor Statistics reports that the 2012 median annual salary for all medical transcriptionists was \$34,020, with an hourly rate of \$16.36.

"Our membership looks at those figures and says, 'Wow, I wish I was making that,'" Brady tells CAP TODAY. "The outlook is hard. From the transcriptionists' perspective, compensation is the No. 1 thing they're frustrated with. Personally, I feel the compensation has not kept up with the cost of living in all places. When that happens, we're losing a lot of the workforce. We could be seeing a workforce shortage."

A growing number of transcriptionists are turning to medical coding as an alternative way of employing their skill set within health care, Brady says. Father time is another factor, adds Bonnie Bakal, an at-large director on the association's national leadership board.

"There is a dwindling workforce, and part of that is age," says Bakal, manager of support services in the Department of Pathology at Memorial Hermann Healthcare System. "A lot of people who went into transcription are of retirement age, or close to it."

These trends within transcription, then, leave some laboratories in a world of hurt as they struggle to keep up with the ever-rising volume of cases.

"Our labor pool is getting smaller, and the workload is getting bigger," notes Bakal, a certified medical transcriptionist who oversees the 12 people doing transcription at Memorial Hermann, covering 22.5 hours of each day.

"What I see, as we expand—and there is so much expansion planned for our system in the future—is that we're going to have to get more creative in order to produce the amount of work we will be producing," she says. "I think that's going to include speech recognition. I think that's the

way it's going to have to go."

Bakal and her colleagues see a strong role for qualified transcriptionists to help labs edit and proofread documents initially prepared using speech-recognition software.

Efficiencies within other areas of the AP lab propelled the April 2013 switch to speech recognition in the Dartmouth-Hitchcock Medical Center's gross room, says Shannon Schutz, PA(ASCP).

"We had the basic Dictaphone and transcription services," Schutz says. "And we'd been doing a lot of Lean in the laboratory, and we got some of our processes very fast, including our biopsy slides." Some biopsies were making it to the pathologist's desk without the gross description having been transcribed. "And they weren't able to sign out the biopsy cases because we were still waiting for the grosses to be typed. That was kind of the trigger to start voice recognition."

The switch enabled the lab, which handles 44,000 specimens annually, to redeploy its secretarial staff to help with, among other things, tumor board preparations and consultations, Schutz says.

"We were at a breaking point, where either we had to hire more, or by integrating voice recognition and relieving them of those duties we could enable them to support the pathologist in different ways," she says.

Schutz says the shift to speech recognition went well for the pathologists' assistants and residents working in the gross room.

"The learning curve for most of us was really just a few days," she says. "It was just learning a different rhythm to your workflow, learning the voice commands and the shortcuts, and learning to navigate the system with your voice. Some people pick it up a lot faster than others." Voicebrook was on site. "They really helped us through that additional learning curve with the PAs, and then the PAs could roll it out to the residents. When we have new residents come in, this is all they know now because they've never had a traditional transcript service. They pick it up right away."

Schutz knows firsthand that not everyone takes to speech recognition the way a duck takes to water. A lab professional's irritation can interfere with a system's ability to better interpret a user's speech patterns, she says.

"We do have some users who get frustrated with it, because they are not using the system correctly. We've had people try yelling at it, and it just doesn't work," she says. "It just gets more frustrating. You just need to be as calm as you normally are. If you use the system as it's designed to be used, correcting errors as they arise, you get a strong profile and your errors are less and less and less."

But helping the software learn your speech can be time-consuming, says Michael D. Feldman, MD, PhD, associate professor of pathology and laboratory medicine at the Hospital of the University of Pennsylvania.



"When you're not editing with your voice, it's just faster," he says. "You've got to select the word it got wrong, go to the pick list to delete that, and say the word over. By the time I've said 'select the word, delete that,' and say it again, I could have just as easily typed it."

Dr. Feldman should know well the virtues of patience with this technology. The Penn labs have been using it in one form or another since 1998. Most recently, Penn used Nuance's PowerScribe. When that product was sunsetted, the lab switched to VoiceOver. Dr. Feldman agrees with Schutz that not everyone will take equal advantage of speech-recognition software.

