Speech Recognition 2008

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Annual hospital patient visits in the United States number almost 300 million, with outpatient visits approaching one billion. While patient visits are growing at a compounding rate of 3% per year, the requirements for documentation are increasing disproportionately to that growth due to heightened regulations and the desire for greater transparency in preparation for pay for performance. Currently, dictation and transcription are the primary means of documenting these visits and populating the patient record with the relevant information.

In recent years, healthcare provider organizations have reported dramatic benefits in workflow efficiency and cost-savings by adopting speech recognition technology. These reports have motivated a great many providers to consider speech recognition as the next step in automating their data flow and documentation; that movement toward automation prompted a KLAS study on the vendors that supply speech recognition technology.

As part of the study, KLAS interviewed 305 individual healthcare professionals regarding the speech recognition solutions in use at their respective organizations. The data were split between front-end solutions, where the physician self-edits the report, and back-end solutions, where the physician dictates the procedure notes and the document is cleaned up by an editor. The vendors and products included in the main body of the study are those with validated installations at no fewer than 15 unique in-patient organizations; thus, the data collected reflect hospital-centric experiences with speech recognition solutions. The KLAS study reviewed speech recognition systems in an effort to determine the state of the solutions, vendor scoring, physician usage and quantifiable benefits.

Vendor Scoring

Interestingly, there were substantial differences in client satisfaction among the vendors in this study (Figure 1). For the front-end vendors, the range of performance scores out of 100 varied from a high of 87.2 for Nuance RadWhere to a low of 60.6 for Agfa TalkStation. For the back-end vendors, the scoring ranged from a top score of 91.4 for eScription to 76.7 for Nuance. These scores demonstrate that the simple adoption of a speech recognition technology does not guarantee that a client will have a positive experience.

Physician Usage

While vendors' customer satisfaction scores ranged widely in the study, physician usage on the front end was less disparate. As shown in Figure 2, a high percentage of organizations achieved 100% physician usage, and only a few organizations were struggling to reach the 50% mark. Note that the percentages in Figure 2 refer only to physician usage in radiology.

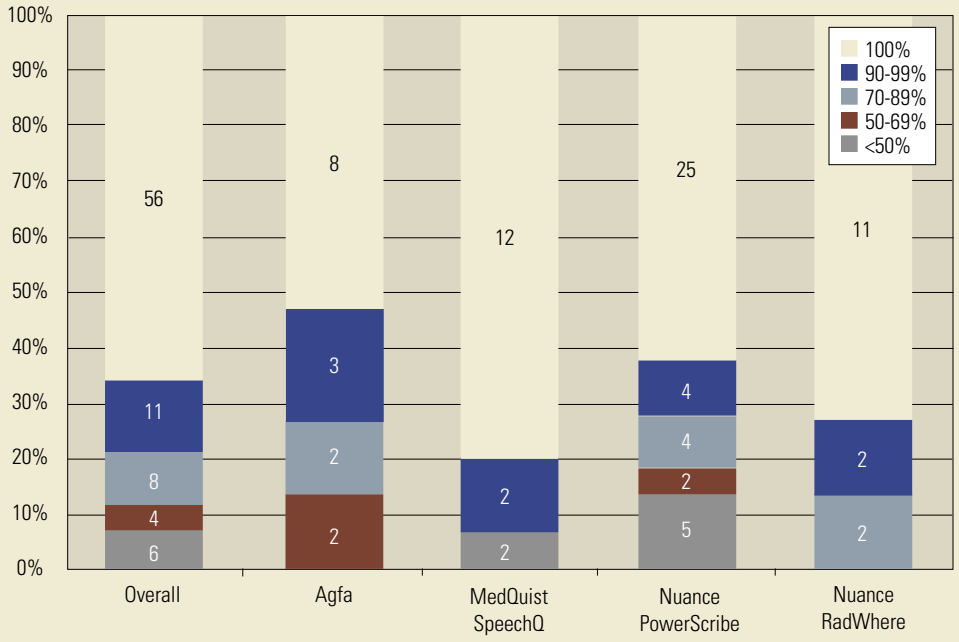
However, an important finding in past KLAS speech recognition studies was the intention of hospital managers to expand the use of front-end speech recognition outside radiology. Cardiology was among the first departments indicated for

Figure 1. Overall performance scores

RANK	FRONT-END SPEECH RECOGNITION VENDOR	PERFORMANCE SCORE (OUT OF 100)
1	Nuance RadWhere (Commissure)	87.2
2	Nuance PowerScribe	81.1
3	MedQuist SpeechQ	78.9
--	Front-End Speech Recognition Vendor Average	78.8
4	Agfa TalkStation	60.6
RANK	**BACK-END SPEECH RECOGNITION VENDOR**	**PERFORMANCE SCORE (OUT OF 100)**
1	eScription EditScript (now Nuance)	91.4
2	Dolbey Fusion Speech	85.7
--	Back-End Speech Recognition Vendor Average	82.2
3	Nuance EXSpeech (Dictaphone)	76.7
N/A	MedQuist DocQment*	80.0*
--	KLAS HIT Average (all vendors, all products)	80.5

*Does not meet minimum KLAS levels for statistical confidence.

Figure 2. Percentage of physicians using front-end speech recognition in radiology, by vendor (*n*=85)



this expansion. Besides dictation and transcription, structured reporting is a common tool used to document cardiology procedures, particularly in the catheter laboratory. Yet, KLAS has validated only a small number of organizations that are using front-end speech recognition in cardiology, primarily in echocardiography and vascular laboratories. In addition, a few emergency departments are also employing speech recognition.

