



Searching of Literature Through Medical Subject Headings (MeSH): An Update

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Abstract


Medical subject headings (MeSH) thesaurus is a controlled and hierarchically organized vocabulary produced by NLM (National Library of Medicine). It is very useful for indexing, cataloging, and searching biomedical and health related information.

MeSH type of terms is very useful to the purpose of indexing a journal, cataloging, and searching of biomedical articles and books easily. These are hierarchical display so that broader and narrower are displayed as 'descriptors'. This type of descriptors is organized in 16 categories. One user has thoroughly understood of the National Library of Medicine's Medical Subject Headings (MeSH) that will be increased the efficiency and precision of both new and old MeSH users' literature searching skills using PubMed.

From this I have concluded that this MeSH will be very much useful to the physicians because they are using Evidence Based Medicine (EBM) and it will increase their literature searching habit and it is free to use. Furthermore, a detailed review article is needed to find any difficulties are there in MeSH using and to create awareness with new researchers in medical field.

Keywords: medical subject headings, national library of medicine, indexing, cataloging, searching, biomedical, health information, researchers

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Introduction

Medical subject headings (MeSH) thesaurus is a controlled and hierarchically organized vocabulary produced by NLM (National Library of Medicine). It is very useful for indexing, cataloging, and searching biomedical and health related information. Most of the journals has to instruct to their authors listed 3 – 6 or 3 – 10 words as per the instructions of the respective journals as keywords and it would be listed at the end of their abstract in their manuscript.

Keywords have to reflect the whole content in the manuscript and it makes easy to get the appropriate existing literatures to a particular study. Well organized and very suitable keywords have enabled to find an appropriate article and cited in any studies. Then only the readers have to find the necessary articles or book chapters can be retrieved. [1] The main deficit is to be keywords are not same/uniformed. Authors only decided to pick the keywords. Sometimes the authors selected the exact words as in the manuscript. Keywords are selected to their manuscript is depends and varies from author to author. So, the searching through keywords is not retrieve similar type of articles via search engines by researcher/authors who are finding/searching the relevant articles in the existing literature. By this only, the citation of your article many be shipped and it's affecting your citation index in the manuscript. Hence, the choosing of

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keywords of an article by any authors should be very important and mandatory. Then only the increase of the citation of a manuscript and it would be useful to the authors to retrieve the whole relevant literature on a particular item/topic. For this only MeSH [2 – 5] terms were introduced by Dhammi and Kumar [6] to the medical related research. MeSH terms are controlled specialized vocabulary (Thesaurus #), it is created and regularly updated by National Library of Medicine (NLM), United States of America. [7] This type of terms is very useful to the purpose of indexing a journal, cataloging, and searching of biomedical articles and books easily. [2, 7]

In the year of 2007 the yearly printed version of MeSH was stopped and it is available via online only from 2008 onwards. Moreover, 456 descriptors were added; total types of terminology were 24,767; 83 subheadings and 172,451 Supplementary Concept Records (SCRs) in the year of 2008. [8] But, in the year 2014, MeSH contains totally 27,149 subject headings called descriptors; and also contains 219,000 supplementary concept records. [7, 9, 10]

Tree Category/Structure of Medical Subject Headings (MeSH): [11, 12]

These are hierarchical display so that broader and narrower are displayed as ‘descriptors’. This type of descriptors is organized in 16 categories as follows: Category – A for anatomic terms, Category – B for organisms, C for diseases, D for drugs and chemicals, etc. Each of the category is further more divided into subcategories. Descriptors are arrayed hierarchically from most general to most specific in up to thirteen hierarchical levels. Abnormalities, there are specific abnormalities as follows:

- Congenital Abnormalities: C16.131
- Abnormalities, Drug Induced: C16.131.042
- Abnormalities, Multiple: C16.131.077
- 22q11 Deletion Syndrome: C16.131.077.019
- DiGeorge Syndrome: C16.131.077.019.500

On every Sunday these files are uploaded. In the year of 2014 version of MeSH contains a total of 27,149 subject headings called descriptors. It contains 219,000 headings called as supplementary concept records within a separate thesaurus. [13] These standardized terms are used to search a topic all those articles indexed in MEDLINE and NLM’S PubMed, are retrieved resulting in increase of citations of the article. Normally, MeSH terms were in English language only, and now they have been translated in other languages also.

