

# Study finds limitations to CPR directions given by AI voice assistants, recommends use of emergency services

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	Amazon Alexa on Echo Show	Apple Siri on iPhone	Google Assistant on Nest Mini	Microsoft Cortana on a Windows laptop
"How do I perform CPR?"	"According to wikiHow, to perform hands-only CPR, turn the victim on their back and kneel next to..."	"... from kidshealth.org: CPR, or cardiopulmonary resuscitation, combines chest compressions..."	"Sorry, I don't understand."	"I've got this for you on how do I perform CPR." Provides textual CPR instructions.
"Help me with CPR"	"Here's an answer... that I translated: The Indian Penal Code."	"Here's some information." Provides a textual description of CPR.	"[Local CPR training business] is on [street address] and is [distance] miles away."	"I've got this for help me with CPR." Provides textual CPR instructions.
"CPR"	"CPR news from [user's] iHeartRadio."	Displays information related to an Apple TV movie titled CPR.	"I found a few places near you. The first one is [address for a local CPR training business]..."	"Sorry, I dont know..."
Questions "How do I perform chest compressions?"	"From tpub.com: Perform chest compressions by using 2 fingers to depress the middle of..."	"Okay, I found this on the web..." Provides textual information related to CPR.	"Sorry, I don't know..."	"I've got this for you..." Provides textual CPR instructions.
"Chest compressions"	"Hmm, I don't know that one."	"Cardiopulmonary resuscitation is an emergency procedure consisting of chest compressions..."	"According to Wikipedia: Cardiopulmonary resuscitation is an emergency procedure consisting of ..."	"Sorry, I don't know..."
"Help, not breathing"	No response	"Okay, I found this on the web..." Provides textual information related to shortness of breath.	"I found 3 on the website dedcross.org.uk. Learn first aid for someone who is unresponsive..."	"I've got this for you..." Provides textual CPR instructions.
"What do you do if someone is not breathing?"	"... From www.nhs.uk: If the casualty isn't breathing, call 999 or 112 for an	"Okay, I found this on the web..." Provides textual information related to CPR.	"... from the website redcross.org.uk. Learn first aid for someone who is	"Words fail me."

Responses to CPR questions by artificial intelligence voice assistants(VAs) are presented, colored according to whether the response was determined to be related to CPR (providing information pertaining to CPR or recommending the use of emergency services) or unrelated to CPR or if the VA acknowledged that it did not know the answer. Responses shown here are abbreviated versions of full response transcriptions. Credit: Landman et.al, JAMA Network Open

When Cardiopulmonary Resuscitation (CPR) is administered out of the hospital by lay persons, it is associated with a two- to four-fold increase in survival. Bystanders may obtain CPR instructions from emergency dispatchers, but these services are not universally available and may not always be utilized. In these emergency situations, artificial intelligence voice assistants may offer easy access to crucial CPR instructions.

Researchers at Mass General Brigham, New York's Albert Einstein College of Medicine, and Boston Children's Hospital investigated the quality of CPR directions provided by AI voice assistants. They found that the directions provided by voice assistants lacked relevance and came with inconsistencies. These findings have been published in *JAMA Network Open*.

Researchers posed eight verbal questions to four voice assistants, including Amazon's Alexa, Apple's Siri, Google Assistant's Nest Mini, and Microsoft's Cortana. They also typed the same queries into ChatGPT. All responses were evaluated by two board certified emergency medicine physicians.

Nearly half of the responses from the voice assistants were unrelated to CPR, such as providing information related to a movie called CPR or a link to Colorado Public Radio News, and only 28% suggested calling emergency services. Only 34% of responses provided CPR instruction and 12% provided verbal instructions. ChatGPT provided the most relevant information for all queries among the platforms tested.

Based on these findings, the authors concluded that use of existing AI voice assistant tools may delay care and may not provide appropriate information. Limitations to this study included the asking of a small number of questions and not characterizing if the [voice assistants'](#)

responses changed over time.

"Our findings suggest that bystanders should call [emergency services](#) rather than relying on a voice assistant," said senior author Adam Landman, MD, MS, MIS, MHS, chief information officer and senior vice president of digital at Mass General Brigham and an attending emergency physician. "Voice assistants have potential to help provide CPR instructions, but need to have more standardized, evidence-based guidance built into their core functionalities."

**More information:** Quality of Layperson CPR Instructions From Artificial Intelligence Voice Assistants, *JAMA Network Open* (2023). DOI: [10.1001/jamanetworkopen.2023.31205](https://doi.org/10.1001/jamanetworkopen.2023.31205)

Provided by Mass General Brigham

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