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Nursing Minimum Data Set: A Literature Review

Reis Elisa [a], Marin Heimar [b]

[a] *Nursing of Interdisciplinary Care*
[b] *Federal University of São Paulo, Johns Hopkins School of Nursing, The Iowa University College of Nursing, IMIA NI SIG Secretary*

Abstract

Essential information for nurses may be obtained from information technology systems, for this reason it is fundamental the adoption of standard language which translates the essence of nursing. The Nursing Minimum Data Set and Nursing Management Minimum Data are relevant in description, register and retrieval of these data. A literature review on the use of these data sets for research on the subject, the trends and nurses' practice was accomplished. Method: Selected articles from the index of Medical Literature and Analysis and Retrieval System on Line (1993 - 2005), from the integrated library archives of Regional Medicine Library, in English and Portuguese. Final considerations: The findings permitted the identification of the total number of publications which show the necessity of dissemination and discussion of the subject among the Brazilian nurses; description of current health trends, the elderly and chronic disease patients care; nursing home care evaluate trends, justifying costs, comparing and evaluating cares. The increasing interest on the use of these data sets can be explained by the necessity of consistent and available information at the shortest length of time possible.

Keywords:

nursing minimum data set management,

nursing informatics, nursing, terminology, medical records systems

Introduction

Nowadays information has become a more significant power much than any other one. This power is frequently measured by the mastery and use of information provided by new technologies. Everyday, new technology resources are developed to enable new forms of relationship in the work, either for facilitating or creating new opportunities.

Several benefits from the use of information technologies have been incorporated by health professionals through development of more efficient medical equipment which can be interlinked, enabling professionals to access the necessary information for decision making. On the other hand, scientific and technological advance also brought more data and information.

The information volume generated by health institutions is enormous which demand the use of information technology to sustain process and management of necessary information for caring with the quality level that is demanded and deserved by the clients.

This reality brings many challenges to health professionals, mainly for nursing, which is responsible for continuous care of clients/patients. In this context it is expected from nursing professionals an adaptation to the new roles which answer the social and institutional demands, with knowledge, quality and competitiveness to attend clients who are more conscious and demanding about their rights, in a supplier/costumer relationship. Therefore, it is understood that an efficient use of information is critical for a contemporary health assistance of high quality by the professionals who are directly involved with the clients/patient care.

The use of information technology in health care has evolved from a situation where the computer was used in the accomplishment of single and isolated tasks to the level of integration of information, whose objective is to integrate diverse points of information and their use on the services.

At the beginning the use of information technologies was directed to the accomplishment of management activities with the development of financial and managerial systems. However, there is an increasing interest in development of information systems towards the registering of nursing clinical care.

The introduction of computer systems in the care environment enabled an approximation with the client.[1] Through these systems, the nurse can access more consistent and uniform information about procedures, responses to performed cares, and how clients perceive the received care.

A nursing information system focused on client must be specific to the complexities of nursing care and it needs to project the activities, interventions and outcomes for the client, which represents a great challenge since the nursing care outcomes do not occur isolated, but into a multi-disciplinary context.

In order to develop a nursing system the responses to the needs above mentioned it is fundamental the adoption of a

standardized language which can translate the essence of nursing as a profession. Therefore, several attempts have been seek out by nurses throughout the world to develop a standard list for the classification and documentation of nursing practice.

In 1984, the North American Nurses Association (ANA) started adopting a series of definitions in order to build an agreement about the necessity of defining a Nursing Minimum Data Set (NMDS) so that it would be possible the aggregation of data in a large scale. Since then, many efforts have been realized and they produced a vast knowledge throughout the years.Therefore, many nursing terminologies were developed to support the operation of nursing diagnosis, interventions and outcomes of nursing practice.

In 1988, based on the concept of Uniform Health Data Set (UMHDS) Werley and Lang built a Nursing Minimum Data Set which can be defined as set of uniform elements and information with definitions and categories related to nursing specific dimensions, with the location of necessary information to a variety of users in the health care system.[2] This data set has the following purposes: (1) describing the nursing care for the clients and their relatives in a variety of situations, (2) establishing comparisons on nursing data, (3) showing or projecting trends according to nursing care and distribution of nursing resources to clients according to health problems or Nursing Diagnosis, (4) stimulating the research in nursing through the use of detailed data present in a Nursing Information System and in other Health Care Information Systems and (5) supplying data about nursing care that can influence heath policies and decisions.

