How Healthcare Consumers Communicate With Chatbots

A comprehensive analysis of how healthcare consumers interact and converse with chatbots
As chatbots continue to play a larger role in how healthcare organizations communicate and engage with consumers, we analyzed thousands of conversations to understand how healthcare consumers actually interact with the platform.
Healthcare organizations and providers are incorporating solutions to make healthcare and the digital patient experience more consumer-friendly. One solution that is quickly gaining traction and adoption across the sector is AI-powered chatbot and conversational platforms. As conversations between website visitors and chatbots continue to increase, the question of how healthcare consumers actually interact with the platform becomes increasingly more important to understand.

When Loyal’s chatbot platform, Guide, surpassed 100,000 conversations, our AI Labs team set out to analyze a sample set of data to better understand how actual healthcare consumers interact and converse with the platform.

In an age where consumers expect access and convenience, our results indicate that the overall majority of users utilize the chatbot platform as an avenue to quickly receive answers and assistance in finding information. However, users understand that chatbots are not going to behave like search engines, and instead communicate with the bot in a conversational manner that is similar to a human-human conversation, but with less richness, depth, and length of a typical conversation.
Introduction

Do healthcare consumers converse with chatbots like a human or a robot, and does a machine on the other end of the conversation influence the inclusion of Protected Health Information (PHI) in the conversation?

The digital patient experience and providing access and convenience has become a top priority for the healthcare industry, and will transform how health systems communicate, interact, and empower the patients in the near future. One of the fastest growing solutions to address this shift towards a more consumer-friendly digital experience are conversational chatbot platforms powered by AI and machine learning.

Chatbot platforms are already transforming how brands interact and communicate with website visitors. In fact, Gartner predicts that by 2020 we’ll have more conversations with chatbots than our spouses, and 85% of customer service interactions will be powered by chatbots.

As chatbots become more commonplace, healthcare professionals want to understand how site visitors interact and communicate with these chatbots, as well as how much PHI is included in these conversations.

In essence, do healthcare consumers converse with chatbots like a human or a robot, and does a machine on the other end of the conversation influence the inclusion of PHI in the conversation?
Research Questions

To answer these questions, we gathered data from a sample size of 1,000 conversations across five health system clients, and analyzed conversations based on the following three questions:

Is the utterance a request, question, or statement?

What’s the average character/word count per utterance?

How often is PHI included in the utterance?

Definitions

**Utterance** - Complete entry from the user into the chatbot environment

**PHI** - Protected Health Information

**Statement** - Using language such as, "I'm sick" without a specific request

**Request** - Using language such as, “I want” or “I need”
Access and Convenience

Consumers expect quick answers and immediate access to information. This aligns with the type of results uncovered from the breakdown of the utterances the chatbot experienced in the conversations we analyzed.

Breakdown of Utterance Type

- 50% Requests
- 33% Questions
- 17% Statements
Template Usage

Templates are pre-populated calls to action located within the chat window. These templates are designed as a quick and easy reference for commonly asked questions on each page. By analyzing the usage of templates in the chatbot environment we uncovered:

- 50% of the time the utterance type was a question, the template did not provide the call to action the user needed.
- 33% of the time when a template wasn’t used, the user typed out an utterance for an existing template instead of selecting it.
- 33% of users selected a template, with the most used templates being requests for information (i.e. Pay My Bill, Find a Doctor).
The Significance of Requests

As the majority of utterances were requests, it indicates that when consumers use a chatbot it is primarily to receive information without having to search for it. In a 2017 study by researchers from the European research institution SINTEF titled, Why People Use Chatbots, similar findings were uncovered as 68% of survey respondents indicated that they used a chatbot for the convenience factor of finding information immediately.

Consumers use chatbots primarily to receive information immediately

The requests indicate users were unable to find the answers they needed, which provides insight into the type of information that's missing or difficult to locate on the website. It also demonstrates that the user wanted information immediately and bypassed searching for it altogether.
Most internet users are familiar with how to use a search engine and the ability to type in keywords and receive a ranked list of closely related results for them to find the most accurate result. As chatbots are relatively new to the digital space and still growing in their adoption, there’s the concern that consumers will use chatbots in the similar vein of search engines.

Search engines and chatbots both find answers, but operate and function differently, with chatbots relying on natural language processing (NLP) to mimic humans and are designed to be conversational.

Our research indicates that users do not treat chatbots like a search engine.
The average word length for utterances fell between **5-13 words**, indicating that users aren’t typing in simple keyword searches like, “mens shoes,” or “heart doctor,” but rather forming complete sentences. These findings align with a study titled, Computers in Human Behavior, which found the average utterance length for humans communicating with chatbots to be 2-13 words.

