

Abstract

Everyone- no matter your age, general health, or walk of life- has had an experience in a pharmacy aisle. Because of the reasonable convenience, the 24/7 Pharmacy an essential aspect of the healthcare industry. This service is not nearly as accessible as it could be, however. Despite the fact that almost everyone has a need to use a pharmacy, most people are not proficient at navigating the aisle. That's because the pharmacy is, to put it simply, a maze. Distracting advertising, long warning lists, and frustrating medical terminology make finding the medication patients are looking for a long, confusing, and potentially dangerous process.

Making the right decision at the pharmacy is complicated. It takes forever to look through pill boxes, and not all medications are created equal. Dangerous drug interactions, allergic reactions, and health complications are fairly common with OTC medication use, because consumers have no effective way to pick a drug while keeping these conflicting factors in mind. This makes it almost impossible to select the safest, best drug for an individual from the options available.

Thankfully, Med Maze has a solution. Med Maze is an application that allows users to find the best pharmaceutical product for themselves and their family, without the hassle and confusion. The easy- to- use search engine allows a patient to filter the available pool of products to include only those that comply with their personal considerations.

With Med Maze, it's easy to master the pharmacy aisle. The app is proven to find the best, safest medication for a patient faster and with considerably more accuracy. This product takes one of the most confusing and problematic aspects of the healthcare industry, and gives patients and consumers an easy, efficient, and effective way to navigate it.

Problem

Everyone- no matter your age, general health, or walk of life- has had an experience in a pharmacy aisle. In the United States, there are 2.9 billion annual trips to the pharmacy to purchase OTC drugs alone, and the average U.S household spends \$338 annually on this type of treatment (Consumer Healthcare Products Association). Pharmacies such as CVS, Walgreens, and Rite-Aid can be found practically everywhere, and it is estimated that without this access to reasonable, fast healthcare 60 million people per year wouldn't seek treatment for their symptoms. This makes the 24/7 Pharmacy an essential aspect of the healthcare industry for most of the population.

This service is not nearly as accessible as it could be, however. Despite the fact that almost everyone has a need to use a pharmacy, most people are not proficient at navigating the aisle. That's because the pharmacy aisle is, to put it simply, a maze. The generic pill box or display contains distracting advertising, warning lists that seem to go on forever, and medical terminology that makes the average consumer's head spin. Finding the medication patients are looking for can be a long, confusing, and potentially dangerous process.

It takes forever to sift through pill boxes, and to complicate the patient's decision, not all medications are not created equal. Even if two treatments are bioequivalent, or use the same generic drug, different brands can have varying inactive ingredients. Those additives can cause unwanted side effects, such as an allergic reaction. A recent study by the Drug Allergy Center at Montefiore Medical Center found that nearly 60% of all allergy- related deaths are caused by medications. They can also interact negatively with other drugs and health conditions, which can be potentially dangerous and cause various complications. According to the CDC, unintentional drug poisonings, including combining OTC medicines with prescription drugs, accounted for over 20,000 deaths in 2010. When you are at the pharmacy aisle, it's important to be able to pick the exact drug that will not only treat your symptoms, but provide safe care to you and your family. So how do you find these drugs within the confusing maze of the pharmacy aisle? Med Maze has the answer.

Solution

Med Maze is an application that allows patients to find the best pharmaceutical product for themselves and their family, without the hassle and confusion. The easy-to-use search engine allows a user to filter the available pool of products to include only those that comply with the patient's personal considerations.

Med Maze allows the user to filter their search results by location, age, current medications, health conditions, allergens, and lifestyle/dietary considerations. Certain classes of products may also have unique considerations. When selected, these filters narrow the search results and can be combined to find the absolute safest product. Additionally, a user can sort the search results by price to find the most inexpensive course of care.

Our app solves many individual problems within the healthcare industry, as demonstrated by the filters themselves. Drug interactions can cause serious health concerns, and by having the option to filter by both over-the-counter and prescription drugs our app ensures that the patient will never be affected by these complications. Additionally, Med Maze allows the user to refine products by pre-existing health conditions, lifestyle and diet considerations, allergens, and other restrictions or concerns that could affect drug use and cause complications.

Finally, the cost of and access to healthcare is a rising problem in our country. Med Maze lets patients find the cheapest option from the safe drugs available, and allows them to compare different products from different pharmacies. With this feature the user can either filter by a specific store to see their inventory, or find the drug they want and then see where it is available for purchase.

With Med Maze, it's easy to master the pharmacy aisle. We are taking one of the most confusing and problematic aspects of the healthcare industry, and giving patients and consumers an easy, efficient, and effective way to navigate it.

Competitor Analysis

Websites for pharmacies like Walgreens or Rite-Aid do not allow a user to compare drugs or filter search results by health complications, lifestyle/diet restrictions, or current medications. The only application similar to ours is GoodRx, which allows users to select a drug and see where the cheapest purchasing options are. GoodRx does not allow a user to compare drugs or filter search results by health complications, lifestyle/diet restrictions, or current medications, making our app unique and distinctly different.

Experiment and Data

To conduct the study, a mock pharmacy aisle was set up. The research team printed and assembled real pill boxes for drugs that relieved pain, and applied prices to the products. Treatment and control groups, decided by a random number generator, were then sent through the pharmacy. Each participant was given a patient profile created for the experiment. The profile included the age, health conditions, current medications, and lifestyle/diet considerations of the patient. Additionally, the profile specified where the patient was shopping, and that they were looking for the most inexpensive option.

The control group was asked to find the best, safest medication for the profile using the information on the pill boxes and any internet resource they wished to consult. This experiment mimics a real person in a pharmacy aisle. When looking for a medication at a store, a consumer has access to the information on the pill containers and usually the internet, via a mobile device. The treatment group, on the other hand, was given the control's resources in addition to use of the Med Maze prototype. Before the experiment began, each treatment participant was given a brief tutorial to the app, and they were allowed to use it throughout the process.

When completing our study, we tested the participants for speed, as well as whether or not they could pick the correct drug. We found that our original hypothesis, that the treatment group would perform faster and with more accuracy, was correct.

We found that the average control participant spent 116.24 seconds to make their decision. In addition, they were able to pick the correct drug for the patient profile 14.6% of the time. The control data had a comparably high standard deviation of 66.24 for our data set. When testing the treatment group, we found that the average participant took 85.7 seconds to make their decision. Using a TTEST, we were able to determine a 1.53% similarity between the two data sets in terms of time. This is a statistical difference. In addition, the treatment group was able to pick the correct drug 79.4% of the time. The treatment data had a comparably low standard deviation of 36.95.

This study confirmed that the use of our application, Med Maze, allows consumers to find the best, safest medication for a patient faster and with more accuracy.

