# Big Tech Companies Cast Large Shadow in Health Care - For The Record Magazine

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Big Tech Companies Cast Large Shadow in Health Care By Lisa A. Eramo, MA *For The Record* Vol. 32 No. 3 P. 10



New technology from Amazon and others looms over the documentation sector.

The speech recognition industry has a new player, and it's an unlikely one: Amazon. In December 2019, Amazon Web Services (AWS)—a subsidiary of Amazon that provides on-demand cloud computing platforms and application programming interfaces—launched Amazon Transcribe Medical, a machine learning–powered speech recognition service that automatically converts speech to text.

Artificial intelligence–driven speech recognition certainly isn't a novel concept. However, experts agree it's too soon to tell exactly where the technology is headed next.

"Basic speech-to-text tools, including what Amazon and others are developing, only scratch the surface when it comes to health care," says Joe Petro, MS, executive vice president and chief technology officer at Nuance. "To be effective and provide real value to clinicians, vendors must possess deep domain expertise with health care–specific ontologies and knowledge bases. But more than that, applications need to be completely embedded into clinicians' existing workflows because no one is going to use something that is inconvenient or doesn't do what it's supposed to do."

AWS declined an interview with *For The Record*; however, a company press release describes how Amazon Transcribe Medical works: "With Transcribe Medical, the medical and pharmacological terms used in physician dictated notes, practitioner/patient consultations, and telemedicine are automatically converted from speech to text for use in clinical documentation applications. ... Then, transcriptions can automatically be sent to a natural language processing service like Amazon Comprehend Medical. Comprehend Medical uses machine learning to extract relevant medical information from transcriptions, such as medical condition, medication, dosage, strength, and frequency. This information can then be used for summarizing notes, clinical decision support, revenue cycle management [medical coding], and clinical trial management."

Among Amazon Transcribe Medical's customers is Cerner, an EHR vendor that's leveraging AWS' technology in its voice scribe app to automatically transcribe physicians' conversations with patients. Amgen, a multinational biopharmaceutical company, is using the product to collect real-world evidence of medication efficacy and potential side effects based on insights derived from transcriptions of recorded calls.

Amazon Transcribe Medical isn't currently offering anything that other vendors don't already provide—and, in some cases, vendors are going far beyond the capabilities of AWS' product, says Dale Kivi, MBA, senior director of communications at Aquity Solutions and a member of *For The Record*'s

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"The only reason this is getting any attention is because it has Amazon's name affiliated with it," Kivi says. "Otherwise, it's just another competitor without core health care expertise getting into this market. They have a lot to prove from an output quality standpoint and how they reliably populate the appropriate EHR fields without requiring edits that negate any measurable physician productivity improvements."

The AWS website doesn't list any health care providers as end users other than a surgeon who says the technology helps him decrease the amount of time he spends taking notes and interacting with the EHR.

## **Big Tech in Health Care: The 'New Normal'**

Amazon isn't the only tech company to enter the health care space in the hopes of diversifying revenue streams. Nuance, for example, has partnered with Microsoft to develop the Dragon Ambient eXperience, a solution that accelerates the delivery of ambient sensing technology that automatically and securely inputs health data into structured data fields within the EHR.

Also, Google worked with Stanford University to determine whether voice recognition technologies already available in Google Assistant, Google Home, and Google Translate could extract clinically relevant information from medical conversations to assist physicians in reducing their interactions with the EHR.

What all these tech companies have in common is that they're widely recognized in the consumer space, says Emilio Galan, MSc, cofounder and president of Robin Healthcare. "However, I don't think Amazon has an inherent advantage, though I do think its entrance into the medical space is very interesting because of the sheer scale of the organization."

Amazon and other large players with seemingly unlimited resources could be

among those poised to bring innovation to an industry that has largely been buffered against disruptive and competitive change, Galan says.

For example, Amazon Transcribe Medical was launched on the coattails of Amazon Care, a benefit that Amazon is piloting for its employees and their families in the Seattle area. With Amazon Care, patients can take advantage of various benefits, including an in-app text chat that connects patients with a nurse in minutes, an in-app video visit that enables telemedicine visits with a doctor or a nurse practitioner, a mobile care nurse who can be dispatched to a patient's home or office, and a care courier that delivers prescribed medications.

