MyFDA Usability Testing

TESTING THE FULLY FUNCTIONAL MVP (MINIMUM VIABLE PRODUCT)

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INTRODUCTION

MyFDA seeks to make the OpenFDA dataset accessible to the general public. The team leveraged many user-centered design techniques to insure user experience was at the forefront of all design decisions. This usability test was conducted on the functional web application (https://myfda.egov.com) to evaluate the success of that goal.

Lab-Based testing was performed at 2 locations, Austin Texas and Olathe Kansas, using the same script. Two additional remote moderated tests were performed to further diversify the test group.

METHODOLOGY

This usability test was conducted primarily using a modified Retrospective Probing (RP) technique. Probing was performed at the end of each short task so as not to interfere with task times but still obtain feedback while it was fresh in the user's mind.

The tests also included elements of an expectancy test and free exploration. When users first entered a new section of the site they were asked to describe what the information was trying to tell them and what they could do next. Users were then asked perform that action and the moderator related that action to a task. If any tasks were missed in the free exploration the moderator guided the user to that task. When all the tasks had been completed, users were asked to compete a scenario without help or guidance from the moderator.

PARTICIPANTS

Nine participants, having the following characteristics, evaluated https://myfda.egov.com/

Education Level	
High School or Less	2
Some College	3
Bachelor's Degree	3
Graduate Degree	1

Computer Usage	
0-5 hrs/week	0
5-10 hrs/week	2
10-20 hrs/week	1
20+ hrs/week	6

Interest in FDA Drug Info	
Not Interested	2
Somewhat Interested	4
Very Interested	3

Age	
18-39	5
40-59	3
60+	1

Gender	
Female	3
Male	6

Dependents	
None	3
Children	5
Other	1

Total Participants: 9

EVALUATION TASKS/SCENARIOS

Test participants attempted completion of the following tasks. When possible participants were self-guided through the script. Tasks that were missed in free exploration were guided by the moderator. Once all tasks were completed the participants were asked to execute the following scenario.

TASKS

- Understand the purpose of the MyFDA web application
- Perform a search using the generic or brand name
- Identify the most appropriate search result and navigate to drug details
- Determine if a recall is applicable to the drug they take
- Browse through the adverse effect data and understand it's meaning
- Determine if the active drug interacts with any other drug they take
- Login to MyFDA using Facebook
- Save a drug to MyMeds
- Navigate to and understand the purpose of MyMeds
- Remove a drug from MyMeds
- Logout

SCENARIO

- Look up 3 drugs you commonly take, add them to MyMeds, note any applicable recalls, adverse effects you have experienced, and/or interactions with other drugs you take.

RESULTS

Participants were timed while performing tasks and success/failure of the task was noted. If a user failed to execute a task they were guided by the moderator and asked how the application could be changed to facilitate their success. Any errors encountered by the user were logged as well. If necessary the user was asked to try a different drug. Upon completion of every task the user was asked to rate their experience.

Task	Success Rate	Task Time	Error Rate	Satisfaction Rating
Understand the purpose of the site	89%	14s	0%	2.6
Perform a search	100%	5s	0%	2.9
Find the best result and navigate to details	100%	10s	44%	1.9
Determine if a recall applies to them	56%	42s	0%	1.8
Navigate and understand the adverse effect data	100%	72s	0%	2.4
Determine if the drug interacts with others they take	44%	62s	0%	1.7
Login to the site	33%	12s	0%	1.1
Save a drug	67%	2s	33%	2.3
Find and understand MyMeds	100%	4s	33%	2.0
Remove a drug	67%	2s	33%	2.8
Logout	100%	3s	0%	2.9
Scenario	100%	5m 28s	22%	2.4
Satisfaction Rating: 1=Not Satisfied, 2=Mostly Satisfied, 3=Very Satisfied				

FINDINGS

The findings below are listed in the order they appear on the testing script.

Home Page

Most users quickly identified the purpose of the site with the exception of one who did not take the time to read the features content below the search bar. All users liked the minimalistic design and simple navigation.

Search

The Search feature was easily found and used by all participants. This includes the secondary search box on all pages.

