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The International Classification for Nursing Practice (ICNP®) Programme:Terminology Management and Maintenance

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Abstract

Clinical terminologies must be dynamic in order to represent up-to-date and clinically relevant content for use in electronic health records. The International Classification for Nursing Practice (ICNP®) Programme involves a number of management and maintenance processes in order to assure quality and facilitate use of the ICNP® terminology. Some of these processes include (a) research and development activities, (b) a formal review process, and (c) applications in healthcare systems. Terminology management processes must be formal, while still being open and facilitating participation. Although the ICNP® Programme is centralized, it is essential to have mechanisms that support worldwide involvement of experts at the regional and local levels. Examining the ICNP® Programme management and maintenance processes can identify issues that need to be addressed to assure the continuous high quality of the programme

Keywords:

unified nursing language system, nursing terminology, International Classification for Nursing Practice, terminology maintenance

Introduction

ICNP® Version 1.0 was launched in May 2005 at the International Council of Nurses (ICN) Congress in Taipei, Taiwan. ICN is a federation of 129 national nurses associations. It was founded in 1889 and has headquarters in Geneva, Switzerland. ICNP® has been under development since 1989, with an alpha version, beta 1 and beta 2 versions, and now Version 1.0. The ICNP® vision is to be an integral part of the global information infrastructure informing health care practice and policy to improve patient care worldwide. This paper will address the methods by which a global terminology for nursing demonstrates constant advancement by leveraging simultaneous centralized and decentralized research and development, system improvements using transparent processes for participation, and applications in healthcare systems. A state of the art nursing terminology that can be used worldwide will document the work of nursing consistently and accurately and will contribute to safe and effective health care.

Materials and methods

ICNP® is a unified nursing language system and a compositional terminology that facilitates cross-mapping of local terms and existing terminologies. ICNP® Version 1.0 was developed using web ontology language (OWL) within the Protégé ontology development environment to support a unified language and compositional approach. A unified nursing language system allows users' natural language to be mapped to standard meanings. The benefits of using a description logics approach are explicit definitions, the possibility of multiple classifications, greater granularity, and sensitivity to variation in language and culture. ICNP® conforms to ISO Standard 18104:2003, reference terminology models for nursing diagnosis and nursing action [1]. ICNP® is HL7 registered. Experts in nursing, informatics, terminology, and software development are all essential participants in ICNP® research and development, system improvements and applications in healthcare systems.

Research and development

ICN-accredited ICNP® Research and Development Centres provide opportunities for nurse experts and related consultants to advance ICNP®. The work of the Centres is monitored by ICN through a structured process including review of goals and objectives, periodic re-accreditation, annual reports of work progress in the ICNP® Bulletin, and invitations to present work processes and products at the biennial Centres Consortium meetings held in conjunction with ICN conferences.

ICNP® catalogues are subsets of the terminology, specifically nursing diagnosis, outcome, and intervention statements for a selected population and health priority [2]. Catalogues will fill a practical need in building health information systems by describing nursing diagnoses, outcomes and interventions appropriate for the selected area of care.

Translations of ICNP® are a third important area for research and development. Some translations are appropriately done by nurses in one country. Other translations may be multi-country, e.g., Germany, Austria and Switzerland; Chile and Spain.

Review process

ICNP® continues to increase in size and complexity as more concepts are added to the classification and as methods evolve for ontological modeling with attendant software support. A structured maintenance approach [3] can support the consistency and credibility of ICNP® as it is developed, mapped to other classifications, applied in health information systems, and used in clinical practice and research. The three stages of ICNP® review process are data collection, evaluation and revision.

Applications in healthcare systems

The ability to collect data about the work of nursing worldwide will allow for data-based research, decision-making and policy development. ICNP® use in client or patient care settings, either as the interface terminology or as the reference terminology in electronic health records, will allow care data to be stored in data repositories for access by researchers. Real-time ICNP® data are currently being generated in several regions and countries.

Results

Research and development

ICN-accredited ICNP® Centres activities include concept validation, bibliometric analysis, the development of ICNP® catalogues, translations, electronic health record applications, organizing conferences, intra- and inter-country collaboration, presentations at professional conferences and professional publications.

In addition to ICNP® Centres, nurses in many settings worldwide work with ICNP® to further its development and application to practice. A list of projects worldwide is available on the ICNP® website as interested experts comply with the request to sign a Use Agreement with ICN. Projects are organized by country and by topic, including research (concept validation, description logic models, model testing), development (ICNP® catalogues, translations, browsers), integration (cross-mapping, minimum data sets), and health information systems (electronic health record, telehealth, computer-user interface). In addition to the projects, a reference list of publications about ICNP® is also available on the ICN website.