Harjinder Sandhu, CEO of Saykara, is among those in the camp who believe the industry is in the midst of great change. "All of these companies—whether it's Amazon, Microsoft, Google, or Apple—see health care as a huge digital frontier with speech being the interface of the future for that frontier," he says. "Better ways to interact with the medical record are coming, and speech recognition is the front door to that."

Others remain skeptical. "Just because a company with deep pockets enters the marketplace does not automatically make for a solution that's going to completely revolutionize the industry," says Nick van Terheyden, MD, managing director at Incremental Healthcare. "Amazon may have some deep capabilities in artificial intelligence, but not specific to health care. What the existing players bring to the table is an extraordinarily deep bench of experience and relationships that allow them to create a solution that actually works for busy physicians."

However, all companies working in this space see an opportunity to resolve one significant pain point: physician burnout, a problem that has reached epidemic proportions. In fact, according to Medscape's "National Physician Burnout & Suicide Report 2020: The Generational Divide," 42% of physicians say they're burned out, and 45% of physicians have had thoughts of suicide but have not attempted it.

The primary culprit? The burden of physician documentation in the EHR.

## **An Uphill Climb**

As a relatively new player in the speech recognition space, AWS may face several challenges, experts say. First, it hasn't published a word error rate, which is the industry standard for measuring accuracy, Petro says, noting that health care has a low tolerance for errors.

It's also unclear exactly what AWS is offering as value-added features, he says. For example, does Amazon Transcribe Medical parse unstructured data directly into structured data fields within the EHR? Does it provide clinical decision support that can augment a diagnosis? Press releases and website copy don't make this clear.

There's also the fact that speech recognition for medical use has matured dramatically in the last decade, says Judith K. Arrendale, president of Arrendale Associates, Inc. "Most large health systems are using speech recognition, and they're happy with what they have," she says. "The quality is very good. What would be a reason to change?"

Another question is whether Amazon Transcribe Medical will be able to provide timely, high-quality customer service to its end users—in particular, health care providers. Although Amazon has a positive reputation of providing customers with around-the-clock support options (including e-mail, phone, and chat), it remains unclear whether the support will be as nimble with health care providers for whom time is of the essence, Arrendale says.

Perhaps most importantly, there's the issue of data privacy and security, Petro

says. "There's a lot of skepticism in the industry in terms of where the data are and how they are being used," he notes.

Google, for example, recently made headlines for its efforts to collect health data on millions of Americans through its Project Nightingale initiative. The program, which is now the center of a federal inquiry, enables Google to access sensitive patient health data from Ascension, one of the nation's leading nonprofit health systems, to help the health system transform care delivery using data analytics, machine learning, and productivity tools.

According to an Ascension press release, "All work related to Ascension's engagement with Google is HIPAA compliant and underpinned by a robust data security and protection effort and adherence to Ascension's strict requirements for data handling."

Nevertheless, experts say questions about data privacy and security remain specifically for cloud service providers such as AWS, for which there is no HIPAA certification. According to AWS' own website, Amazon Transcribe Medical is HIPAA eligible, meaning it aligns its HIPAA risk management program with FedRAMP and NIST 800-53. The company does sign a business associate addendum for all customers.

"We're talking about giving a for-profit entity access to the medical histories of potentially hundreds of millions of individuals," says Jay Vance, founder of GoScription, LLC. "That, to me or any reasonable thinking person, is a terrible idea. This is the most important data about us that will ever be collected. Amazon will find a way to make money with it, and they're not going to ask for our permission."

#### Amazon's Advantage

Experts agree that cost could be a major factor in the decision to ultimately choose a service such as Amazon Transcribe Medical. According to the AWS

website, customers pay as they go based on the seconds of audio transcribed per month. Pricing is \$0.00125 per second, which equates to \$4.50 per hour. Users can even get up to 60 minutes of monthly audio free for the first 12 months.

The AWS website provides the following pricing examples:

• prepatient conversation between physicians, clinic managers, nurses, and others (15 minutes, \$1.125);

- physician-dictated audio note (30 minutes, \$2.25);
- telemedicine conversational audio (45 minutes, \$3.375);
- medical consultation over a phone call (60 minutes, \$4.50);
- clinical trial reporting about medicines (75 minutes, \$5.625); and
- clinician-patient conversation (90 minutes, \$6.75).