Search Results
Users experienced both duplicate search results and missing search results. When experiencing duplicate results the user was asked to select any one of the duplicates. Oxycodone Acetaminophen is a good example of this. When no results were found users were asked to try searching for another drug. No results were found for Prednisone for example.

Recalls
Many users incorrectly thought recalls applied to them. One missed the title and though it was just a bunch of drug details they weren't interested in. Others did not carefully read the description field to determine the brand name and dosage that was being recalled. When the tab was missing users felt there was an error not that there were no recalls.

Adverse Effects
All participants found the Adverse Effects data to be well presented and useful. Some did request a search feature to assist them in finding a specific effect.

Drug Interactions
Most users had trouble with the drug interactions page listing interactions between active ingredients. They were not familiar with the generic names of these ingredients. All would like to see brand names represented and most requested a search feature. Additionally, the link to the external site provided very complicated information that further confused the user.

Login
Only three of the nine users agreed to login with their Facebook account. Users did not want their medical information associated with their Facebook account and were afraid the application may post on their behalf. Users who would not login with their personal accounts were provided with a test user to continue the evaluation.

MyMeds, Save Drug, Remove Drug
The MyMeds feature was not working on the second day of testing (3 participants) so that feature was described to the user to obtain feedback. This is reflected in the Save and Remove tasks' error/completion rates as well. The participants who could use the MyMeds feature found it to be very easy to use.

Scenario
After completing the prerequisite tasks, participants had no trouble completing the scenario though they did encounter a few of the same bugs (primarily with search results) they did in performing the tasks.

RECOMMENDATIONS

The below recommendations are listed by the severity of the usability issue. The reasons for the recommended change are listed as well but are summarized. For complete context refer to the findings above

Critical Issues

Improve Search Performance
The wait time for viewing search results negatively affected the overall user experience. Many users made note of it.

Address Missing Search Results
Presumably results are missing because of gaps in OpenFDA data. Providing a clear message could alleviate some of the confusion.

Use the Drug Details Header to Inform the User
Much of the confusion with the drug details sections could be alleviated by adding instructional content at the top of the page. This is where users could be told to read recall descriptions carefully or that interactions are between active ingredients. Two users missed the tab navigation initially, consider an alternate secondary navigation. Some basic drug information in the header would also be helpful, especially the generic name for the interactions view.

Make Recalls More Identifiable
Many users thought all recalls applied to them. Call out important information such as Brand Name.

Add Brand Names to Drug Interactions
Users are not familiar with the generic names of active ingredients. Listing brand names that contain that ingredient would really help them identify these interactions.

Add No Recalls/Interactions Message
When the recalls or interactions tab disappear users feel it is an error not that there are none. Keep the tabs visible and display a message to clarify.

Serious Issues

Remove the More Info Link from Drug Interactions
Users found this information more confusing that helpful.

Search/Filter Adverse Effects and Drug Interactions
The results for adverse effects and drug interactions can get quite long. Users had trouble finding a specific item in the list.

Provide a Secondary Login Mechanism
Users did not want their medical information associated with Facebook. Much of that was a misunderstanding of what permissions MyFDA was asking for but it will happen in the real world. Since the prototype is 90% usable without login this can wait to be released with a MyMeds value added feature.

Remove Duplicate Search Results
Users found duplicated results confusing and could not determine which item to select. The application seems to function correctly regardless of selection and the issue does not happen often but it should be addressed.

Minor Issues

Redirect to Current Page after Login
Users were somewhat annoyed that they had to navigate back to the drug they wanted to save after they logged in to save it.

Automatically Inspect MyMeds for Interactions
A few users suggested that now that we know what medications they are taking they should not have to navigate to the interactions details to determine if there are interactions between them.

Look at Drug Details – Severity Legend for Accessibility
One of the participants was color blind and had difficulty reading the text in the severity legend.

CONCLUSION

While this report focuses on improvements that could be made to make MyFDA better, the overall user experience was quite positive. Users liked the clean layout and simple navigation and were impressed by the data visualizations. Addressing the issues above would help to provide a superior user experience.

Also of note is that the moderator performed an informal poll of the users on upcoming features. Participants were very excited about the direction the application is moving and were interested in most, if not all of the value added features. A more in-depth poll could really help drive the success of this project.