The Nursing Minimum Data Set defined by Werley[2] includes three major data categories: (a) the nursing care, (b) patients or clients demographics, (c) about the service.

In the data category abou*t nursing care* it is included: nursing diagnosis, nursing interventions, nursing results and intensity of nursing care.

The data category *patients or clients demographics* is composed by: personal identification, date of birth, sex, race and ethnics, and residence.

And, in the data category *about the service* we find: unique number of facility and service, patient's or client's health register number, nurses register number, admission episode or date, discharge or discharge date, patient's or client's location, and identification of paying source or responsible for payment.

In 1989, Huber and Delaney (.ref..) initiated, based on the work developed by Werley and Lang, the development of a data structure. The development project of the conceptual structure was based on Donabedian's[3] ideas related to structure, process and results as components for quality; from Iowa's[4] nursing management model and the nursing minimum data set by Werley and Lang[1], since the last identifies the service and demographics data as well as three important elements about nursing care: diagnosis, interventions and outcomes.

Tthe nursing management minimum data set is composed of 17 elements, grouped in three great categories: environment, nursing resources and financial resources.[5]

The use of these data sets may bring many benefits to Nursing: (1) Obtaining comparable essential data about nursing care essence and local, regional, national, and international resources. (2) Pointing out in the patient record the provided nursing care. (3) Identifying trends related to patient's or client's problems and the provided nursing care. (4) Providing Parameters to improve nursing services costs. (5) Data for quality improvement. (6) Additional stimulus for the development and refining of health information systems and electronic healthrecord. (7) Comparative research about nursing care, including research on nursing diagnosis, interventions, outcomes, and intensity. (8) Contributions to promote nursing as a discipline.[6]

Understanding the relevanceof nursingdata sets to support nurses in describing, registering and retrieving data about their activities, either assisting or managerial,; this study was developed by a review of publications which approach the use of nursing minimum data sets to better understand the subject and trends in research and practice developed by nurses.

Objectives

Identifying in national and international periodicals from 1993 to 2005, those referring to Nursing Minimum Data Set (NMDS) and the Nursing Minimum Managerial Data Set (NMMDS) and characterize the production related to some characteristics as language, origin of articles, most common periodicals, authors' performance location and the main themes approached.

Material and methods

The criteria established for the selection of periodicals were: articles that approached the subject Nursing Minimum Data Set, articles into MEDLINE (Medical Literature Analysis and Retrieval System on Line) within 1993 and 2005, articles located in the integrated library archives in theBIREME - the(Latin American and Caribbean Sciences of Health Information Center), in the English language.

The key words used for the bibliographic search in MEDLINE were: "nursing", "minimum", "data", "set", "management". The first results of this search were the

obtainment of 160 articles and the studied sample had 130 articles. The articles which were not in English or could not be found in the archive were refused.

The variables chosen for analysis of articles were: publication language, articles origins, most common journals, authors' performance location and main themes approached.

A quantitative analysis was performed in order to characterize the sample according to the chosen variables through the use of a data basein MicrosotfAccess ®. The categorization was accomplished after reading the article and filling up a script for data collecting.

Results and discussion

From the 160 articles found in MEDLINE, 155 (97%) were written in English, 3 (2%) in Dutch, 1 (1%) in French and 1(1%) in Norwegian. From the 155 articles written in English it was possible to retrieve 130 (81%) articles which constituted the sample for this study. Therefore, the analysis was accomplished using the sample of 130 articles which correspond to the described criteria.

Distributing the sample according to country of , wepublication found that they were from seven countries as it shows on table 1. The greatest number of publications are in the United States of America totalizing 101 (78%) of articles, followed by England 15 (12%), Canada 5 (4%), Holland 4 (3%), Italy and Finland with 2 (2%) articles each and Australia 1 (1%). This survey showed that within the 13 years analyzed, the United States of America was the country that produced articles more constantly.

