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On 'FinMeSH' for empowering users of Finnish medical and health information

Abstract

A MeSH-based Finnish medical vocabulary project, 'FinMeSH', is introduced and reviewed by discussing its origin, objectives, organization, structure, function and development. Some general issues pertaining to vernacular versions of MeSH are addressed, as well as some specific problems related to the Finnish language version are presented.

It is concluded that a vernacular, structured medical vocabulary like 'FinMeSH', continuously evaluated by the users, will enhance the retrieval and use of Finnish medical and health information; especially it is expected to encourage non-professionals to access relevant information and to add their awareness of, and responsibility for their own health and other people's health.

1. On the origin

On the one hand, the project has its origin in a MeSH-based Finnish medical vocabulary compiled by the Finnish Medical Society Duodecim (FMS) for a general practitioner's database, called A Physician's Desk Reference Database (PDRD), in the late 1980's; on the other, in the spontaneous response by Finnish medical librarians to the changes in technology in the early 1990's, i.e. to the potential of the electronic information environment, as well as to the changes in ideology, i.e. to the requirements of the information society, and the resultant changes in the clientele and their needs.

2. On the objectives

As stated in the project design, main objectives of the project are:

- to complete the MeSH-based Finnish vocabulary produced by the Finnish Medical Society Duodecim, in particular terminology in certain subject areas, such as nursing, public health, occupational health, accommodating also lay terms used by patients and ordinary people in general;
- to compile a Finnish medical vocabulary for information analysis and retrieval, in particular for the users of electronic information;
- to cooperate with the other Nordic medical vocabulary projects, in particular with that being carried out in the Karolinska Institute Library and Information

Centre, to achieve 'a common pattern', a compatible structure, to be easily expanded into a multilingual medical vocabulary through the US National Library of Medicine's (NLM) Unified Medical Language System (UMLS).

3. On the organization

3.1. Partners of the project

The project is a joint venture of three professional societies:

- Finnish Medical Society Duodecim (FMS)
 - Finnish Federation of Nurses (FFN)
 - Finnish Association of Medical Librarians (BMF);
- as well as a cooperative effort of major medical and health sciences institutions of the country:
- National Library of Health Sciences
 - National Public Health Institute, Library and Information Service
 - National Research and Development Centre for Welfare and Health, Information Unit, and Classification Unit
 - Library of Ministry of Social Affairs and Health
 - Finnish Institute of Occupational Health, Information Service Centre
 - Special libraries, such as the Dental and the Veterinary Libraries of Helsinki University
 - Medical Faculty Libraries of Kuopio and Turku Universities.

3.2. Roles and responsibilities

The above societies and institutions form a consortium with the National Library of Health Sciences as the coordinator. The project has, at the moment, no official status of a consortium, since it has no special budget to cover the costs¹⁶; rather it relies on the partners' initiative and their consensus on the vital importance to realize the project - however long-term it may be.

The Finnish Medical Society (FMS)

- provides the expertise on terminology in medicine and biosciences

The Finnish Federation of Nurses (FFN)

- provides the expertise on terminology in care sciences,

The Association of the Finnish Medical Librarians (BMF)

¹⁶ The project has applied for the funding of the Ministry of Education launched for 'Finland's Way

Towards the Information Society' but has not been successful so far.

- enhances communication between other vernacular MeSH projects in other European countries through EAHIL

