Chatbot Technology: A Review and Analysis of its Use and Value in Medical Information

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Background

A chatbot is a domain-specific, text-based interface programmed with smart algorithms to communicate with end users by simulating human conversations.1 Within the healthcare industry, chatbots are still in the early phases of implementation, with the majority being used to assess patient symptoms and identify diagnoses. An opportunity exists to leverage similar programming for a chatbot to respond to unstructured medical information (MI) inquiries. However, there is limited data available on the use of chatbots within the pharmaceutical industry, and no data on its use in MI.

Objectives

The objectives of this study is to evaluate the current utilization of chatbot technology across MI departments within the pharmaceutical industry, and to assess its value in responding to unstructured requests for MI.

Methods

Part 1: A literature search on the use of chatbot technology within the pharmaceutical industry was performed to gain a baseline awareness of current chatbot utilization within the field. An example of search terms included “chatbot technology AND pharmaceutical industry OR medical information”. Databases used included Embase, ProQuest, and PubMed.

Part 2: An online Qualtrics survey was built and distributed via email to MI specialists (n=40) at various pharmaceutical companies across the US. The survey was made available for a 4-week period from January 2019. All responses were anonymized.

Part 3: An optional, 30-minute interview with MI specialists who qualified that they currently have chatbot technology in place or are currently planning to implement them will be conducted to provide more insight to the study.

Results

Although the industry is moving towards a virtual and technology-powered care model, it is still in its infancy. Utilizing chatbot technology in healthcare is motivated by the promise of improved efficiency, improved health outcomes, and cost savings. It includes patient data, privacy, pharmacovigilance, and providing balance of product information.

One pharmaceutical company and piloted a chatbot to provide virtual inquiries for unstructured MI inquiries. The pilot showed that the chatbot can deliver information faster/Foever Porter (54-72%), and complete/or results, accurate or relevant information, MI to healthcare providers.

Discussion and Limitations

There were several limitations to the study. It is unknown whether all respondents were from different companies and therefore, responses may overlap. The amount of respondents was small and some individuals did not fully complete the survey, including the respondents who noted that they currently have MI chatbots. It would be beneficial to analyze the value of the chatbots that are currently being used within MI. Insights from future interviews are not yet available, but two interviews are scheduled for mid-March 2019.

Conclusions

While the use of chatbot technology within the healthcare industry is still in its early stages, a potential opportunity to leverage chatbot technology exists within MI. There is a high anticipation for a programmed chatbot to be able to answer store/telephone-based MI inquiries, and a wide range of audiences. However, there are potential barriers to overcome, such as lack of data/both monetary and by demand-based and maintenance. The perception of this proposed advantages has mixed results and the overall value of implementing using chatbot technology within MI is still unclear. More MI departments used in implementing chatbots technology in order to better evaluate its value and whether the benefits outweigh the significant costs. Further research in this area must be done in order to establish the potential costs and benefits. This is very important as the potential may have the potential to do so, as it is anticipated to provide more insight to the advantages and disadvantages of chatbot technology within the MI department of the pharmaceutical industry.

References


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