

CASE STUDY: MEDLINEPLUS.GOV

BACKGROUND

According to an [MLA article](#) written for health consumers and patients, a 2013 Pew research study found that 59% of adults have looked online for information about health topics. Several people (35%) go online specifically to try to figure out what medical condition they or someone else may have.

Health websites are content sources that provide important health information that is often sought out by the general public. In Unger and Chandler's textbook, *A Project Guide to UX Design*, a content source website contains a store of information in the form of articles, documents, videos, etc., that are meant to inform or engage users. They go on to say that one of several tasks that are most common in a content source project are: "Creating a categorization structure that fits the mental models of your users."

Given the importance and popularity of health websites, it's important to be familiar with the mental models of users in order to categorize the content appropriately. Important users to consider are those that have low health literacy. According to the [National Network of Libraries of Medicine](#), the National Assessment of Adult Literacy found that about 36% of adults in the U.S. have limited health literacy. An additional 5% of the population is not literate in English. Healthy literacy is defined as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."

The MLA provides a list of the [top 100 health websites](#) that the public can trust. Some of the quality criteria they list includes credibility, sponsorship/authorship, content, audience, currency, disclosure, purpose, links, design, interactivity, and caveats.

One of the websites that has made the list of top 100 websites is medlineplus.gov. This website is often listed in other [sources](#) that list the most trustworthy, reputable health websites. This website does many things well. Despite the massive amount of content, the design is clean and uncluttered, the content is clear and easy to understand, and other media, such as videos and tools, are provided to engage users.

In this case study, we'll address some usability issues that could make it challenging for users with low literacy levels to find the relevant medical content they are looking for.

ISSUES

Search Options do not Cater to All Modes of Information-Seeking Information

In a [Boxes and Arrows article](#) on the modes of seeking information and how to design for them, Donna Spencer indicated that there are four different information-seeking modes: known-item information seeking, exploratory, don't know what they need to know, and re-finding. When

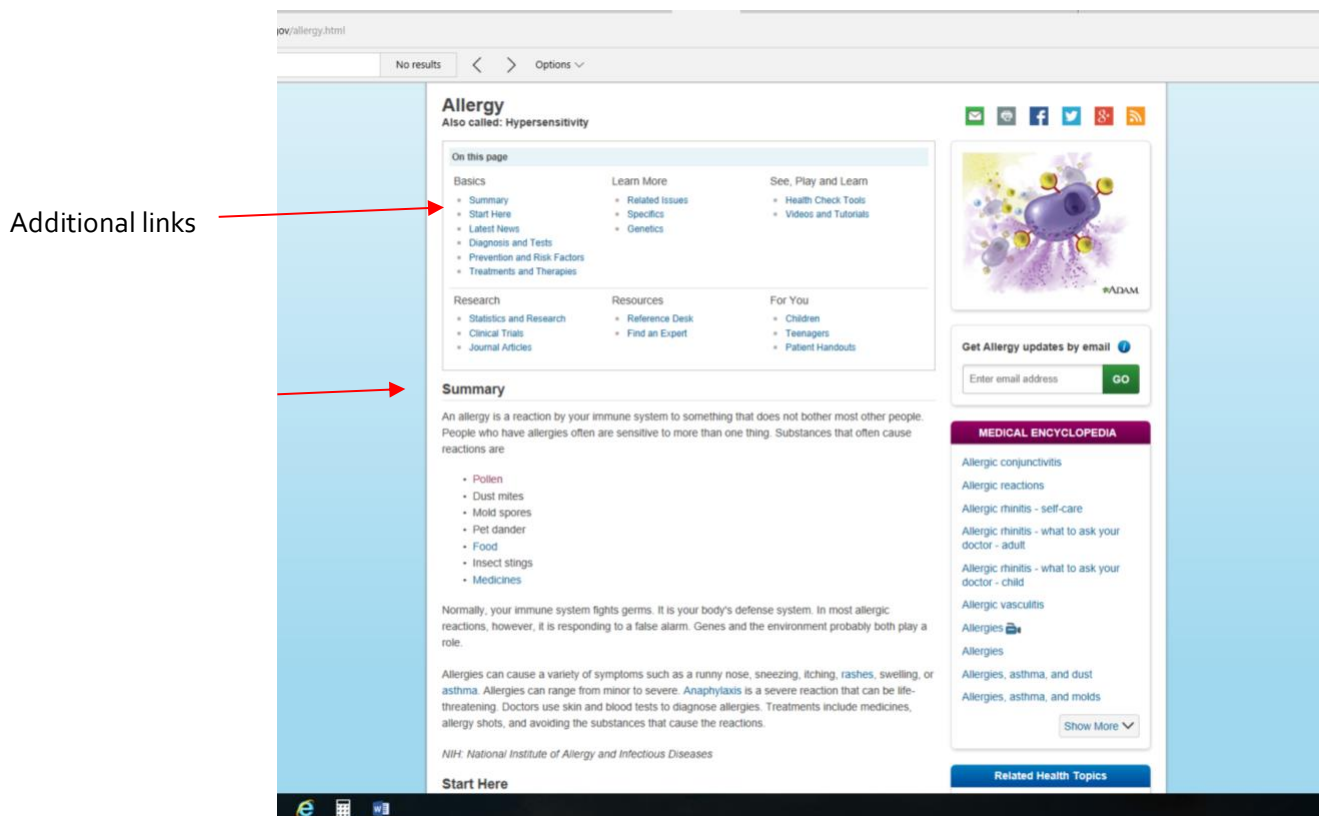
people look up information about a topic, they may be in an exploratory mode. This means they have some idea of what they need to know but they may not know how to articulate it. If a person is in exploratory information-seeking mode, straightforward answers should be provided initially, with more detailed information options available. This may often be the case for a person who is looking up health information. They may know the commonly used term, but not the medical term. Or, they may be looking up symptoms, wondering if there is a condition they may have.

