

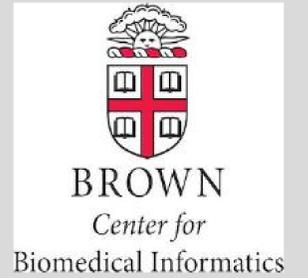


Generalized Search Program to Find Correlations Between Medium Chain Acyl-Coenzyme A Dehydrogenase Deficiency and Other Conditions

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Introduction

There is little research done on Medium Chain Acyl-Coenzyme A Dehydrogenase Deficiency (MCADD), as the condition before newborn screening was almost always fatal. Therefore, this program was designed to find correlations between MCADD and other conditions using the PubMed database. From there, the objective expanded to include a wider set of databases and the use of user inputted queries. This allows for more flexibility in the use of the program, as other correlations can be explored.

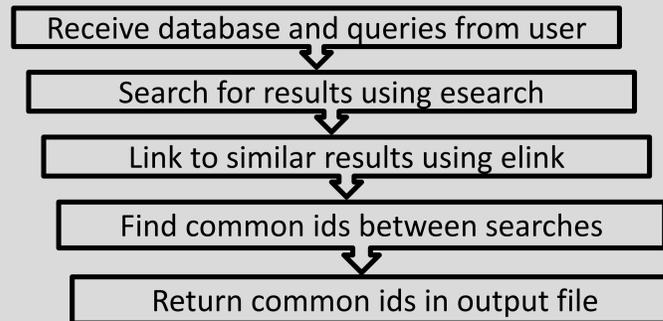
Problem

Many questions that medical professionals have go unanswered due to lack of time. Some of this difficulty is due to inadequate searches. Therefore, the problem is how to conduct better searches at an increased rate.

Issue	Frequency of issue
Time posing difficult for searching	60%
Questions left unanswered due to lack of time	40%

Methodology

This project was conducted using a Julia program. The program receives an input of database and queries, and returns unique ids from the selected database of articles that are linked to two or more search queries.



Results

Program successfully returns output file containing:

- Total number of unique ids retrieved
 - List of unique ids with 2, 3, 4...n queries in common, where n is the total number of queries provided
- For the search on PubMed with queries "MCADD", "primary carnitine deficiency", and "secondary carnitine deficiency", the program returned:
- 27575 as the total number of ids retrieved
 - Unique ids to 910 PubMed articles that were linked to all three queries
 - Unique ids to 4,928 PubMed articles sharing only two queries

Conclusions

The program is effective at returning articles of interest for ease of access to allow for medical professionals to spend more time interacting with patients. However, further improvements to the program can be made. Firstly, the run time of the program could be decreased to allow for faster searches. Secondly, eliminating the need for backslashes to be entered before special characters such as quotes while inputting the queries will allow for easier use. Thirdly, the program could be altered to provide more information and better translation from the output file to the database.

References

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