Résumé

Dresser un portrait fidèle des soins infirmiers : évaluation d'un système de classification

Margaret Ann Kennedy et Kathryn Hannah

Cette étude visait à analyser l'application de la Classification internationale de la pratique en soins infirmiers (CIPSI) au Canada, relativement à l'apport des soins infirmiers aux résultats cliniques. On s'est servi de la version bêta du CIPSI pour codifier des données rétrospectives sur les soins infirmiers extraites des dossiers de patients ayant séjourné aux soins intensifs, été admis aux soins psychiatriques, reçu des soins à domicile ou admis dans un établissement de soins de longue durée. En dépit des variations notables observées dans les pratiques de documentation, on constate une correspondance entre le CIPSI et l'essentiel des données. L'étude souligne les améliorations dont pourrait bénéficier la version bêta, notamment en ce qui concerne la granularité relative à l'usage des termes propres au langage naturel et au langage professionnel. Les auteures font certaines recommandations sur le perfectionnement de l'instrument, fondées sur la recherche axée sur les résultats attribuables aux soins infirmiers.

Mots clés : système de classification des soins infirmiers, résultats cliniques, CIPSI

Representing Nursing Practice: Evaluating the Effectiveness of a Nursing Classification System

Margaret Ann Kennedy and Kathryn Hannah

The purpose of this study was to examine the effectiveness of the International Classification for Nursing Practice (ICNP) in representing the contributions of nursing to health-care outcomes in Canada. The ICNP Beta Version was used to code retrospective nursing data extracted from patient records originating in acute care, in-patient mental health care, home care, and long-term-care practice settings. In spite of wide variation in documentation practices, ICNP achieved matches with the majority of nursing data. The study revealed areas for improvement in the ICNP Beta Version, specifically with regard to granularity related to the use of natural language terms and professional terms. Recommendations for further development through research in nursing-sensitive outcomes are discussed.

Keywords: Nursing informatics, nursing classification systems, nursing outcomes, ICNP

Introduction

For decades, nursing contributions to health-care outcomes have been excluded from the profiles of health services compiled in discharge summaries and in national data repositories. Numerous competing nursing terminologies and classifications have evolved to document and represent nursing practice in response to escalating demands and opportunities for the inclusion of nursing contributions to health care (Hannah, Ball, & Edwards, 2006, p. 174). Indeed, as Clark and Lange (1992) observe, "If we cannot name it, we cannot control it, finance it, teach it, research it or put it into public policy" (p. 109). The proliferation of health information systems and electronic health records present an opportunity for the profession to capitalize on ways to capture and represent nursing. In addition, increasing expectations related to patient safety, professional accountability, and evidence-based practice all point to the need for consistent, comparable nursing data. The Canadian Nurses Association (CNA) ([CNA] 1998, 2006) has identified an urgent need to collect consistent data using standardized languages to aggregate and compare data, as new information systems are implemented in Canada.

The CNA has endorsed the International Classification for Nursing Practice (ICNP) as the "foundational classification system for nursing practice in Canada" (CNA, 2000, p. 3). However, to date no systematic empirical research has been undertaken to determine whether the ICNP can accurately reflect the nature and culture of nursing in Canada across all of the settings in which nurses practise.

This paper presents the results of a study to examine the effectiveness of the ICNP Beta Version in representing nursing practice across multiple Canadian practice settings. This primary study extends Lowen's (1999) focused examination of the ICNP in community health nursing by reflecting the diversity of practice settings in Canadian nursing.

The first section discusses the nature of nursing visibility and the need for nursing contributions to be represented. The second section describes the study methods and results of coding from nurses' records and the ICNP Beta Version. Lastly, the article discusses implications for nursing and opportunities for reciprocal development between the ICNP and Canadian research in nursing-sensitive outcomes.