"It's user dependent," he says. "It's like a hammer. Give one person a hammer, and they can build you a cross, and another can build you an entire house. There's a real skill to learning about dictating with a voice engine."

Voicebrook, in an effort to address some lab professionals' unwillingness or inability to shift toward speech recognition, offers a module called Delegated Medical Editor. Using this functionality, users can dictate in the traditional fashion without editing the end results themselves. The audio file and speech-recognition text is then routed to a transcriptionist for back-end editing.

While some pathologists working in labs using speech-recognition software opt for traditional transcription, others who have tried out the technology say they prefer to handle matters with their own fingers. The four-pathologist group at Chester County Hospital moved to VoiceOver several years ago. But one member of the group, Liza Jodry, MD, has made do with typing.

She used the software for three months. When a glitch with her system led to its being temporarily unavailable, Dr. Jodry—a touch typist—found she was just as productive using the keyboard as she had been using her voice.



Dr. Jodry

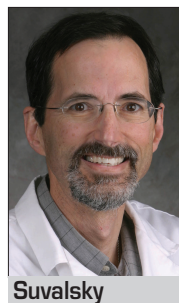
"My addendum rate for typos is zero," she boasts.

Using a vast array of keyboard shortcuts—for example, typing in "nomc" yields "fragments of unremarkable colorectal mucosa; no evidence of microscopic colitis (lymphocytic or collagenous)" on the screen—she can zip through her cases just fine.

"I don't like the typos you get with [speech recognition]," she says. "I really pride myself on having very few errors or typos or things like that in my reports. Most of the typos come from my head and not my fingers. I say the wrong thing. So that was one of the reasons I stopped using it. And if someone walks in your office and you forget to turn it off, you'll have seven sentences of gobbledygook."

Beyond annoying or potentially embarrassing typos, some critics of the lab industry's growing adoption of speech-recognition software argue it is pennywise and pound foolish.

Steven Suvalsky, MHS, PA(ASCP), and his colleagues at Iowa Methodist Medical Center timed how long it took each professional involved in the process of handling a case to do their work during the course of one day. One pathologist and



Suvalsky

one PA with six months or more experience using speech-recognition software were timed using Dragon, and compared with one pathologist and PA who did traditional dictation (Suvalsky S, et al. *MLO Med Lab Obs.* 2012;44[9]:36, 38–39).

While the speech-recognition process was faster overall (by 0.88 minutes per specimen), the pathologist using speech recognition took nearly twice as long (0.71 minutes more) with each specimen as his dictating counterpart, while the PA using speech recognition took nearly about a third longer.

The study concluded that even with zero (relatively low-paid) transcriptionist time in the speech-recognition regime, because the higher-paid pathologist and PA took more time with each specimen to speak and fix the system's mistakes, it wound up costing \$1.46 more per specimen. (Nuance, the maker of Dragon, declined to provide a company representative to speak about the company's efforts to serve pathologists and laboratories.)

"The cost differential is that you have the very highest-salaried individuals spending the extra time to generate the report," Suvalsky tells CAP TODAY. "Time costs money, and it matters who you have doing the work."

Voicebrook CEO Ross Weinstein says he's not surprised that Dragon, as a standalone technology, did not deliver a return on investment for the pathologists in the Iowa study.

"The positive cost savings of speech recognition can only be achieved as part of a complete pathology reporting workflow solution that includes templating and other enhancements," Weinstein says. "This is one of the reasons that we created VoiceOver. As a result, clients of ours such as the Stamford Pathology Group in Connecticut have eliminated transcription and are completing 20 percent more reports per day."

For his part, Dr. Fisher in Montana finds the difference in how long it takes to sign out cases using VoiceOver compared with dictation to be "negligible." To him, the little extra time it may take him is worth the satisfaction that comes from knowing, in real time, that the report reads exactly as he intends and will get to the ordering clinician sooner.

"There's a big difference between getting a result back Saturday morning and Monday morning," Dr. Fisher says. "A lot can happen in those two days." □



Dr. Fisher