ICN has developed a prototype catalogue titled "Partnering with Clients and Families to Promote Adherence to Treatment." Pre-coordinated concepts for the catalogue's nursing diagnoses, interventions and outcomes will be given unique identifiers and added to ICNP® Version 1.1. ICN's intent is to collect ICNP® catalogues that are in use and to facilitate validation of catalogues with nurse experts in various practice areas or dealing with particular client health conditions (e.g., diabetes, mental health) or nursing phenomena (e.g., pain, self-care).

Translations have been completed in Korean, Japanese, Portuguese (Portugal) and Arabic. While some translations are appropriately done by nurses in one country, other translations are conducted across a number of countries, e.g., Germany, Austria and Switzerland. An open source, web-based translation tool has been developed and used by the German Speaking User Group ICNP® Centre. The ICNP® translation tool facilitates the distribution of work among geographically separated participants. There are plans to test the tool with other language work groups. ICN requires that a Translation Agreements be signed by anyone planning translation of ICNP®, in order to coordinate efforts across countries and languages.

Review process

The ICNP® Review Process is available in print and on the ICN website so that submitters, reviewers and users are all aware of the process by which concepts may be added, modified or deleted. Since the publication of the alpha version of ICNP®, hundreds of terms have been added to the ICNP®.

ICN moderates the process of review but the key decisions about submissions are made by expert nurse reviewers around the world. It is essential that domain experts participate in the review of ICNP® content. The use of expert nurse reviewers also helps to ensure evaluation across cultures and languages. New concepts may be submitted from nurses in the field, found in the literature or in clinical data, or they may arise during cross-mapping projects. The concepts of dignified dying [4] and informal settlement [5] are examples of validation studies conducted by nurses for potential revisions to ICNP®.

During the evaluation phase, the characteristics of the concept, or its definition, are reviewed. The concept's position and use in different cultures or nursing contexts is also considered. Each concept is then modeled in OWL and its place in the 7-Axis model representation of ICNP® is described. During the evaluation phase, the concept is examined for its compatibility with ICNP® Version 1.0 and any synonyms are identified. Expert nurses then review the concept and its related documentation. Concept recommendations may be incorporated (add, retire existing concept, revise existing concept), rejected, or sent out for an expanded review.

During the revision phase of review, the accepted concepts must be coded, definitions finalized, and modeled in OWL Protégé for addition to ICNP® Version 1.1. Concepts may also be added to one or more ICNP® catalogues. This iterative process is supported by experts from nursing, modeling and informatics.

Applications in healthcare systems

Nurses in several countries, in concert with their health ministries and health care systems, and supported by infor-

matics specialists and technicians, have integrated ICNP® Version 1.0 into their electronic health record systems. Hospitals in Korea and Portugal are, for example, using ICNP® as the standard for collecting nursing data in point-of-care documentation of nursing practice in electronic systems. The data can then be stored and retrieved for re-use, e.g., research, with appropriate safeguards for human subjects protection. The developers and users of these applications provide valuable feedback to the ICNP® Programme.

Discussion

ICN aims to expand the number of ICN-accredited ICNP® Centres for Research and Development. The centre members are seen as leaders in the worldwide dissemination and implementation of ICNP® with the ultimate goal of large data sets for research-based health care delivery, decision-making, and policy development.

The compelling need in catalogue development is to foster creativity, collaboration and product development while also ensuring a consistency in quality and representation of nursing practice content. Nurses at the point of care delivery cannot reasonably be expected to use ICNP® as a whole in their work. Rather, nurses are focused on selected client populations and health priorities to include various combinations of health conditions, particular specialties or settings, and nursing phenomena, e.g., pain, self-care.

The process of translation is challenging in that the English ICNP® concepts cannot simply be translated word for word from the source language to the target language. Rather, each concept's meaning and usefulness in the health care environment of the target language must be analyzed and agreed to by the translation team. ICN is establishing guidelines for translation based on existing standards and experience from teams undertaking ICNP® translations.

An established, well-tested process for system maintenance will ensure that sound decisions are made concerning existing or new ICNP® concepts. The process is also designed to integrate new technologies and ontological capabilities in order to remain state of the art for worldwide dissemination and use.

With a unified nursing language system such as ICNP®, the nursing profession is finally able to articulate its practice and generate worldwide data for research-based clinical care, administrative and clinical decisions, and the development of healthcare policy.

Conclusion

ICNP® is a large and robust clinical terminology for nursing. Its contribution to the nursing community and to worldwide healthcare requires formal centralized and decentralized processes. These processes involve the work of hundreds of nurses worldwide, the support of health ministries, healthcare organizations, and collaboration among experts in nursing, terminologies, informatics and technology. Ongoing examination of the ICNP® Programme management and maintenance processes is essential to assuring continuous quality improvement.

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