Literature Review

Nursing Visibility and Invisibility

The visibility of nursing contributions within the health-care system has long been a topic of interest. Sidani, Doran, and Mitchell (2004) postulate that increasing calls for accountability in the health-care system have reinvigorated calls for investigation into nursing contributions. Hannah, Hammell, and Nagle (2005) observe that the Canadian system (Canadian Institute for Health Information, Discharge Abstract database) has a *total absence* of clinical nursing data. The CNA has taken the position that "registered nurses and other stakeholders in health care delivery require information on nursing practice and its relationship to client outcomes. A coordinated system to collect, store and retrieve nursing data in Canada is essential for health human resource planning, and to expand knowledge and research on determinants of quality nursing care.... CNA believes that registered nurses should advocate and lead in implementing the collection, storage and retrieval of nursing data at the national level." (CNA, 2001, p. 4)

The absence of nursing data standards and a common nursing language has long been acknowledged as one reason for the exclusion of nursing contributions from data summaries and a key antecedent to nursing invisibility (CNA, 1993; Graves & Corcoran, 1989; Hannah, 2005; Hannah et al., 2005, Hannah et al., 2006; White, Pringle, Doran, & McGillis Hall, 2005). In Canada, the process of capturing nursing data was initiated in 1992 after the Alberta Association of Registered Nurses

asked the CNA to host a conference intended to generate consensus on a Canadian nursing minimum data set (CNA, 1993). The nursing components of health information are known as HI:NC (Health Information: Nursing Components) and have consensus on five data elements: client status, nursing interventions, client outcomes, primary nurse provider, and nursing intensity (CNA, 2000; Hannah, 2005; Hannah et al., 2005). The CNA describes HI:NC as the "most important pieces of data about the nursing care provided to the client during a health care episode" (2005, p. 5) and recommends that if nurses are to move HI:NC forward, agreement on data standards for each HI:NC data element is essential.

Standardized Nursing Language

The need for standardized nursing data is driven partly by the advent of electronic health records and partly by the widespread emphasis on accountability in patient care. Standardized nursing data also are essential to facilitate accurate communication (CNA, 2001), which is a fundamental requirement of patient safety. White et al. (2005) and White and Pringle (2005) observe that the use of aggregated standardized data can support administrative decision-making for human resource planning as well as benchmarking and performance evaluation.

Conversely, many languages and structures of the various classification systems and taxonomies, while adopted in practice (Englebardt & Nelson, 2002; Hannah et al., 2006; Hyun, 2002), compete for representational advantage relative to nursing documentation. There are a number of obvious arguments against such diversity and competition. These include the difficulties posed when synonymous terms in competing systems conflict with each other, the lack of knowledge/applicability when used in diverse practice settings, and system redundancies and overlap (Englebardt & Nelson).

In 1990, as part of its commitment to advance nursing throughout the world, the International Council of Nurses (ICN) initiated a long-term project to develop an international classification system for nursing practice. The motivation was to support the processes of nursing practice and to advance the knowledge necessary for cost-effective delivery of quality nursing care (Ehnfors, 1999; Nielsen & Mortensen, 1999). The intent was to establish a common nursing language capable of describing nursing care, permitting comparison of nursing data, demonstrating or projecting tendencies in nursing, and stimulating nursing research (International Council of Nurses [ICN], 1993, 1996, 1999). A 1993 draft of the classification system included virtually all of the nursing classification schemes that had been developed internationally. The aim was to provide worldwide input into the construction of a comprehensive scheme that could eventually be used by nurses around the world. The

Alpha Version was released for comment and critique in 1996, followed by a Beta Version in 1999. The Beta 2, published in 2002 (ICN, 2002a, 2003), provided a version for ongoing testing and evaluation. The Beta 2 Version was used for the purposes of this study.

Subsequently, continuing development, revision, and updating based on research and experience with the ICNP resulted in the production of ICNP Version 1, which was released in 2005 at the ICN Congress in Taiwan. This is a mature product with a level of stability that can give vendors the confidence to recommend its incorporation into software products. In addition to maintaining and releasing updated versions of the ICNP, the program established formal evaluation and review processes to promote the maintenance and advancement of the ICNP (ICN, 2002b).

ICNP Beta Version

The ICNP is a classification system for nursing phenomena, actions, and outcomes. Its terminology for nursing practice serves as a unifying framework into which existing nursing vocabularies and classifications can be cross-mapped to enable comparison of nursing data (ICN, 2002b, 2003).

The initial objectives of the system were reviewed by the ICNP Evaluation Committee in 2000. These were revised in accordance with the aims of the ICNP program:

- establish a common language for describing nursing practice in order to improve communication among nurses and between nurses and others
- represent concepts used in local practice, across languages and specialty areas
- describe the nursing care of individuals, families, and communities worldwide
- enable comparison of nursing data across client populations, settings, geographical areas, and time
- stimulate nursing research through links to data available in nursing and health information systems
- provide data on nursing practice in order to influence nursing education and health policy
- project trends in patient needs, provision of nursing treatments, resource utilization, and outcomes of nursing care (ICN, 2002b)

According to the ICN (2001, p. i), the ICNP provides "a terminology for nursing practice that serves as unifying framework" for describing nursing practice and with which other nursing vocabularies and classifications can be cross-mapped. This standardized representation is intended to

enable comparison of nursing data across diverse geographical and practice settings.

