

Usefulness Of Voice Assistants In Providing Clinically Appropriate Advice Regarding Colorectal Cancer Screening

Abstract Tu1661

Introduction: A voice assistant (VA) is a voice enabled artificial intelligence that allows users to communicate with a device in a conversation-like manner. As of 2019, 46% of adults in the United States use VAs, mainly on smartphones. One of the many uses of digital searches is to seek out medical information, begging the question, are voice assistants providing medically accurate answers to such questions? Web searches for colorectal cancer screening have steadily increased over the past 10 years meaning there is increasing interest in finding information about colorectal cancer by the public. We did this study to determine if VAs provide clinically appropriate advice regarding colorectal cancer screening.

Methods: Four voice assistants: Apple Siri, Amazon Alexa, Google Assistant, and Microsoft Cortana were tested. Voice recordings were done for 5 commonly asked questions regarding colorectal cancer screening. The authors decided if each of the four VAs provided clinically appropriate advice. Fisher exact testing was done to compare the results of each VA against each other.

Results: We found that clinically appropriate advice was provided 100% by Apple Siri, 60% by Amazon Alexa, 100% by Google Assistant, and 40% of the time by Microsoft Cortana (Table 1). Google Assistant was the only VA to show advertisements in its results.

Discussion: Both Apple Siri and Google Assistant provided clinically appropriate advice 100% of the time, however, the top results for Google Assistant were advertisements for the services and products of private companies. We understand that the VAs generate income from advertising, however, we believe it is amoral to show these advertisements prior to providing meaningful results in this situation. All of the VAs provided accurate advice about when to start colorectal cancer screening, even including the May 2021 USPSTF recommendation to start screening at age 45. None of the VAs instructed users to speak to a healthcare provider, which we believe is a vital aspect to any medically related search result. Most of the VAs performed well in our study but we believe there is a need for improvement, especially with how technology is becoming more ingrained in our everyday lives.

| Number | Question | Clinically appropriate advice | | | |
|--------|---|-------------------------------|--------------|------------------|-------------------|
| | | Apple Siri | Amazon Alexa | Google Assistant | Microsoft Cortana |
| 1 | When should I start getting tested for colon cancer? | YES | YES | YES | YES |
| 2 | How often should I get tested for colon cancer? | YES | NO | YES | YES |
| 3 | What are the different tests for colon cancer? | YES | YES | YES | NO |
| 4 | What can I do to reduce my risk of colon cancer? | YES | NO | YES | NO |
| 5 | What are the symptoms of colon cancer? | YES | YES | YES | NO |

Table 1: Assessment of the clinical appropriateness of results from virtual assistants regarding colorectal cancer questions