The libraries and information service centres

- provide the expertise on structuring the vocabulary / thesaurus construction further, they will
- provide user feed back in allocated subject areas
- test the functionality of the vocabulary in various systems and environments, i.e. in addition to FMS's PDRD, both from the indexer's and the searcher's point of view. Systems and environments include:
 - the Finnish medical bibliography, MEDIC,¹⁷ for indexing medical documents and retrieving their references
 - the Finnish libraries information network LINNEA and its databases, e.g. LINDA, a bibliographic union database of monographs and serials in research libraries, ARTO, a union database of Finnish journal articles, for indexing monographs and serials, and, respectively, journal articles and retrieving them
 - the Internet for organizing medical and health information and resources and retrieving them
- and then expand, revise and refine the vocabulary and its structure according to allocated areas of responsibility
 - e.g. public health: National Public Health Institute and National Library of Health Sciences
 - e.g. occupational health: Finnish Institute of Occupational Health, Information Service Centre
 - e.g. patient terminology: National Research and Development Centre for Welfare and Health, Information Unit
 - e.g. the International Classification of Diseases (ICD-10) Finnish version: National Research and Development Centre for Welfare and Health, Classification Unit
 - e.g. health care organization and administration: Library of the Ministry of Social Affairs and Health
 - e.g. care sciences and nursing: Finnish Federation of Nurses
 - e.g. dentistry: Dental Library of Helsinki University
 - e.g. veterinary medicine: Veterinary Library of Helsinki University.

¹⁷ English MeSH headings have been applied to subject analysis for references in MEDIC and LINDA, whereas Finnish general vocabulary descriptors have been assigned for references in ARTO.

4. Towards 'FinMeSH'

4.1. Phases

The project is designed to proceed in three major phases:

- process of producing the first version of 'FinMeSH'
 - focus on the terminology
- process of testing and refining the first version
 - focus on the structure and function
- process of evaluating and redeveloping
 - focus on the terminology, structure and function

It has been agreed that FMS produce the first version of 'FinMeSH' working systematically on the MeSH main headings category by category from A to Z. Plan is to get this phase finished by the end of the year 1997.

4.2. Content

The first version of 'FinMeSH' draws the Finnish terms on

- A Physician's Desk Reference Database (PDRD), which, at the initiation of 'FinMeSH' in the mid-1990's, contained Finnish equivalents of c. 7000 MeSH headings, created in indexing Finnish medical journals for the general practitioner's use, mainly of primary health care
- Finnish medical terms¹⁸ Lääketieteen termit - vocabulary giving terms in Finnish and also defining and / or explaining them in Finnish, as well as providing their English and Latin equivalents and etymology, when appropriate, published in a printed as well as in an electronic format [4]
- The Finnish version of the International classification of diseases (ICD-10)
- lists of trade names for pharmaceutical products

4.3 Structure - towards UMLS

The first version of 'FinMeSH' will result in a compilation of Finnish MeSH headings with their hierarchical relations in the categories, as well as with some of their associative relations i.e. synonyms and near synonyms (even if some linguists argue that we cannot refer to such a concept as a 'synonym').

¹⁸ The tradition of compiling medical vocabularies in Finnish goes back more than a hundred years, as late as to the 1880's, to the foundation of the Finnish Medical Society Duodecim. Shortly after the foundation of the Society, a Swedish-Finnish list of medical terms (c. 4000) Duodecimian sanaluettelo Suomen lääkäreille, was published in 1885, consisting mainly of terminology concerning anatomy, diseases and their diagnoses and therapies. [2]

To what extent 'FinMeSH' will follow the structure of the English MeSH is a question to be answered only after evaluating of the headings of the Finnish version using, e.g. criteria of

- (a) speed in indexing / searching
- (b) browsability
- (c) suggestibility
- (d) contextuality
- (e) specificity
- (f) precision
- (g) recall. In which ways the syntax and semantics of precoordinate headings are language-bound ?

The core of 'FinMeSH' is organized by concept, following the structure of the UMLS metathesaurus - of which 'FinMeSH' is aimed to be a source. Terms and their lexical variants are controlled through the concept: every concept has a unique concept identifier CUI to which one or several terms and their lexical variants are linked by unique string and lexical identifiers SUI and LUI, respectively. [8,9]

e.g.