Based on a system of three elements — Nursing Phenomena (assessments), Nursing Actions, and Nursing Outcomes, the ICNP is constructed as a multi-axial, combinatorial terminology that allows nurses to form a statement about each nursing element in the system using a series of eight criteria (axes) embedded in each classification. Each nursing phenomenon (nursing diagnosis) must include a term from Axis A, Focus of Nursing Practice, and a term from either Axis B, Judgement, or Axis G, Likelihood (see Appendix 1 for the Nursing Phenomena classification). By stating what must be included, the ICNP sets up a basic representation of nursing, while terms from the other axes may be used to make the diagnosis more complete. For any single diagnosis statement, the system permits the use of only one term from each axis. The Nursing Outcomes statement is also a nursing diagnosis statement, but in the ICNP this is a secondary or tertiary diagnosis that has been reassessed following some type of nursing intervention or action (see Appendix 3). The same protocols regarding Nursing Phenomena construction (required axes) apply to the construction of the outcome statements. The Nursing Actions classification (see Appendix 2) requires a term only from the Action Type axis; all other axes are optional, to expand the nursing intervention as desired. As in the Nursing Phenomena classification, only one term from each axis may be used in any single statement. Table 1 presents the various axes contained in each of the three ICNP elements.

With regard to structural granularity or basic terminological detail, the ICNP comprises a total of 2,420 codes governing every term in the classification system. Each individual label or term is assigned a unique identifying numerical code based on a hierarchical structure. Table 2 shows the distribution of terms and codes in each component of the classification system and illustrates the degree of detail in coding labels and subcategories that the ICNP employs in its effort to represent nursing.

Methods

The question to be answered in this study was *How effective is the ICNP at representing nursing practice across multiple practice settings in Canada?* Effectiveness was gauged in terms of the frequency of coding matches between the ICNP and actual nursing records.

The primary methodological approach was a retrospective qualitative analysis of nursing records. The ICNP was also subjected to structural

Table 1	*Classification Axes and Number of Codes in ICNP Beta Version*	
Element	**Axes**	**Number of individual terms/ codes (organized by category where present)**
Nursing Phenomena or Nursing Outcomes	Focus of nursing practice	Human being (273) Person (250) Group (21) Community (16) Environment (19) Biological environment (7) Human-made environment (70)
	Judgement	334
	Frequency	8
	Duration	2
	Topology	30
	Body site	133
	Likelihood	12
	Bearer	8
Nursing Actions	Action type	170
	Target	Phenomenon (6) Human (31) Body part (133) Non-body part (15) Non-human (3) Artifact (1) Appliance (152) Remedy (16) Condition (2) Signs and conditions (28) Responsiveness (8) Allergy (5) Disease (12) Reflex (3) Measure (6) Health-care structure (1) Activity (2) Habit (14) Pattern (3) Health-care service (4) Examination (9) Prevention (7)

		Therapy (29) Technique (26) Profession (11) Emergency (3)
	Means	263
	Time	22
	Topology	30
	Location	166
	Routes	48
	Beneficiary	8

Table 2	*Coding Labels for Matching Nursing Data Post-extraction to ICNP Codes*
Match	100% match between notation and ICNP term. Example: nursing documentation of a dressing change was coded as "changing" (2A.3.1.9) and the target as "dressing" (2B.2.1.2.2.1(a)
Conceptual Match	No exact ICNP term may exist but conceptually another term or a combination of ICNP terms captures the spirit of the notation. Example: notation recorded a client complaint of a headache that was not a migraine (which did have a code) and no code existed specifically for generalized headaches. This was coded generally for "pain" (1A.1.1.1.13.1). Example: use of packing in wound management with no existing specific ICNP code for packing, leading to code packing as "Mesh Gauze" (2B.2.1.2.2.2)
No Match	ICNP fails to communicate the notation using either an exact term or a combination of terms. Example: absence of a specific code for the term "stat," which is a universally recognized emergency time frame
No Match, No Data	Entries could not be coded because of an absence of data in the record (versus incomplete entries that failed to conform to ICNP standards of providing all required fields).
Match– Conceptual Match	Instances of a notation containing both direct and conceptual matches. This label occurred during the coding phase in response to the nature of some notations.

analysis in terms of clarity, granularity (detail) or comprehensiveness, and application to primary health care through tertiary care settings.