The Office of Disease Prevention and Health Promotion (ODPHP) recently published a [guide](#) for simplifying the user experience for all users of health websites, including those with low literacy levels. In their guide, they indicate that web users usually want to quickly and easily understand a health problem or behavior and find out how to take action.

Medlineplus.gov does a very good job in providing detailed information options. They also connect the user to health information on other websites. However, they don't initially provide straightforward answers. For example, if you type the term "Allergies" in the search box, you get a summary with an option to read more:

The screenshot shows the MedlinePlus website interface. At the top, there's a search bar with the word "allergy" entered and a "GO" button. Below the search bar, there are navigation links for "Health Topics", "Drugs & Supplements", and "Videos & Tools". The main content area is titled "Allergy" and contains a summary of what an allergy is, a list of common allergens (Pollen, Dust mites, Mold spores, Pet dander, Food, Insect stings, Medicines), and a link to "(Read more)". A red arrow points to the "(Read more)" link. On the left side, there are two "Refine by" sections: "Refine by Type" and "Refine by Format". The "Refine by Type" section lists various categories like "Health Topics", "External Health Links", "Drugs and Supplements", "Medical Encyclopedia", "News", "MedlinePlus Magazine", "Multiple Languages", and "National Institutes of Health". The "Refine by Format" section lists "PDF", "Images", and "Videos". At the bottom, there are search results for "allergy", showing two results: "1. Allergy (National Library of Medicine)" and "2. Food Allergy (National Library of Medicine)".

When you click on “Read more,” you get another summary with links at the top:



There is No Clear Linear Information Path

The ODPHP guide also indicates that content should be organized and navigation should be simplified. One way of doing this is by creating a linear information path. As you can see in the image above, there is no linear information path that allows a user to get to a general overview of a topic.