Table 1 - Distribution of sample according to publishing country

Country of Publication	N	%
The United States	101	78%
England	15	12%
Canada	5	4%
Holland	4	3%
Italy	2	2%
Finland	2	2%
Australia	1	1%
Total	130	100%

In table 2 it can be verified the distribution of articles according to the publication year. The year 2003 was the one which showed more publications 23 (18%), followed by 2004 with 22 (17%), 1997 with 14 (11%), 2002 with 13 (10%) published articles.

It was verified an increase in thescientific production in a more constant way from the year 2002.

Table 2 - Distribution of sample according to the publication publishing year

Publishing Year	N	%
1993	3	2%
1994	8	6%
1995	8	6%
1996	3	2%
1997	14	11%
1998	6	5%
1999	10	8%
2000	11	8%
2001	8	6%
2002	13	10%
2003	23	18%
2004	22	17%
2005	1	1%
Total	130	100%

Regarding to the publishing means it was found that the sample was distributed among 67 journals which were grouped by publication area: 66% (86) of the articles were divided in three areas: 29% (38) were published in journals specialized on geriatrics, 24% (31) in journals on nursing and 13% (17) in medical journals.

This distribution may show a trend in health assistance, since the elder population has been increasing in the last decades.

Table 3 - Distribution of sample according to thematic area of journal

Journal Thematic area	N	%
Specialized on Geriatrics Journal	38	29%
Nursing Journal	31	24%
Medical Journal	17	13%
Health Journal	9	7%
Congresses Proceedings	8	6%
Quality Journal	7	5%
Neurology Journal	7	5%
Informatics Journal	4	3%
AIDS Journal	2	2%
Others	7	5%
Total	130	100%

The distribution of articles concerning to the thematic category presented on table 4 show that most of them focus on describing 'Trends related to patient's or client's problems 38% (49), followed by 'Parameters for cost improvement' 16% (21), 'Obtainment of comparable data' 15%, Data for quality improvement 12%.

Therefore, it is possible to verify that a nursing minimum data set is useful for improving nursing services, since anticipating patient's/client's needs, improving costs, comparing data and verifying quality improvement opportunities, the possibility of offering and controlling care is more concrete.

Table 4 - Distribution of sample according to thematic categories

Thematic category	N	%
Trends related to patient's or client's problems	49	38%
Parameters for cost improvement	21	16%
Obtainment of comparable data	19	15%
Data for quality improvement	15	12%
Comparative research on nursing care	11	8%
Development of Health Information Systems	10	8%
Contributions promoting nursing as a discipline .	5	4%
Total	130	100%

The distribution of articles regarding author's affiliation-shows that 68% (88) worked in Universities, 19% (25) in Health Associations or Institutions, 2% in hospitals and 11% (14) of the articles did not mention author's affiliation. From this survey it is evident the importance of educational institutes on the knowledge production. The Universities are located in the U.S.A., United Kingdom, Japan, Korea, Italy, Belgium, Taiwan, Iceland and Germany. The health associations and institutions are also concerned with knowledge production; however, much investment is still needed. It is necessary to convinceprofessionals to become integrated to these academic institutes on the accomplishment and mainly the use of research results to design and redirect . The concern is increasingly frequent for through the aforesaid, it will be possible to plan and evaluate the offered services, however, there are still much to be done.

Final considerations

This work has originated from the interest in studying the standards for the documentation of nurse care in order to incentive the development of computerized nursing systems that may register and retrieve nursing data, generating information that show the nursing contribution for health care. In other words information that supports nurses in different locations and type of nursing performance.

The search for publications about the subject was a way of identifying the nursing minimum data set related studies, verifying the benefits achieved from this use.
The findings allowed the identification of important facts as the totality of English language publications and international journals, displaying the necessity of spreading and discussing the theme among Brazilian nurses, making the language barrier less evident.

It was also possible to identify that the articles describe the current health trends and care has extrapolated the hospital, the assistance of elders and patients with chronic diseases. A variety of articles was found related to nursing home care, which use the nursing minimum data set to evaluate the nursing care trends necessary, justifying costs, comparing and evaluating these cares.

It was evidenced the growing interest by nurses on the use of those minimum data sets which may be explained by the need of consistent and available information at the shortest time length possible to guarantee high quality and optimized use of human and material resources.

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Address for correspondence

Elisa Aparecida Alves Reis
Av. Albert Einstein, 627
CEP 05651-901 – São Paulo – SP – Brasil
E-mail: elisa_reis@einstein.br