Data on nursing practice were identified from nurses' charting records and then coded to the minimum concepts of Nursing Phenomena, Nursing Actions, and Nursing Outcomes as described by the ICNP. These minimum concepts were then matched to a preferred term with a corresponding numerical code in the ICNP. As Moen, Henry, and Warren (1999) note, the method of using classification systems is based on "matching the understanding of an actual phenomenon to an available term in the classification system" (p. 991). They describe this method as a "one-time data transformation" (p. 991), defined as "lossy" as opposed to lossless data transformation. Here, they are referring to losing some of the essence of the data during a linear transformation to a quantified code or word. Descriptive statistical analyses reflected the frequency of matching ICNP codes to nursing data contained in records across multiple practice domains.

Sample

Purposive sampling was used in the Canadian province of Nova Scotia to obtain client records consisting only of the nursing documentation sections. Devers and Frankel (2000) describe purposive sampling as a "strategy designed to enhance understandings of selected individuals or groups' experience(s) or for developing theories and concepts" (p. 264). They favour the selection of "information rich" cases or sampling cohort(s) that provide the greatest insight into the topic under examination. Miles and Huberman (1994), in contrast, identify typical or "average" representatives of the group as among the best options in non-probability sampling. In keeping with Miles and Huberman's definition of "average" representativeness, the sample comprised 100 anonymous client records to reflect the typical Canadian profile of nursing employment.

This method of research sampling to represent the typical practice setting in Canada was generated in order to facilitate generalizability. The Canadian nursing employment profile (CNA, 2004) indicates that almost 60% of practising nurses work in hospitals/acute care, 12.8% in public health/home care, and 10.9% in long-term care, so that these three domains account for 83.7% of Canadian practising nurses. Consequently, four practice settings — acute medical–surgical care (25%), in–patient mental health care (25%), home care (25%), and long-term care/aged care (25%) — were identified as sources of nursing records and data. The sample is thus reflective of Canadian practice settings (83.7% of working nurses), with 50% of cases in hospital–based care, 25% in long-term care, and 25% in home care. Although the number of research records for

home care and long-term care was slightly higher than represented in the Canadian profile, it was considered important to have an adequate volume of nursing data with which to evaluate ICNP effectiveness in the specific practice setting.

Data Collection

Nurses' narrative records were obtained from the participating institutions in Nova Scotia. These consisted of nursing documentation, from the time of admission to the identified service or unit, and included only the nursing narrative documentation and nursing admission databases. Patient records were collated by the institution, with all identifying patient information removed. Ethics approval was obtained from a District Health Authority, two institutional sites, and a university ethics review panel.

Records were identified by practice setting and number — for example, Acute Care #1, Acute Care #2, Mental Health #1, Mental Health #2. The unit of analysis was the nursing narrative data from five random notations (or "nursing entries") in each patient record. The nursing data were identified and coded according to the ICNP structure. Each notation was assessed for recorded data conforming to the codes for Nursing Phenomena, Nursing Actions, and Nursing Outcomes. A total of 1,500 data elements were assessed, coded, and analyzed.

All data extractions and transformations were implemented manually. To minimize loss of meaning in the transformation process, each notation was considered in its entirety; however, only the actual content documented in the record was coded. Data extractions were assessed for term validity by a health-care researcher experienced in data coding. Interrater reliability was assessed by comparing 10 records for each practice setting; 10 was selected as the reliability sample in each practice setting based on the diversity of terms inherent in both the records and the ICNP Beta Version. Agreement ranged from 95% to 100%, with an average of 97%. Table 1 presents the coding labels for matching nursing data post-extraction with ICNP codes.

