

Funding for Nursing Vocabularies

Whether aggregated electronic health data improve clinical care and health services research will finally be testable when a comprehensive electronic medical record system gets here. But how to capture reality in words that the ambiguity-challenged computer will understand? Natural language processing of clinical records is not ready, and so we struggle to make do with controlled vocabularies.

Nursing vocabularies face some particularly difficult hurdles. In defining nursing as "the diagnosis and treatment of human responses to actual or potential health problems,"¹ the American Nursing Association staked out an important professional area for which operational definitions are not easily formed, and whose terminology is neither standardized nor readily converted to use by computers.

Nursing recognizes the challenge. A minimal nursing data set has been proposed,² and a number of classification systems, some recognized by ANA, have been developed.^{3,4} However, none of the existing systems is fully comprehensive.⁵⁻⁷ Nor is the problem solved for other disciplines.⁸

Who will pay to keep these labors on track? Several developers of nursing vocabularies have graciously acknowledged support from such Public Health Service units as Division of Nursing, National Institute of Nursing Research, and the National Library of Medicine, but most of the work has been done without federal funds. Some vocabularies in other disciplines have received support from professional societies, and perhaps professional nursing groups may have to consider some continued support for nursing vocabulary development. Major foundation interest does not seem to be out there.

What about more federal support? Of the approximately 275 publications since 1995 indexed by MEDLINE as "controlled vocabulary" in a variety of disciplines, a respectable 22 percent acknowledge Public Health Service Support (personal observation). The published vocabulary work is usually an application of vocabulary to a specific problem, rather than basic classification development, and is often a spinoff from a funded project whose main focus was not necessarily vocabulary.

Perhaps in part because the value to the nation of controlled vocabularies remains to be proved, the federal government has not provided generously. The Unified

Medical Language System, not itself a vocabulary, is all about correlating controlled vocabularies developed by others. The UMLS has not, however, provided funds for development of the 30-some vocabularies it incorporates. For UMLS, as for America, *e pluribus unum* depends on the pluribus coming from elsewhere.

Which is not to say that federal support is unobtainable. Formulated as a research project, an application of a vocabulary to a problem of clinical interest can attract funding when no funds would be available for grinding out the terminology per se. Reality-testing is sensible: Controlled vocabularies have little call on federal resources unless they keep moving toward the goal of enabling meaningful secondary uses of electronic health data.

Grant applicants: Remember that the government organizations that might have some interest in nursing vocabulary projects have differing goals. Agendas of the PHS Division of Nursing and the National Institute of Nursing Research may vary from year to year depending on perception of national needs. The interests of the Agency for Health Care Policy and Research, which focuses on outcomes and quality of care, usually complement those of the National Library, which has an ongoing grant program for research in informatics, of which computational linguistics is a subfield. Remember, too, that some vocabulary questions are applicable to a specific clinical problem, which might raise the ears of one of NIH's deep-pocketed "theme" institutes, such as the National Cancer Institute.

But do not assume. Ask colleagues, and ask the program officers before you fill out applications. So, to those interested in developing nursing nomenclatures suitable for useful computing: You are devoting your time to an important project; your work is appreciated; and some federal support may be out there for the investigators who can adapt their work to a research model and can sniff out an interested grantor.
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