Tomorrow's Transcription Tools: What New Technology Means for Healthcare

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by Joe Weber, MS, MBA

What does the future hold for the transcription industry? In the third installment of the Journal's series on transcription, take a look at the new technology aimed at boosting productivity, improving accuracy, and, in some cases, asking physicians for direct information input.

The year is 2006, and there are just a few hundred medical transcriptionists (MTs) still transcribing reports, serving only those older physicians who haven't changed with the times—and the times have definitely changed. Physicians have finally recognized the power of electronic health records (EHRs) as well as the fact that this power is realized only if they input clinical data directly into the EHR.

The vast majority of physicians are using empirically refined templates, pick lists, and other methods of structured, codifiedinput through the evolved progeny of today's Palm PCs, pocket PCs, and Tablet PCs. Input methods include touch-screen, speech recognition, handwriting recognition, and perhaps other technology not yet invented. There are no longer any delays or expenses resulting from transcription. Plus, healthcare organizations enjoy numerous benefits derived from analyzing codified clinical data. But this is only one vision.

Another vision of 2006 incorporates an unavoidable reality: many physicians strongly resist directly inputting clinical data. They believe it slows them down, which outweighs the potential overall healthcare benefits. Additionally, these physicians believe that structured input of patient information limits the freedom of expression afforded by free text. And frankly, these physicians don't put much stock in the value of clinical practice analysis. So transcription continues. In fact, it expands dramatically. Due to regulatory controls and other pressures, more providers dictate more clinical notes than ever. The need for MTs explodes. In 2006, there are half a million MTs required to convert voice dictations into text, more than double today's number.

Which is the accurate vision? Neither. In three years, it's likely that the transcription industry will resemble a combination of these two visions. More clinical notes will be needed in computer-ready form—and not through the scanning of handwritten paper charts. Both coded input and electronic free text will have an important place in the future. But technology continues to advance, and these advances will ultimately alter both the state of clinical documentation and the face of medical transcription. In this article, we'll take a look at the most intriguing documentation technologies of today and tomorrow.

Direct Data Input Enables Analysis

Most EHRs already offer physicians the opportunity to fully construct their clinical notes by selecting the appropriate data right on their computers or personal digital assistants (PDAs). They can do this with a mouse, touch-pen, or voice. Templates for common conditions facilitate the input process, but it still generally takes longer to generate a note in this manner than by dictation. Yet much of the documentation can be done during the encounter, and the payoff from this method could be awesome.

One of the reasons healthcare costs continue to escalate—now consuming 15 percent of what American households spend every year, with double-digit increases from year to year—is because we are not learning from experience. The only way to turn the crisis around is to implement continuous quality improvement. We must learn from analyzing the process and outcome of every clinical encounter. Then this new knowledge will enable us to increase the quality and decrease the cost of care. But we can only do this if we have data to analyze.

Direct physician input of structured/codified data would provide the data we need, particularly if the industry adopts a controlled clinical vocabulary, such as SNOMED-CT. Then we will be able to understand which findings are connected to which diagnoses, which treatments work best under what conditions, and when diagnostic tests are worth performing. We can convert this learning to point-of-care clinical guidance and decision support to improve the cost-effectiveness of healthcare. But to make this happen, physicians will have to stop dictating and, instead, enter clinical data directly into a computer. This will not be an easy change to get them to make.

Physicians Input Free Text

It is likely to be a while before most physicians agree to perform direct entry of structured/codified data. Even when physicians agree to enter some data this way, they will still need a free-text "option" for information that doesn't fit into the coding structure.

Free text can be entered by typing, speaking, or handwriting. Most physicians will prefer speaking. "Front-end" speech recognition enables a physician to dictate into a computer or a portable (possibly wireless) device for uploading to the computer. Recognized text appears immediately on the screen. The recognition engine will make a few errors and the dictator will correct those errors via keyboard or voice.

Less than 5 percent of practicing physicians are currently using speech recognition to generate clinical reports. And even some of these early adopters confess that they could see at least two to three additional patients each day if they didn't have to take the time to correct the errors made by the recognition engine, despite its impressive accuracy rates of 95 to 99 percent. However, those physicians claiming a time savings by having their reports transcribed by an MT instead may not be reviewing their transcribed reports for errors either.

Handwriting recognition is finally coming of age. The new tablet PCs provide incredible accuracy for reasonably legible handwriting. And this technology, like speech recognition, will become more accurate over time. Although speech is considerably faster than handwriting, it is often more palatable to handwrite notes in the presence of the patient. So both will have an important place in the future of free-text clinical documentation.

None of the free-text entry methods provide useful data for clinical practice research. However, natural language processing (NLP) technology can extract clinical facts from narrative reports and turn those facts into codes. NLP is currently in its infancy, but it too will advance. Clinical guidance is considerably easier to implement with structured, codified input than with free text, but changing physician behavior is not an easy challenge. Therefore, free text with NLP-aided analysis may prove to be a reasonable option in many clinical settings.

Patients Can Contribute Data

Patients are an untapped information resource in the healthcare delivery system. Why not let them contribute to the documentation of their own ambulatory clinical episodes? They clearly shouldn't be documenting the physical exam, assessment, or management plan. But with the right tool, they can effectively enter the subjective data related to their symptoms and relevant medical history, which, on average, represents about half of the entire encounter's documentation. In fact, they should be able to provide much more comprehensive and useful data than a physician could document in today's all-too-brief clinical encounters.