'myocardial infarction' of MeSH is structured in 'FiMeSH' like

- [sydäninfarkti/fin/Sxxxxxxx/PF/Lxxxxxxx/PF/COO2751/](#)

S stands for a synonym = string variant

L stands for a lexical form = lexical variant

PF stands for a preferred term

C stands for a concept identifier

Accordingly, in 'FinMeSH' terms/concepts are presented in blocks comprising

- the primary English MeSH term, which can be replaced by the unique concept identifier (CUI)
- the primary Finnish MeSH term followed by related terms
- the Latin term

'i' is a term specifier indicating that due to inflectional character of the Finnish nouns the nominative base 'sydän' ('heart', 'cardi-', 'myocardio-') is used as an index term. [8]

4.4 Language-related problems

Further, Finnish term '[sydän](#)' from the Finnish medical terms vocabulary may serve to illustrate specific language-related problems:

- first, the English term '[heart](#)' and linguistic variants '[cardi-](#)' '[myocardial](#)' are all included in the Finnish 'sydän', making no difference between a 'pump' ('heart') and a 'tissue' ('myocardium')

- second, the case variation manifested in compound terms or strings of terms, characteristic of precoordinate headings
'heart transplantation' - 'sydämensiirto'
'heart failure' - 'sydämen vajaatoiminta'
'cardiac failure'
'cardiac insufficiency'
'myocardial infarction' - 'sydäninfarkti' "sydänveritulppa"(p) With the precoordination language-related problems become obvious.

4.5 Function

'FinMeSH' is designed to serve

- as a multilingual resource through the UMLS metathesaurus
- as a communication facilitator with physician-patient/health care-personnel-patient-relations
- as an information organization and retrieval tool

Three large user groups who will benefit from it can be identified:

- health professionals, among them: physicians (c. 15 0000), above all general practitioners (c. 6000) of health centres (220), and nurses (c.50 000), above all public health nurses of health centres (220) • students, among them medical students (c.7000 of 5 schools),
who according to revised curriculum will "grow" into physicians
by learning in practice in health centres at an early stage of their studies, and health care students (c. 45 000)
- general public, among them users of public libraries (440) and the Internet.

6 Towards the global through the local

There remains the question: Why to go into this trouble, take all this effort to render MeSH into a vernacular? Why a Finnish MeSH, why a Swedish MeSH, why a Hungarian MeSH, why a Czech MeSH, why a French MeSH, a German MeSH, a Portuguese MeSH, a Spanish MeSH? Why this European movement for MeSHes ?

In line with the EU policy promoting linguistic diversity in Europe [6,7], there are three reasons for this movement, pertaining to

- retrieval structure
- implemeting technology
- prevailing ideology

First, retrieval structure: MeSH, since its first edition in 1960 with 1500 or so headings, has been growing in scope into a vocabulary of nearly 20 000 main

headings and gaining sophistication and subtlety in structure; it has become a de facto international standard for information retrieval in medicine and related areas, it has become a global medical retrieval language.

Then, technology and ideology: Changes in information technology and changes in information ideology, the interdependence of the strategies of health for all and information for all [3] have resulted in changes in the clientele of medical libraries, have created the need for vernacular medical vocabularies and support them as essential tools for knowledge organization and information retrieval.

In terms of the strategies of health for all - information for all [3], i.e. in terms of the information society, we need a Finnish medical vocabulary, we need a Swedish medical vocabulary, and all the the other vernacular versions, to give our clientele, who are people from all quarters of life, an equal opportunity

•to become aware of availability and accessibility of health information •to become involved in health information

•to become empowered with health information

to use their rights [cf.1] and responsibilities in deciding on health matters.

In fact there are two meshed threads, two interlocked trends, two intertwined strata prevailing in the information society reflected in this vernacular movement for MeSHes: the global and the local. What we want is something of the established global structure expressed in "living" local concepts and terms for promoting communication, eventually aiming at health gains, through relevant medical and health information, accessible and understandable to professionals and non-professionals alike.

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