**Healthy Pregnancy and MedlinePlus**

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# Abstract

**Background: There is currently no health topic for “Healthy Pregnancy” in MedlinePlus. This project will examine the need and potential scope if that health topic were to be added.**

**Methods: A thorough survey of pregnancy related health topics was conducted by evaluating and updating metadata. Once the topics were surveyed, they were sorted by relevance to the “Healthy Pregnancy” concept and a link analysis was performed.**

**Results: An information gap was identified in MedlinePlus which focused on healthy habits for pregnant individuals. The suggested scope for the page would be actions a pregnant person can do to increase their chances of a healthy pregnancy. Examples are eating a healthy diet, exercising, and practicing healthy sleep habits.**

**Discussion: The information gathered through the course of this project has resulted in a recommendation for a Healthy Pregnancy page with the above scope. There may be some limited overlap between this health topic and other health topics, particularly** [**Pregnancy and Nutrition**](https://vsearch.nlm.nih.gov/vivisimo/cgi-bin/query-meta?v%3Aproject=medlineplus&v%3Asources=medlineplus-bundle&query=pregnancy+and+nutrition&_gl=1*3ebjc2*_ga*MjEzMzkxNzc1NC4xNzExNTU4Njk5*_ga_P1FPTH9PL4*MTcxNTYyMTc1MC40Ni4wLjE3MTU2MjE3NTAuMC4wLjA.*_ga_7147EPK006*MTcxNTYyMTc1MC40Ni4wLjE3MTU2MjE3NTQuMC4wLjA.&_ga=2.248227783.1769752794.1715621750-2133917754.1711558699)**.**

# Objective

The objective of this project is to determine the potential need and scope for a Healthy Pregnancy Health Topic.

# Background

## MedlinePlus

MedlinePlus is a consumer health database that provides access to a variety of resources. Among these resources are health topics, which are pages containing medical information. These pages connect users to additional resources through links and topic summaries. There are over 1,000 health topics in MedlinePlus, each accompanied by relevant metadata including meta descriptions, scope notes, and related topics. Both the health topics themselves and the meta data require regular maintenance.

Meta descriptions are short summaries of a health topic. Meta descriptions were previously used for Search Engine Optimization (SEO). SEO involves strategies to raise your webpage higher on the list of links provided by a search engine. Although they still have some effect on SEO, meta descriptions have recently begun to carry less weight with search engines. However, they are still essential for click rates, which measures the rate at which people click on your link when they see it (Google, 2024). This is because meta descriptions are seen on the search engine page as the snippet below the link, although they are not visible on the MedlinePlus page. This is the user’s first impression of what the page is, and it is in competition with the meta descriptions of other links around it. To encourage increased click rates, meta descriptions should contain fewer than 160 characters, so that it can be read in its entirety on the search engine page. Additionally, they should be at or under an eighth grade reading level, to make sure that users who have lower reading abilities are able to read and understand it.

Scope notes are not seen by the MedlinePlus user but are for the use of medical writers and others working on MedlinePlus. They are only visible via the backend view of MedlinePlus, so they are not visible at all by the MedlinePlus user. They define the scope of the page, and designate what should be included on the page, excluded from the page, and a high-level description of the health topic. They act like a map for the individuals working on the page, of what is inside and outside of the page’s informational territory.

Lastly, related health topics are a list of health topics a user might be interested in and is based on the page the user is looking at. For example, related health topics for the MedlinePlus page [Mental Health](https://medlineplus.gov/mentalhealth.html) includes related health topics of [Mental Disorders](https://medlineplus.gov/mentaldisorders.html), [Child Mental Health](https://medlineplus.gov/childmentalhealth.html), and more.

An understanding of this MedlinePlus-specific terminology was essential for this project.

The MedlinePlus team has a plan to maintain each of the health topics over the span of ten years. Often, maintenance is needed more frequently than that, but due to staff and time constraints, this is not always possible.

## Healthy Pregnancy

The addition of a Healthy Pregnancy health topic has been considered among the MedlinePlus team. While a general idea of what the page might be was known, (what makes up a healthy pregnancy), this project allowed a more detailed look into what it could be. My project allowed for the time necessary to carefully consider if this page is needed and what its scope could be, while also working on metadata maintenance.