Interestingly, Computers in Human Behavior uncovered the average length of a human-human conversation to be between 2-25 words. Both our findings and the aforementioned study indicate a few things about human behavior and how it relates to the length of utterances.
Utterance Analysis

**Utterance Length**
The average length of an utterance also demonstrates that people aren’t having complex conversations with the chatbot. The longest utterance across all of the conversations totaled 127 words, which far exceeded the average length and no other utterance nears that word count. Users understand there is not a human-agent on the other end of the conversation, and therefore, it’s reasonable to infer that consumers simplify their word choice in order to receive the most accurate response.

**Differing Behavior**
Online consumers don’t communicate with chatbots as if they are a search engine, but similarly, they don’t communicate the same way as if a human-agent is on the other end of the conversation, either. The chatbot conversations lack the richness of a human-human conversation, but still contain complete sentences and thoughts.

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**Comparative Length**
Comparing the length of a chatbot conversation with that of a human-human conversation on a live chat platform, email, or a contact center phone call demonstrates that it takes significantly less time to fulfill a request with a chatbot than any other form of communication. For healthcare contact centers, this means less time on the phone and cost savings when a chatbot can address frequently asked questions or simple requests.
Inclusion of PHI

Protecting sensitive health information or any type of personal identifying information is a top priority with any healthcare organization, and especially for our HIPAA-compliant chatbot. Without requesting any personal information, we wanted to uncover how much identifying information users provided and how frequently it was included throughout the conversations.

Although the chatbot never requested any identifying information from users, the inclusion of the information provides interesting insight into how consumers interact and communicate with the platform. For instance, we can speculate that patients are accustomed to providing identifying information (name, account number, etc) when interacting with a contact center agent, and therefore provide the information upfront under the assumption it will be requested later, or that it’s necessary in order to continue the conversation.

Percent of conversations that contained PHI information

25%

Typical PHI Information Included:

- Name
- Bill Amount
- Account Number
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The healthcare chatbot market will continue to grow in the upcoming years and help healthcare consumers with everything from locating a provider, paying a bill, or scheduling an appointment. Forecasts estimate that by 2025, the market value for healthcare chatbots will reach $470 million, a 21.2% increase since 2018. With chatbots becoming more mainstream, understanding how site visitors actually interact with the platform becomes even more important.

Interact
By analyzing actual conversations we learn that consumers understand the platform, how it’s intended to be used, and they are engaging with chatbots as conversational platforms. In other words, they converse and interact in a similar way that they would with a human-agent, and less like a search engine.

Healthcare consumers are familiar with chatbots and how to communicate with them.

PHI
Similarly, the inclusion of PHI in 25% of the utterances, demonstrates that consumers already provide basic information without the need to be prompted for it. Whether it’s because there’s the belief a human-agent is on the other end, or that it’s generally a common request from call centers or other industries influences these results is uncertain at this time. However, the data still provides valuable insight into how people engage with the platform and represents an opportunity for chatbots to reduce contact center call times by gathering patient information prior to connecting with a human-agent.
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Frictional Experience
The use of templates provides valuable insight into what type of requests or information is important to website visitors, and can be used to provide a better patient experience based on the frequency or infrequency consumers utilize the templates. By understanding consumer intent, health systems can provide a more seamless digital experience for patients.

As AI-powered chatbot platforms continue to become more commonplace on healthcare websites and interactions with them more regular, it’s apparent that digital consumers are familiar with the platform, how to use it, and how to communicate with it. As the technology advances, chatbots are slated to become a valuable solution to improve the digital patient experience.

About Loyal
Loyal's AI-driven conversation and consumer experience platform provides health systems with the tools needed to connect with patients and guide them throughout their digital experience. With its multi-disciplined team of engineers, marketers, and data scientists, Loyal partners with the nation's leading health systems to bring together the voice of the consumer and the voice of the health system with smart, consumer-first technologies designed to inspire loyalty.
Methodology

From the 1,000 conversations, we used 200 first utterances, or the initial statement by the consumer, per each of the five health systems. This ensured that the type of utterances were balanced and not received from one single source that was influenced by the website layout, information provided, or other factors.

Each utterance was then coded to identify one of three speech acts: request, question, or statement. Additionally, we put an indicator in place to search for the presence of PHI, and an indicator for whether the utterance was generated by the template. The data set was then programmatical evaluated to determine the variables of interest addressed above.

We removed any form of PHI that may have been included (name, date of birth, account numbers), and also captured information surrounding the usage of templates. This would help get a better understanding of the effectiveness of the templates and whether people used them, or typed out the questions themselves.

Sources