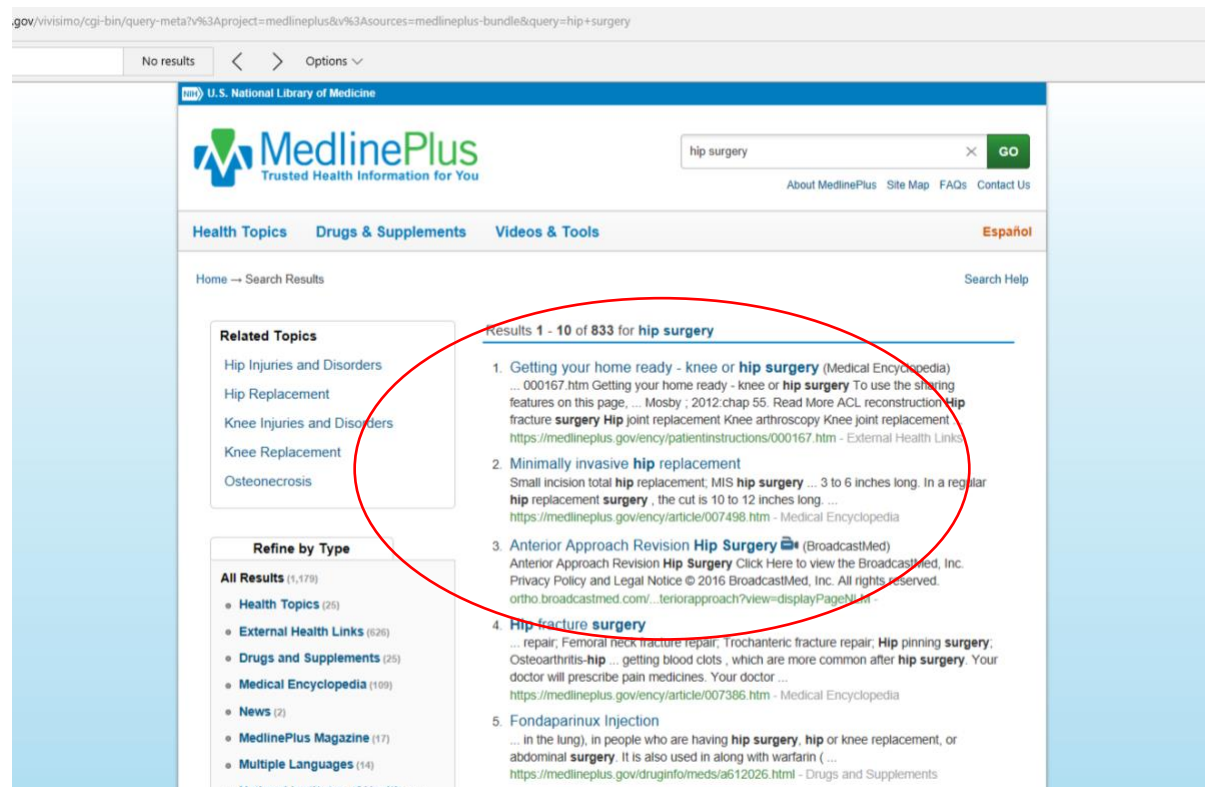
After reading through the summary, they have to go back and look through the links provided above to see if they contain any information they may need. Or, they may scroll down to see if there is additional information there. Given the many information options available, it's easy for a user to get overwhelmed and possibly give up.

Unclear Labels and Headings

The labels for the individual health information pages are not always clear, meaning that the term is either not recognizable to most people or it is vague. According to a Nielsen Norman Group [article](#) on trustworthiness in web design, there are four factors that increase users' level of trust in a website. Among these is meaningful navigation labels. The author states, "When people are faced with clever or nondescript category names, they may not be able to determine

whether the relevant content exists on the site. As a result, they will become frustrated and may abandon the site.”

For example, after entering the term, “Hip Surgery,” the following results are returned:



The first 3 options that appear are getting your home ready for knee or hip surgery, minimally invasive hip replacement (a very technical medical term), and anterior approach revision hip surgery (another technical term). When you type in sunburn, you get the term “Sun Exposure.”

According to the ODPHP guide, content should be labeled and organized with users in mind. Websites should use words that people know instead of technical terms. This will allow user to find what they need as quickly as possible. It should also be actionable and written in plain language.