# Methods

## Step One: Gain Familiarity with Meta Descriptions

This project began with my project sponsors teaching me how to write a meta description. 24 health topics had already been chosen for the 2024 featured health topics, and they needed revisiting before being shown on the MedlinePlus homepage. The first step towards writing a new meta description was to look at the meta descriptions of other leading consumer health information resources such as MayoClinic, National Institute of Child Health and Human Development (NCHDS), and others. A spreadsheet was created to record what keywords or phrases were most frequently used. This guide was helpful as it would sometimes highlight concepts that I had not realized were important.

Using the list of phrases, I wrote a draft of the meta description. Focusing on clarity and concision, I continued to edit until I felt it was satisfactory. To evaluate reading level, I utilized the Microsoft Word grade checker, the Flesch-Kinkaid Grade Level. This grade level checker returns a score for selected test to indicate how many years of education a person would need to have to understand it. It considers aspects like total words per sentence, and total syllables per word (Microsoft, 2024). However, this was not always reliable. While it was a helpful tool, it was not the ultimate decision maker. For example, “Pregnancy can be a difficult time for people,” is listed as a sentence with a tenth grade reading level. The reason why is that “pregnancy” and “difficult” both have three syllables. Even though those words are common, the grade checker does not realize that. For this reason and more, there are some meta descriptions with a reading level of over 8th grade, but were verified by both me and my project sponsor to be at an acceptable level for users.

Another focus during this step of the project was to use fewer gendered terms for the meta descriptions involving pregnancy and reproductive health. For example, prior to this project many of the meta descriptions used “woman” instead of “pregnant person”. In the meta descriptions I wrote, I tried to prevent this so the pages would be more inclusive to all individuals regardless of their gender.

 To conclude step one, the meta descriptions were edited and finalized by myself and the project sponsors.

## Step Two: Meta Descriptions and Scope Note Analysis for Pregnancy Related Terms

The next set of meta descriptions to edit were given to me, which were 40 pregnancy related health topics. The meta descriptions were edited with the same method as step one. The purpose of step two was both to assist with metadata maintenance, but also to gain familiarity with the pregnancy related concepts.

At this point I also completed a scope note analysis. This analysis determined whether scope notes were detailed enough and if it included both inclusion and exclusion criteria. I created an informal scoring system to track these. A three meant it had all three criteria (description, inclusion, or exclusion), a two meant it was missing one of the three criteria, and a one meant it was missing two or all three of the criteria. This step indicated potential needs for metadata maintenance, but also allowed exploration of the pregnancy concepts in greater detail.

The next step in the scope note analysis was to examine if what was in the scope note reflected what was present in the health topic page. For example, if a scope note says, “This topic includes the cessation of smoking,” I recorded if it was actually included. I also examined if something was said to be out of scope but was mentioned in the health summary anyways. This data was recorded in a spreadsheet and the data was analyzed via Excel formulas. Only scope notes with a score of a two or three were analyzed for this second step, as scope notes with a score of one did not have enough criteria written that allowed for careful analysis.

## Step Three: Consideration of Healthy Pregnancy Health Topic

At this point, it was time to specifically consider the new health topic of Healthy Pregnancy to identify its need and potential scope. The first task of this step was to identify which health topics would likely be a related topic on the new page. I did this by categorizing all the Healthy Pregnancy topics for easier comparison (it is much harder to compare 40 health topics than three categories of them.) I went through a few different drafts of these health topic categories to ensure accuracy and best fits. Three categories were ultimately chosen, *action based*, *complication based*, and *outcome based*. Between these, my project sponsor and I were able to narrow the scope consideration to Action Based and Complication Based.

A link analysis was performed on the health topics belonging to those two categories to further identify what evidence-based information was available and what would be most relevant. I also searched in the Bing and Google search engines for links outside of MedlinePlus. My project sponsor and I were able to decide the recommended scope of this new health topic by uncovering information gaps.