How might these prices affect an average medical practice? A recent study published in the **Annals of Internal Medicine** found that physicians spend an average of approximately 16 minutes per ambulatory encounter using an EHR. Twenty-four percent of this time (approximately four minutes) is spent specifically on documentation. This means that a physician who sees 30 patients a day spends approximately two hours on documentation. If that physician uses Amazon Transcribe Medical, they'd pay a total of \$9 per day or a few thousand per year.

"It's an insane number compared to anything that currently exists," Vance says. "There are people out there who will say even if it's too good to be true, we can't afford not to try it." Arrendale says AWS' offering will surely make the speech recognition and medical transcription industries more price competitive. "This will benefit the health care community that's extremely price conscious," she says.

Still, cost savings doesn't necessarily equate to high-quality documentation, says clinical documentation expert Erica E. Remer, MD, FACEP, CCDS, who worries that real-time recordings won't necessarily capture the essence of the encounter and will only add to the problem of voluminous documentation that already exists with copy-and-paste functionality.

"If all you're doing is recording the interaction in real time, you're losing the ability to convert it into a story that makes sense," she says. For example, in many cases a 15-minute conversation can be summarized into a few sentences with relevant clinical information that's more useful to the reader, Remer says.

Whether Amazon Transcribe Medical and similar offerings will solve the problem of physician burnout also remains to be seen, says Kivi, who advocates for using a virtual scribe. "The return on investment is significantly greater because not only are you truly relieving the burden on the physician, you're also getting the expected results for the downstream use of the information," he says, adding that most physicians can cover the cost of a virtual scribe by seeing one additional patient per day.

However, the ability to record, transcribe, and analyze pre- and postvisit conversations may be particularly appealing for providers trying to move the needle on value-based care, Vance says. For example, providers performing chronic care management and transitional care management may benefit from being able to easily capture time spent on the phone with patients, including total time spent and all of the details discussed.

## Effects of Emerging Technology on Transcription

Experts agree that ambient clinical intelligence is the wave of the future. "Where the value comes in is when you can listen in on a conversation and create a clinical note that a physician can review and say, 'Yes that is an accurate interpretation of the encounter.' Today, that requires human intervention on the back end to get to that level of accuracy," Sandhu says.

Petro also notes the importance of the human factor, pointing out that even as ambient clinical intelligence becomes more capable and accurate, the need for some type of validation on the back end remains. "In our lifetimes, there is going to be human oversight," he says. "I can't imagine that it's going to be so 'lights out' that you never need to look at the documentation, but maybe I'll be surprised."

Some experts worry that ambient listening technology will only exacerbate an existing problem: Physicians don't review their transcribed documentation. "Sometimes people rely so much on the technology that they forget they're responsible for their output," Remer says. "However, even if it saves time, physicians still need to read and edit the documentation to ensure it accurately conveys the encounter."

Using a disclaimer stating that the documentation may include errors is not a solution, she emphasizes.

Patt King, CHDS, president of the Association for Healthcare Documentation Integrity, agrees. "With any voice recognition product, the provider still needs to have eyes on their documentation," she says. "They still need to read it because when they sign it, they are legally responsible for it. Unfortunately, many providers dictate, sign, and they're done."

Documentation errors subsequently cause clinical and financial problems downstream, Kivi says.

Another challenge with any type of speech recognition or ambient clinical intelligence technology is that it captures only what physicians verbalize, Remer says. "If physicians don't make their medical decision-making transparent, then their billing will suffer," she says. "You've got to somehow convey your thought process whether you're speaking out loud, dictating into a machine, or typing it into the EHR yourself. You have to think in ink so it makes it into the EHR."

## A Cloudy Future

Don't look now, but other brand names seem poised to enter the health care arena. For example, Comcast, Best Buy, and Walmart are either considering joining the fray or already have. Experts say health care executives should explore their options but also remain cautious.

Vance says the sanctity of patient data must remain top of mind, noting that organization leaders must decide whether the benefits of providing big tech companies with access to protected health information outweighs the risks.

"You've got to pick a partner that you really trust," Petro says. "Chief information officers and chief technology officers are practically putting their careers on the line for some of these really big deals. It's important to balance the hope and hype with a realistic understanding of challenges and put your most important data in the hands of a company that has decades of experience in the space and will serve as a true custodian of that information."

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