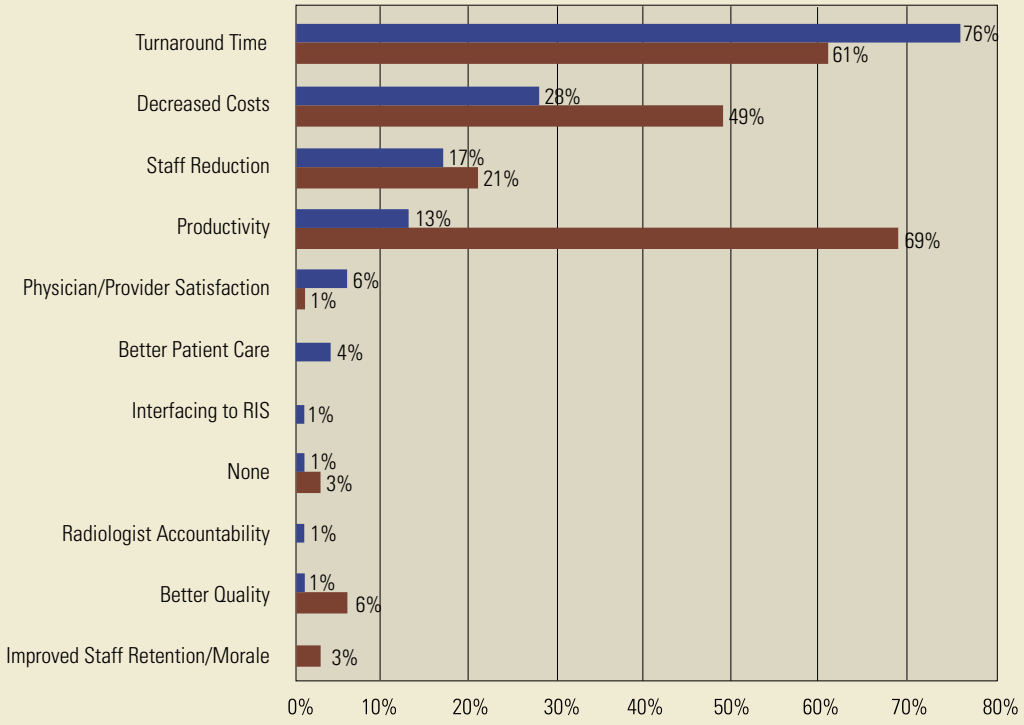
Quantifiable Benefits

High physician usage in radiology departments can only lead to other benefits. KLAS asked providers what quantifiable benefits they had achieved through their speech recognition solution. In line with previous speech recognition studies by KLAS, providers continued to report substantial turnaround time improvements, both on the back and front ends (Figure 3). In many cases, report turnaround times were reduced from weeks or days to a matter of hours.

In addition, some providers reported that transcription costs have been reduced as more work is done with less staff. One provider stated, "[Our system] is saving me 25–30% in transcription costs a year. It is well worth the effort." Overall, 49% of back-end users and 28% of front-end users mentioned decreased costs as a quantifiable benefit of their speech recognition solution.

Of course, the most frequently cited benefit for back-end users was an increase in productivity. One provider explained, "We had a 30% efficiency gain upon implementation for most

Figure 3. Quantifiable benefits – front end (*n* = 86) versus back end (*n* = 61)



transcriptionists. We have had it for several years and it continues to perform well for us." One provider summed it up nicely: "We have long-term plans with this product because it increases productivity, which increases revenue and happiness."

A Hybrid for the Future?

Vendors of electronic medical records, both for in-patients and outpatients, are bringing together the concepts of departmental or specialty report templates and speech recognition. For some in the industry, the goal is to create some sort of hybrid structured-text documentation, driven in part by speech recognition. These vendors and pioneering hospitals are trying to develop methods to integrate these processes into the physician's daily workflow, while also leveraging speech recognition solutions as a platform for outsourced transcription services.

In summary, while speech recognition vendors show a wide range of customer satisfaction scores, data concerning quantifiable benefits and physician usage are more consistent and positive among the vendors studied. Providers considering the adoption of speech recognition today have a number of viable vendor options to consider, as well as a large body of evidence regarding the proven benefits of adopting this technology.

About the Authors

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About KLAS

KLAS, founded in 1996, is the only research and consulting firm specializing in monitoring and reporting the performance of healthcare's information technology (HIT) vendors and products. Our senior management staff and advisory board average 25 years of healthcare information technology experience.

How We Serve the Healthcare Industry: KLAS, in concert with thousands of healthcare executives, CIOs, directors, managers and clinicians, has created a dynamic database of information about the performance of HIT vendors. The KLAS database represents the opinions of healthcare executives, managers and clinicians from over 4,500 hospitals and 2,500 clinics on more than 750 different products. The information is continually refreshed with new performance evaluations and interviews daily.

The KLAS database is dynamically and effectively used by:

- Healthcare organizations, to align expectations with a vendor's actual performance, to assist in strategic planning and contract negotiations and to validate decision processes
- Vendors, to monitor their performance in comparison with competitors
- Consultants, for current performance information on a specific company or product
- Healthcare investment firms, to evaluate publicly traded HIT company performance and trends or the competition for a new entrant.