Update on Standardized Nursing Data Sets and Terminologies

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HIM professionals can learn a lot from the nursing profession's development of classification systems, terminology models, and quality indicators. Compared to other healthcare classification systems such as ICD-9-CM or CPT-IV, the nursing systems have not been widely used for reimbursement purposes, thus many HIM professionals may be unfamiliar with their contents.

The forces driving the development of nursing classification systems and other standardized nursing data elements are similar to those in the larger healthcare arena. These factors have been summed up by one expert as "If you cannot name it, you cannot teach it, research it, practice it, finance it, or put it into public policy."[1] And, most certainly, you cannot implement it in a computer-based system.

Nursing classifications have been developed to describe the nursing process, to document nursing care, and to facilitate aggregation of data for comparisons at the local, regional, national, and international levels. This article provides an overview of the major standardized nursing classification systems and related national and international efforts.

A National Standard

The American Nurses Association (ANA) has played a leadership role in activities related to nursing data sets and classification systems. The ANA established the Committee for Nursing Practice Information Infrastructure (CNPII), formerly known as the Steering Committee on Databases to Support Clinical Nursing Practice, to monitor and support the development and evolution of the use of multiple vocabularies and classification schemes.[2]

The CNPII aims to "serve as the primary authority for the ANA on nursing practice information infrastructure; influence health information policy at international, national, and state levels related to maintaining quality, integrity, security, and confidentiality of personal, professional, and organizational healthcare data and information; disseminate knowledge about nursing's information infrastructure, languages, and classification systems; and recommend program initiatives." [3]

Providing official recognition of nursing classifications is one of the major strategies for accomplishing these goals. The CNPII has recommended that the profession work toward the development of a unified nursing language system that would allow linking or mapping of similar terms unlike retaining the integrity and purpose of each specific scheme/vocabulary. It also developed criteria for determining whether a candidate nursing classification scheme, nomenclature, or data set is ready for official ANA recognition.

A Number of Classifications

There are eight ANA-recognized nursing classifications (see "ANA-recognized Classification Systems"):

- the North American Nursing Diagnosis Association Taxonomy (NANDA) [4]
- the Omaha System [5]
- the Home Health Care Classification [6]
- the Nursing Intervention Classification (NIC) [7]
- the Nursing Outcome Classification (NOC) [8]
- the Patient Care Data Set [9,10]
- the Perioperative Nursing Data Set (PNDS) [11,12]
- the Complete Complimentary Alternative Medicine Billing and Coding Reference. [13]

The CNPII has recognized two nomenclatures (see "ANA-recognized Nomenclatures"): International Classification for Nursing Practice (ICNP) [14] and SNOMED RT. [15] Two data sets have also been recognized for use in administrative and clinical nursing information systems and databases (see "ANA-recognized Data Sets"): the Nursing Minimum Data Set (NMDS) [16] and the Nursing Management Minimum Data Set (NMMDS). [17]

One Language, Many Systems

As previously mentioned, the CNPII has promoted a unified nursing language rather than recognizing only one system. For example, as seen in "ANA-recognized Classification Systems" and "ANA-recognized Nomenclatures," there are seven systems that include nursing diagnoses, eight systems that include nursing interventions, and seven systems for outcomes. Thus, it is up to the individual organization to select the single system or set of systems that it will implement.

All the ANA-recognized systems have been successfully deployed in both manual and computer-based documentation systems. Factors that organizations take into account in making the selection include the setting for which the system was designed, access issues (such as cost and copyright), ability to represent nursing data at a sufficiently granular level, and ease of implementation, particularly in computer-based systems.

Compared to classification systems such as ICD-9-CM that have codes most often assigned post-care through abstraction methods, the nursing classification systems are used directly by the nurse during the course of care. Several investigators have identified that the recognized nursing classification systems, designed to function as enumerative, disjunctive classifications, are insufficient to capture the detail of the clinical encounter. Further, additional terminologies, which would complement the strengths of the existing systems, are needed to adequately represent a broader range of nursing concepts in computer-based systems. [18-21]

In addition to the granularity of the nursing systems, there are other issues affecting the ease of implementing the nursing classifications in computer-based systems. One analysis showed that none of the ANA-recognized systems met the Computer-based Patient Record Institute's (CPRI) features of classification systems that support implementation within a computer-based patient record.[22] The systems are deficient in the following areas, primarily due to the pre-coordinated nature of the terms in the nursing classifications: clear and non-redundant concept representation, grammar and syntax for combining concepts, and synonymy.

Implications for HIM Professionals

Nursing is an information-intensive profession, and nurses are expert in the diagnosis and treatment of human responses to illness, prevention of illness, and health promotion. But typically, they are not experts in information management other than for the purposes of diagnostic and treatment decision making. Most practicing nurses are not aware that classification systems exist (besides NANDA) for nursing, nor are they aware of the multiple benefits of such systems. Thus, HIM professionals, as experts in information management, have a collaborative role to play in working with nurses in areas such as computer-based patient record system selection and multidisciplinary documentation such as critical paths and care maps.

For example, the HIM professional is well equipped to address issues related to data reliability and validity as well as educating the healthcare delivery team in other issues related to the potential for multiple uses of the data collected in the course of care delivery. In some institutions, the HIM professional may also function within the healthcare team as the expert on vocabulary issues related to computer-based patient record systems by sharing information about national efforts and related issues with other team members. The HIM professional also has the potential to act as consultant to quality management teams in designing reliable and valid strategies to prospectively or retrospectively collect chart data.

