Hereditary cancer risk assessment using a chatbot in women presenting to obstetrics and gynecology practices across the US

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Background

Hereditary cancer risk assessment is standard of care in the obstetrics and gynecology (ob/gyn) practice. Historical data indicates 1 in 12 individuals have a family history consistent with hereditary cancer. However, recent data from a small community practice found that 1 in 4 women met National Comprehensive Cancer Network (NCCN) criteria for genetic testing. The aim of this study was to assess the number of women who meet NCCN criteria for genetic testing in a large, diverse population across the United States (US) by using a computer program that conducts conversations with patients (a.k.a. chatbot) for risk assessment.

Results

Over 15,000 chatbots were sent to patients and results are summarized in Figure 1. Overall, 65% of patients completed the chatbot and 26% of these patients met NCCN criteria or had a known familial variant. Of completed assessments, 14.5% were excluded. Some patients received the chatbot less than five days before their appointment due to administrative delays at the ob/gyn practice, and 15% of intended recipients did not receive the chatbot due to incorrect contact information. Patients reviewed their experience with an average rating of 4.6 out of 5.

Conclusions

A novel chatbot tool was used to collect pertinent cancer history and provide NCCN criteria assessment to identify patients for inherited cancer risk. Compared to previous research, this study is…

Method

We used a HIPAA-compliant chatbot for collecting personal and family history from women in 28 ob/gyn practices across the US.* Patients received a text message or email asking them to complete the chatbot five days before their scheduled appointment. Reminders were sent at three days and again one day prior if not completed. After history collection was complete, an algorithm determined if the patient had a known familial variant or met NCCN guidelines for hereditary cancer testing, including BRCA-related breast and ovarian cancer, Lynch and polyposis syndromes. Incomplete chats, minors under age 18, or those who declined to provide information were excluded. Additionally, some ob/gyn practices elected to exclude pregnant patients.

More women are at risk for hereditary cancer than we thought

Before, it was thought that 1 in 12 women meet NCCN criteria

Now, data suggests that 1 in 4 women meet NCCN criteria

Figure 1. Study recruitment and results.

~15,000 chatbot invitations sent

~9,700 (65%) completed the chatbot

~5,800 (59.5%) did not meet NCCN criteria

~5,300 (35%) did not complete the chatbot

~2,500 (26%) met NCCN criteria or had a familial variant

~1,400 (14.5%) were excluded

~1,400 (14.5%)† were excluded

1.2% declined, 1.4% minors and 11.9% pregnant patients

~5,300 (35%)

4.6 out of 5 chatbot experience rating

~1,400 (14.5%)

Compared to previous research, this study is...

Much larger >2 times the size

More diverse Nationwide recruitment

References


*Chatbot developed in partnership with Clear Genetics, Inc. (San Francisco, CA).

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