# Results

The set of 24 featured health topics and their new meta descriptions were successfully onboarded into the MedlinePlus back-end system. The pregnancy related meta descriptions are set to be onboarded when the new health topic page is added to MedlinePlus. Below is an example of a previous meta description, and a newly updated one. The health topic is [Infections and Pregnancy](https://medlineplus.gov/infectionsandpregnancy.html).

Previous Meta Description

*If you’re pregnant and get an infection, it could be dangerous for you and your baby. Learn tips to avoid getting infections and treatment options.*

Suggested Meta Description

*Infections can cause serious problems for pregnant people and their babies. While some infections might not cause problems, others are more dangerous.*

The new meta description can provide more information while still remaining accessible to the user.

## Scope Note Analysis

The informal scores of the scope notes can be seen in Table One.

|  |  |
| --- | --- |
| **Scope Note Rating** | **Number of Scope Notes** |
| 1 | 10 |
| 2 | 13 |
| 3 | 17 |

Most scope notes examined had perfect scores of three, and 75% of the scores had a two or three. This suggests they tend to be properly detailed. 25% had scores of ones, which indicate they might need attention in the future.

Then, looking only at scope notes that had ratings of 2 or 3, I analyzed how frequently the scope notes reflect what is on the health topic page. For example, if a scope note says a concept is within the scope, was it mentioned? On the other hand, if something was said to be out of scope, were they mentioned anyways? The findings are shown in the table below:

|  |  |  |
| --- | --- | --- |
|  | **Inclusion** | **Exclusion** |
| Great | 21 | 16 |
| Needs Attention | 8 | 5 |
| Not Included | 0 | 7 |

This table shows that most scope notes were accurate to what is said on the health topic pages. What is most noticeable to me, though, is that seven health topics had no exclusion criteria mentioned at all.

## Categorization

The three categories I created, and their assigned health topics can be found in Appendix A. The categories themselves are Action Based, Complication Based, and Outcomes Based.

* Action based includes health topics that are primarily about actions that could be taken to improve the chance of a healthy pregnancy. These include topics that involve medical appointments as well as the health topic [Pregnancy and Nutrition](https://medlineplus.gov/pregnancyandnutrition.html).
* Complication Based are pages that look at pregnancy and a secondary health concern. These include pages like [High Blood Pressure in Pregnancy](https://medlineplus.gov/highbloodpressureinpregnancy.html). There are also pages like [Teenage Pregnancy](https://medlineplus.gov/teenagepregnancy.html) in this category. This is because teen pregnancies are higher risk pregnancies than non-teen pregnancies.
* Outcome Based health topics look at any health topic relevant to childbirth or after, including [Postpartum Care](https://medlineplus.gov/postpartumcare.html).

My project sponsor and I decided that Action Based health topics were especially relevant to the proposed new health topic of Healthy Pregnancy. This means they were the most likely to be a related topic on the proposed Healthy Pregnancy page.

## Link Analysis

A link analysis was the last step of the project to find what evidence based, consumer level information was available to support this page. The first part of the link analysis involved looking at the MedlinePlus pages for the Action Based and Complication Based pages. The Outcomes Based topics were not examined for this part of the project, because it was deemed the most out of scope. I looked at each link to decide if it was or was not relevant. Over thirty links were found in MedlinePlus that could be relevant to the new Healthy Pregnancy page. The majority of these came from the [Pregnancy and Nutrition](https://medlineplus.gov/pregnancyandnutrition.html) page. The links largely dealt with nutrition or weight management while pregnancy, and a few links were found on stress management while pregnant to prevent high blood pressure.

The second part of the link analysis was completed looking at sites outside of MedlinePlus. This was to find information gaps. Since I now knew what information was covered in links through MedlinePlus, I could more easily identify which links were not in MedlinePlus. Through Google and Bing, I completed a series of searches looking for links of evidence based, consumer level health information MedlinePlus does not already use. These searches include:

* Nutrition and Pregnancy
* Sleep and Pregnancy
* Wellness and Pregnancy
* Self-Care and Pregnancy
* Exercise and Pregnancy

Additionally, I searched a few specific websites for these phrases. These tended to be commonly linked to sites from MedlinePlus and included MayoClinic, government health sites, March of Dimes, and more. With these strategies I compiled 18 links that MedlinePlus could link to for the new Healthy Pregnancy page. These covered the additional topics of exercise, anxiety, depression or other general mental health concerns, and sleep while pregnant. The purpose of this second step was both to identify what was missing from MedlinePlus links currently to inform what the new health page should include, but also to show that there is evidence-based information to support the page.