SOLUTIONS

Display General Overview with Actionable Content Right Away

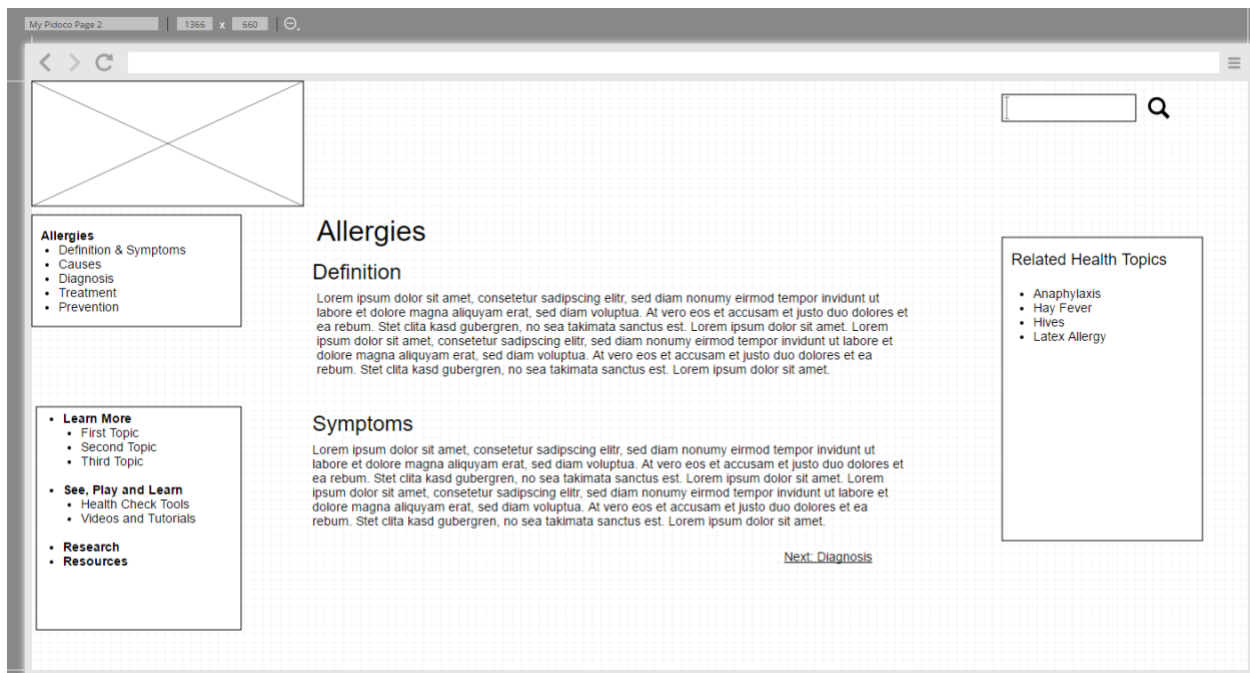
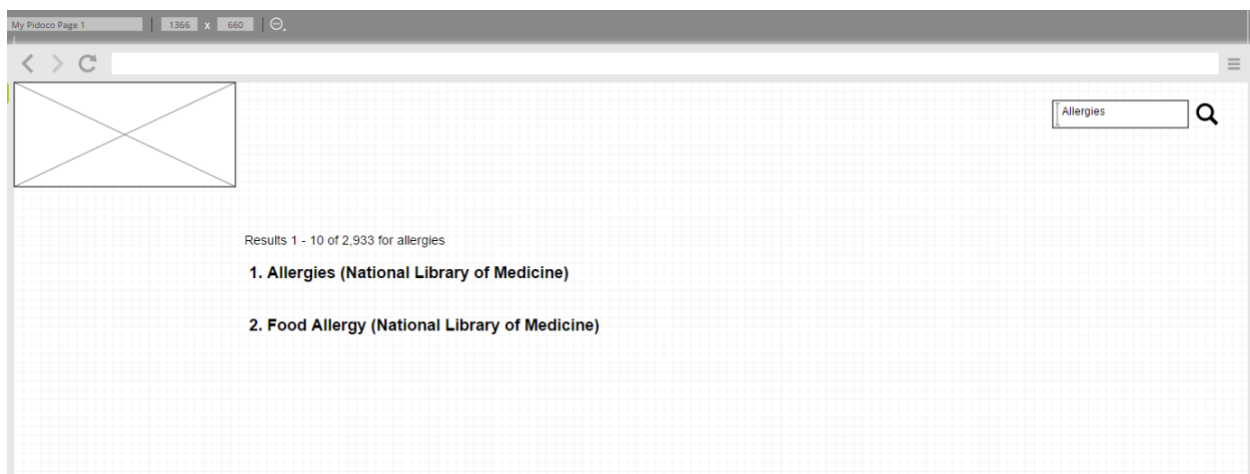
Upon searching for a health term in the search box, the user should be taken immediately to a page that provides the straightforward answers he or she is looking for within a topic overview. Links to additional information can still be provided on the page, but access to this information should not be the first thing that is displayed so as not to overwhelm the user with too many options.

A Linear Information Path Should Be Provided

The user should be given the option to either click on the main categories of the overview or follow a linear path that is clearly provided as they read through the information. This may be displayed to the user using links entitled “Next.” The option to return to the previous section could be provided with a “Previous” link.

Clear Headings and Links Should Be Provided

When a user types in a commonly used term such as allergies, flu, cold, or sunburn, they should get results and content that match the term they are using. The results should not display technical medical terms that users may not be familiar with. It may cause them to assume the website does not have the content they are looking for. The technical term could still be provided, but it could be provided within the text.



CONCLUSION

Reputable health websites, such as Medline Plus, offer valuable information to the public. This information can be critical in helping people make decisions about their health, such as whether or not to see a doctor. In some instances, it could even help save lives.

Consequently, it is very important that users of health websites are able to find basic information about their health easily and quickly. One of the extra bonuses that Medline Plus provides is information about other reputable health websites that people can go to if they don't find what they are looking for on their website. Although this is a benefit, it should not overwhelm the user. Users should be able to access this information only when they are ready for it—usually after they have reviewed more basic, straightforward information first.

In addition, users should be able to use health terms they are familiar with when they are searching for information. This will verify that they are indeed in the right place as they search for health information. Finally, there should be a linear information path that helps them easily find and read through all the sections of the general information or overview once they find what they are looking for. Then, they will be ready for additional or more detailed information if they choose to continue reading more about a topic.

REFERENCES

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Nielsen Norman Group: <https://www.nngroup.com/articles/trustworthy-design/>