Mapping Medical School Curricula Using the MeSH Tree

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Abstract

Mapping medical school curricula using the MeSH tree allows medical school administrators and medical educators to obtain a complete and detailed view of the curriculum. Detailed curriculum guides are indexed and then matched to MeSH terms displaying the location and frequency of a topic, concept, or keyword within the curriculum.

Introduction

Setting: The Faculty of Medicine and Health Sciences (FMHS) in the United Arab Emirates University graduates medical doctors in its six year medical program. The 2003 medical curriculum is described in guides separated into 2081 Instructional Units containing a title, objectives, and description. The total relevant keywords in these guides is 166,294 keywords.

Extracting MeSH Terms from text-based documents is also known as indexing. Currently, there are two prominent systems used to extract MeSH terms from text documents: MetaMap and KnowledgeMap. I developed a similar yet simple indexing method for this project, but one of these systems could be used instead with higher precision and recall.

The 2003 MeSH Tree contains 14 main subject headings that expand into 11 levels containing 41,063 MeSH terms, 22,430 of which are unique.

Methods

1. Index the curriculum guides into keywords resulting in a list of keywords and where they appear in the curriculum.
2. Index the MeSH tree resulting in a list of keywords and where they appear in the tree.
3. Match the two lists of keywords and count occurrences starting from a given point in the MeSH tree.

Results

By developing a database that stores the indexed curriculum guides and the indexed MeSH terms, I used a query that matches the two indices. The result is a program that allows for mapping of medical school curricula using the MeSH tree. Figure 1 matches the subcategories of the MeSH term “Diseases” with the curriculum displaying the numbers of occurrences of all MeSH terms below each subcategory in the curriculum. Figure 2 matches the full curriculum with the top level MeSH headings.

Conclusion

It is possible to map a medical school’s curriculum using the detailed curriculum guides and the MeSH tree resulting in a complete and detailed overview of the curriculum by counting occurrences of a given MeSH term within the curriculum guides. Since the MeSH tree is a form of classification of Medicine, this mapping allows curriculum developers to better monitor which areas of medicine their curriculum focuses on.

References