The provision of healthcare is a multidisciplinary effort. In this era of numerous requests for data and information for multiple accrediting, governing, and quality monitoring agencies, it is vital that the HIM professional be aware of classification systems and related national efforts beyond ICD-9-CM and CPT-IV. Without reliable and valid data concerning the contributions of the entire healthcare team, it is truly impossible to engage in the practice of evidence-based healthcare delivery. [23-25]

Notes

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ANA-Recognized Classification Systems

Classification	Nursing Diagnoses	Nursing Interventions	Nursing Outcomes	Settings	Access
NANDA	156 nursing diagnoses classified into 13 domains and 46 classes. Example: ineffective family coping, decisional conflict			Across the continuum of care	Copyrighted; obtain permission at www.nanda.org; developed by NANDA International
Nursing Intervention Classification (NIC)		486 nursing interventions classified into seven domains and 30 classes. Example: dysrhythmia management		Across the continuum of care	Copyright held by C.V. Mosby Company, negotiate for a electronic record license; developed by McCloskey et al.; www.nursing.uiowa.edu/cnc/
Nursing Outcomes Classification (NOC)			260 nursing outcomes classified into seven domains and 29 classes. Example: breastfeeding maintenance		Copyright held by C.V. Mosby Company; negotiate for an electronic record license; developed by Johnson et. al.; www.nursing.uiowa.edu/cnc/

Omaha System	40 problems classified into four domains with two sets of modifiers. Example: communication with community resources	62 targets with four categories of interven-tions (health teaching, guidance, and counseling; treatments and procedures; case management; surveillance). Example: target = rest/sleep which can be modified by any of the four intervention categories	Five-point Likert scale for three outcomes related to specific diagnoses. Example: caretaking/ parenting rated on three scales (knowledge, behavior, and status)	Predominantly community-based settings, such as home healthcare, community healthcare	Public domain; developed by Martin and the Omaha Visiting Nurses Association; http://con.ufl.edu/omaha
Home Healthcare Classification (HHCC)	145 diagnoses classified into 20 care components; diagnoses include some of NANDA plus additional diagnoses developed for the home care environment. Example: knowledge deficit of therapeutic regimen	160 nursing interventions classified into 20 care components with four types of qualifiers (assess, teach, care, manage). Example: wound care—teach	Three qualifiers for the nursing diagnoses to predict the outcome (improved, stabilized, deteriorated). Example: improved acute pain	Predominantly home care settings, but has been demonstrated to have utility for hospital settings	Public domain; developed by Saba; www.sabacare.com
Perioperative Nursing Data Set (PNDS)	Uses NANDA	133 interventions links with the 29 outcomes. Example: identifies physical alterations that may affect procedure-specific positioning	29 outcomes with measurement criteria. Example: the patient is free from signs and symptoms of injury related to positioning	For use in the perioperative setting only	Copyrighted by the Association of Perioperative Registered Nurses (AORN); electronic licenses available; www.aorn.org/
Patient Care Data Set	363 terms for patient	1,357 terms for patient care	311 terms for patient care	Acute care settings	Copyrighted by Vanderbilt

(PCDS)	problems. Example: fear of prognosis	orders. Example: teach good bowel habits	goals Example: Patient will have 100% skin graft take		University; developed by Ozbolt. Contact: judy.ozbolt@mcmail.vanderbilt.edu
Complete Complementary Alternative Medicine Billing and Coding Reference (ABC codes)		4,000 procedures		Across the continuum of care	Copyrighted by AlternativeLink. Available at: www.alternativelink.com

ANA-Recognized Nomenclatures

Nomenclature	Description	Settings	Access
International Classification for Nursing Practice	Multi-axial combinatorial terminology for nursing phenomena (nursing diagnoses), nursing actions (nursing interventions),and nursing outcomes; facilitates cross mapping of local terms and terms in existing classifications	Across the continuum of care	Copyrighted by the International Council of Nursing; www.icn.ch/icnp.htm
SNOMED RT (Reference Terminology)	A concept-based reference terminology that includes concepts used to describe patient assessments, nursing diagnoses, nursing interventions, and patient outcomes; will include maps from SNOMED-RT to major nursing classifications	Across the continuum of care	Copyrighted by the College of American Pathologists; www.snomed.org

ANA-Recognized Data Sets

Data Set	Data Elements
Nursing Minimum Data Set Developed by Werley et al. Contact: connie-delaney@uiowa.edu	Nursing diagnosis; nursing intervention; nursing outcome; intensity of nursing care; unique identifier of principle nurse provider; patient demographics and service items from the uniform hospital discharge data set (UHDDS)
Nursing Management Minimum Data Set Developed by Huber and Delaney. Contact: connie-delaney@uiowa.edu diane-huber@uiowa.edu	**Environment** Type of nursing delivery unit/service; patient/client population; volume of nursing delivery unit/service; nursing delivery unit/service accreditation; decisional participation; unit complexity; patient/client accessibility; method of care delivery; complexity of clinical decision making **Nurse Resources** Manager demographics; nursing staff and patient/client car support personnel; nursing staff demographics; nurse satisfaction **Financial Resources** Payer type; reimbursement; nursing delivery unit/service budget; expenses

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