With a highly developed medical knowledge base driving the computer-based patient questionnaire, the quality and relevance of patient history information will be superior to the data from a physician interview. Employing a patient questionnaire would provide several benefits, including:

- patients know that all their symptoms will be noted
- encounters will be more efficient
- dictation and data entry time will be decreased
- transcription costs will be decreased
- service (and billing levels) will increase

Patients can fill out these structured questionnaires either in the waiting room or over the Web. If over the Web, the summarized and organized output can be used for triage. For example, urgency and appropriate length of appointment can be determined. Indicated lab and radiology tests can be requisitioned, so that results are available at encounter time. And sometimes self-care can be prescribed or the patient can be immediately directed to a specialist. Patient-provided histories have the potential to significantly improve the cost effectiveness of healthcare if physicians embrace this powerful and innovative approach to streamlining healthcare encounters.

The organized output from these computerized questionnaires can also be used to form a basis for "Web visits." Many conditions do not actually require a face-to-face encounter with a healthcare provider. By using a comprehensive patient history provided over the Web, physicians can sometimes treat patients via e-mail. Patients don't have to make the trip to the doctor and the cost of care is substantially reduced. Although patients might have to pay a modest fee out-of-pocket for this service, some insurance companies are investigating the quality and cost implications of including Web visits in their coverage. The implications this approach holds for our nation's overall cost of healthcare are significant.

Speedtyping Saves Transcription Time

There's no need for transcriptionists to type out every word in a report anymore. Speedtyping software, sometimes called "abbreviation expanders" or "word expanders," can save a significant number of keystrokes, thereby improving transcriptionist productivity. There are two kinds of speedtyping software available.

Conventional speedtyping software works like an autocorrecting function in a word processor: users create their own set of abbreviations. For example, an MT could set up "uga" as the abbreviation for "under general anesthesia." Whenever the MT hits the spacebar or punctuation, the software checks the abbreviation list. If there's something in the list that matches the characters that the MT just typed, it replaces the abbreviation with the associated full text. This software can save about 30 percent of an MT's keystrokes, and is provided by multiple vendors.

A more advanced approach to speedtyping, offered by a smaller number of vendors, can save about 70 percent of a transcriptionist's keystrokes. It comes with a built-in vocabulary of the words that are used in medical reports. Users can then add words, phrases, and blocks of text to reflect any uniqueness in the kinds of reports they transcribe. This software shows the transcriptionist, character by character, which word or phrase will be inserted if the spacebar (or punctuation) is pressed. It also provides a list of other words and phrases that can be entered by striking their associated keys. The primary word and the listed words may be ordered by frequency of occurrence in medical reports. Thus, the words that occur most frequently become the easiest to type.

Productivity increases with speedtyping software typically range from 20 to 80 percent, though some users actually double their productivity. Some software ensures correct spelling and hyphenation of all words. Plus, it automatically capitalizes appropriate words such as brand names. These programs have a one-time cost around $200. Consider what a 50 percent increase in transcription productivity is worth each year. There may be no better return on investment anywhere in the domain of healthcare information technology.

Back-end Speech Recognition Transparent to Doctors

Back-end speech recognition could also be called computer-assisted transcription. Physicians dictate as usual, while their digital voice files are run through a speech engine on a local or remote server. A draft report is then electronically shipped to a medical editor, along with the synchronized voice file. The editor listens, reads, and corrects any mistakes. The corrected text is sent back to the dictator for review and authentication.

Even with the quality-degraded voice files resulting from telephone dictation, this approach is expected to eventually average enough accuracy for most dictators that editors will be far more productive than transcriptionists. To achieve this improvement, it's important to provide the editors with software designed to streamline the correction process. With recognition accuracy in the 90 to 95 percent range (which is one mistake on every one or two lines), if physicians have to make the corrections, they will be highly distressed. However, an editor armed with the appropriate editing software should find the correction process much faster than transcribing the entire report. Most of these editors will be former MTs.

Some of the implementations of this approach can, on average, double productivity. However, the technology is expensive, and users will have to pay to the providing vendor some of what is saved in labor cost. Nonetheless, back-end recognition is gaining traction in the industry and likely will play a major role in the future of clinical documentation.

The most appealing aspect of these back-end systems is that they don't require physicians to change behavior. Physician resistance to change is a reality that often has to be accepted if we want to move forward at all. As Lawrence Weed, MD, father of the Problem-Oriented Medical Record adopted in the 1970s and Problem-Knowledge Couplers, a software tool that links patient problems to a medical knowledge base, once said, "If physicians were in charge of airports, there would be no radar. Just intensive care units all around the periphery." Weed, an entrepeneur and healthcare visionary, argues that the healthcare system's reliance on doctors' memories for effective care is dangerous and inefficient. Physicians and patients would be better served, he says, if doctors instead accessed medical literature at the point of care to assign diagnoses and shape treatment plans.

Which Tool Meets Your Needs?

We've taken a brief look at some existing and evolving technologies that should alter the healthcare documentation landscape in the coming years. The vision of 2006 is still a bit hazy. The solutions outlined above will find their way into more healthcare settings as the years go by. But one size does not fit all. The key will be in combining technologies to meet site-specific needs.

The challenge facing HIM managers is to design and implement the documentation process most compatible with their organizational goals, available resources, and physician mindsets. This is by no means a small challenge, but it is surely an exciting one. Clinical documentation methodologies may be the most powerful tools available for improving the quality and cost effectiveness of healthcare. By 2006, the technologies will be further enhanced. Some of these tools can bring impressive efficiency and cost reduction to the transcription process. But others can actually advance the science of medicine, ultimately providing the kind of point-of-care clinical guidance that will make healthcare be all that it can be.

Acknowledgment

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Article citation:
Weber, Joe. "Tomorrow's Transcription Tools: What New Technology Means for Healthcare." *Journal of AHIMA* 74, no.3 (2003): 39-43.