

# YOUR GOOD HEALTH

## Protection vs. privacy

How much info should 'Doctor Alexa' have access to?

By Janet Rae-Dupree

Kaiser Health News

Now that it's upending the way you play music, cook, shop, hear the news and check the weather, the friendly voice emanating from your Amazon Alexa-enabled smart speaker is poised to wriggle its way into all things health care.

Amazon has big ambitions for its devices. It thinks Alexa, the virtual assistant inside them, could help doctors diagnose mental illness, autism, concussions and Parkinson's disease. It even hopes Alexa will detect when you're having a heart attack.

At present, Alexa can perform a handful of health care-related tasks: "She" can track blood glucose levels, describe symptoms, access post-surgical care instructions, monitor home prescription deliveries and make same-day appointments at the nearest urgent care center.

Amazon has partnered with numerous health care companies, including several in California, to let consumers and employees use Alexa for health care purposes.

Workers at Cigna Corp. can manage their health improvement goals and earn wellness incentives with Alexa. And Alexa helps people who use Omron Healthcare's blood pressure monitor, HeartGuide, track their readings.

But new opportunities are emerging since Alexa won permission to use protected patient health records controlled under the U.S. privacy law known as the Health Insurance Portability and Accountability Act.

Before, Alexa had been limited to providing generic responses about medical conditions.

Now that it can transmit private patient information, Amazon has extended its Alexa Skills Kit, the software development tools used to add functions. Soon, the virtual assistant will be able to send and receive individualized patient records, allowing health care companies to create services for consumers to use at home.

Amazon's efforts in this domain are important because, with its 100 million smart devices in use worldwide, it could radically change the way consumers get health information and even treatment — and not just tech-savvy consumers. Analysts expect 55% of U.S. households will have smart speakers by 2022.

Some of Alexa's new skills depend on a little-understood feature of the devices: They listen to every sound around them. They have to in order to be ready to respond to a request, like "Alexa, how many tablespoons in a half-pint?" or "Put carrots on



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the shopping list."

University of Washington researchers recently published a study in which they taught Alexa and two other devices — an iPhone 5s and a Samsung Galaxy S4 — to listen for so-called agonal breathing, the distinct gasping sounds that are an early warning sign in about half of all cardiac arrests. These devices correctly identified agonal breathing in 97% of instances, while registering a false positive only 0.2% of the time.

Earlier research had shown that a machine learning system could recognize cardiac arrest during 911 emergency calls more accurately and far faster than human dispatchers could.

Amazon, which declined to comment for this article, holds a patent on an acoustic technology that recognizes and could act on significant audio interruptions. Combined with patented technology from the University of Washington that differentiates coughs and sneezes from other background noises, for example, Alexa could discern when someone is ill and suggest solutions.

Because Amazon also holds patents on monitoring blood flow and heart rate through an Alexa-enabled camera, Alexa could send vitals to a doctor's office before you head to your appointment and continue to monitor your condition after you get home.

"It opens possibilities to deliver care at a distance," said Dr. Sandhya Pruthi, lead investigator for several breast cancer prevention trials at the Mayo Clinic, which has been on the front lines of using voice assistants in health care. "Think about people living in small towns who aren't always getting access to care and knowing when to get health care. Could this be an opportunity, if someone had symptoms, to say, 'It's time for this to get checked out?'"

Many medical technology companies are tantalized by the possibilities offered by Alexa and similar technologies for an aging population.

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