Using a MeSH descriptor to search in PubMed automatically searches narrower Descriptors intended under it in the MeSH tree structures. Hence, an example searching musculoskeletal neoplasm Ewings sarcoma, you will find the following two trees displayed with catalogue number. These are called tree numbers.

Tree Numbers:

- C04.557.450.565.575.650.800
- C04.557.450.795.620.800

Table–1 Distribution of Tree Category of New 2008 Descriptors [11]

MeSH Tree Category	Number of Descriptors
Anatomy [A]	38
Organisms [B]	16
Diseases [C]	73
Chemicals and Drugs [D]	217
Analytical, Diagnostic and Therapeutic Techniques and Equipment [E]	30
Psychiatry and Psychology [F]	2
Biological Sciences [G]	33
Natural Sciences [H]	12
Anthropology, Education, Sociology and Social Phenomena [I]	27
Technology, Industry, Agriculture [J]	6
Humanities [K]	1
Information Science [L]	1
Named Groups [M]	5
Health Care [N]	34
Publication Characteristics [V]	3
Geographicals [Z]	1

MeSH Unique ID: D012512

A researcher might begin the search with Ewings sarcoma but realizes after viewing hierarchy that they really wanted sarcoma. He/She can get a complete search on sarcoma. Like this, with single MeSH word of anything/terms in the tree can be traced out.

Medical Subject Headings Tree of Ewings Sarcoma

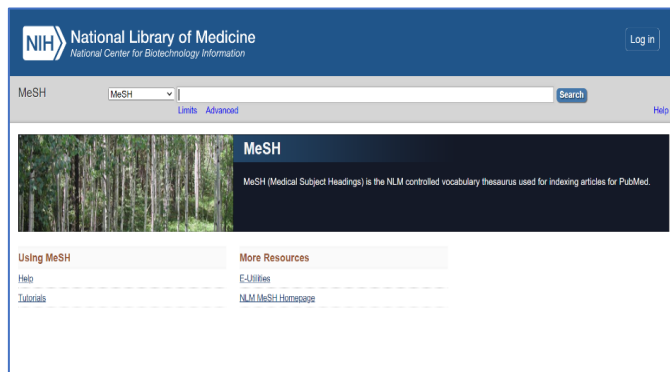
Neuroectodermal Tumors, Primitive, Peripheral

- All MeSH Categories
- Diseases Category
- Neoplasms (C04)
- Neoplasms by Histologic Type (C04.557)
- Neoplasms, Connective and Soft Tissue (C04.557.450)
- Neoplasms, Connective Tissue (C04.557.450.565)
- Neoplasms, Bone Tissue (C04.557.450.565.575)
- Osteosarcoma (C04.557.450.565.575.650)

Sarcoma, Ewing (C04.557.450.565.575.650.800)

- All MeSH Categories
- Diseases Category
- Neoplasms (C04)
- Neoplasms by Histologic Type (C04.557)
- Neoplasms, Connective and Soft Tissue (C04.557.450)
- Sarcoma (C04.557.450.795)

Figure – 1 Searching of terms in Medical Subject Headings



One user has thoroughly understood of the National Library of Medicine's Medical Subject Headings (MeSH) that will be increased the efficiency and precision of both new and old MeSH users literature searching skills using PubMed in **Figure – 1.** and as well as in Medline database. [14] This improves the efficiency and quality of one's literature searches.

Conclusion

From this I have concluded that this MeSH will be very much useful to the physicians because they are using Evidence Based Medicine (EBM) and it will increase their literature searching habit and it is free to use. PubMed having online help option so, it will suitable to all to search relevant literature to their particular research. Furthermore, a detailed review article is needed to find any difficulties are there in MeSH using and to create awareness with new researchers in medical field.

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Here, SV – Senthilvel Vasudevan

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