# Discussion

From the above results, the scope of the new Healthy Pregnancy page is recommended to be what pregnant people can do to improve their chances of healthy pregnancy. This is different than the Action Based health topics, because those mostly include medical appointments. This page has a special focus on the self-care of pregnant people rather than medical care.

Completing the scope note analysis and writing meta descriptions was an opportunity to do actionable work while also exploring what information existed. From the actionable work, the MedlinePlus team received informal scores for the pregnancy and reproductive health topics’ scope notes, as well as forty updated meta descriptions for each of the topics.

The work completed by categorization of the health topics was very helpful for conceptualizing the many different health topics I was looking at. Looking at 40 health topics is overwhelming compared to looking at three different organized groupings. However, this part of the project was for my purposes only. I do recommend this method for future consideration of new health topics, possibly in other topic groups.

Although I found links referencing to mental health and pregnancy during my link analysis, it was deemed out of scope by myself and my project sponsor for a few different reasons. One is that MedlinePlus already has information on pregnancy and mental health, which is in the queue for review. Another reason is that there is a topic group for [Mental Health and Behavior,](https://medlineplus.gov/mentalhealthandbehavior.html) which is where the health topic, [Postpartum Depression](https://medlineplus.gov/postpartumdepression.html) is. To maintain consistency, information on mental health – even if it also involves pregnancy – would be found in that topic group, whereas this project focused on the pregnancy and reproductive health topic group.

# Conclusion

The final recommendation for the Healthy Pregnancy health topic is based on the information I gathered over the months. The recommended scope is for it to be focused on the actions a pregnant person can take to improve their chances of a healthy pregnancy. I recommend it focuses on Sleep, Diet, and Exercise, as those are areas in control of the pregnant person and has an impact on their physical health.

It is ultimately up to the MedlinePlus team to draw their own conclusions based off the information I have presented. However, even if they draw different conclusions, the information gathered ensures whatever choice is made is thoughtfully considered. It was pointed out to me by my project sponsor that this project is the first time that an entire topic group was carefully reviewed for the purpose of considering a new health topic. The significance of the project is that not only does it support a decision about the new health topic, but it also proposes a new method for deciding on health topics in the future. Whether it will be repeated in the future is too soon to say, but I do believe it was successful in this instance.

There were some limitations with this project. First is that I was a general newcomer to MedlinePlus. This meant that some of the work I did, especially in the beginning, was slowed by my having to learn the nuances of MedlinePlus as a product. Secondly, I am not a subject expert. This means that my findings should still be carefully reviewed, although I have done my utmost to ensure their accuracy.

# Works Cited

Google. (2024, March 18). *Documentation*. Google Search Central. <https://developers.google.com/search/docs/appearance/snippet>

Microsoft. (2024, May 30). *Get your document’s readability and level statistics.* Microsoft Support. <https://support.microsoft.com/en-us/office/get-your-document-s-readability-and-level-statistics-85b4969e-e80a-4777-8dd3-f7fc3c8b3fd2#__toc342546558>

# Appendix A

Action Based

* Genetic Counseling
* Pregnancy and Nutrition
* Prenatal Testing
* Genetic Testing
* Preconception Care
* Prenatal Care

Complication Based

* High Blood Pressure in Pregnancy
* HIV and Pregnancy
* Diabetes and Pregnancy
* Pregnancy and Opioids
* Pregnancy and Substance Use
* Tumors and Pregnancy
* Health Problems in Pregnancy
* Pregnancy and Medicines
* Infections and Pregnancy
* Teenage Pregnancy

Outcome Based

* Cesarean Delivery
* Rh Incompatibility
* Birth Weight
* Childbirth Problems
* Childbirth
* Twins, Triplets, and Multiple Births
* Premature Babies
* Fetal Health and Development