Findings

Data Analysis

Although data abstracted from the records were coded as Nursing Phenomena according to the ICNP coding structure, no single record from any practice setting presented a complete nursing assessment or nursing diagnosis in any notation using even the two minimum elements required by ICNP. Thus all data were incomplete from the perspective of the ICNP and represent a limitation of the documentation. This was considered not as a limitation of the ICNP classification system but as

Table 3 *Frequencies for Coding Nursing Data to ICNP Elements*

Matches Between ICNP and Nursing Records

ICNP Element	Coding Label	Acute Care % (n)	Mental Health % (n)	Home Care % (n)	Long-Term Care % (n)	Combined Records % (n)
Nursing Phenomena	Match	36.8 (46)	34.4 (43)	19.2 (24)	48.8 (61)	34.8 (174)
	Conceptual Match	36.0 (45)	40.0 (50)	32.8 (41)	22.4 (28)	32.8 (164)
	No Match	0.8 (1)	1.6 (2)	2.4 (3)	18.4 (23)	5.8 (29)
	No Match, No Data	26.4 (33)	24.0 (30)	45.6 (57)	5.6 (7)	25.4 (127)
	Match–Conceptual Match	0	0	0	4.8 (6)	1.2 (6)
Nursing Actions	Match	44.8 (56)	18.4 (23)	71.2 (89)	38.4 (48)	43.2 (216)
	Conceptual Match	38.4 (48)	44.8 (56)	16.0 (20)	30.4 (38)	32.4 (162)
	No Match	0	0.8 (1)	0	0	0.2 (1)
	No Match, No Data	16.8 (21)	36.0 (45)	8.8 (11)	23.2 (29)	21.2 (106)
	Match–Conceptual Match	0	0	4.0 (5)	8.0 (10)	3.0 (15)
Nursing Outcomes	Match	8.0 (10)	7.2 (9)	4.8 (6)	13.6 (17)	8.4 (42)
	Conceptual Match	18.4 (23)	15.2 (19)	43.2 (54)	7.2 (9)	21.0 (105)
	No Match	2.4 (3)	4.8 (6)	32.8 (41)	0.8 (1)	10.2 (51)
	No Match, No Data	70.4 (88)	72.8 (91)	19.2 (24)	78.4 (98)	60.2 (301)
	Match–Conceptual Match	0.8 (1)	0	0	0	0.2 (1)

inherent in the records themselves, a conclusion that is consistent with the observations of other authors examining nursing documentation (Doran et al., 2006; Parker, Wells, Buchanan, & Benjamin, 1994).

In the absence of data conforming to ICNP standards, and in recognition of the limitation described above, all data available to the researcher in each notation were coded. Likewise, there were many instances where no assessment of any kind was documented and only a Nursing Action was documented or an action with a cursory outcome recorded. In many instances, no nursing outcome of any kind was documented, even following Nursing Actions. Every case in which the documentation provided no written record of an ICNP element, whether nursing phenomenon (assessment), action (intervention), or outcome, was coded as No Match, No Data.

Table 3 presents the frequencies for all practice settings. It reflects the frequency with which the ICNP captured or represented data, and the coding label (whether a direct match, conceptual match, etc.) under which it did so, for each classification element. The results reported in this article are intended as an overview, with examples from each of the various practice settings. A detailed examination of the results specific to each setting would exceed space limitations. Further, in the absence of extensive analytical discussion it is impossible to address the specific differences, in terms of documentation and coding results, among the settings. While there were significant differences in some cases, one cannot attribute these to variations in unit documentation standards or practices, individual practice standards or documentation styles, or institutional documentation practices, as these factors were not the focus of the study. Indeed, exploration of the factors that influence nursing documentation could form an article in itself, as this topic encompasses such current issues as workload, employer expectation, education, and nurses' individual perspectives on documentation.

With the exception of home care, the ICNP achieved either a Match or a Conceptual Match for Nursing Phenomena and Nursing Actions in more than 60% of nursing records except where no data were documented to support analysis. In contrast, no matches were achieved for Nursing Phenomena in almost 20% of long-term-care records and for Nursing Outcomes in more than 32% of home-care records. The lack of documentation in all practice settings resulted in the achievement of matches in only 20% to 50% of records.

Examples of 100% or direct matches in ICNP coding for Nursing Phenomena in acute care included pain, anxiety, restlessness, flatus, cough, crying, nausea, and respirations. Conceptual matches consisted of instances such as "taking very little fluids" being matched to "nutritional intake" and "periods of apnea" being matched to "hypoventilation." The

ICNP consequently has the capacity, either in a direct or in an indirect/conceptual way, to reflect the majority of task-related concerns that command the attention of nurses.

Examples of direct matches in Mental Health included "checks," "encouraged," "documented," and "education." Conceptual matches included entries such as "1:1 session," which was coded as "counselling," "removed to locked seclusion," which was coded as "safety precaution," and "choice to see psychologist given," which was coded as "negotiating."

With regard to Nursing Outcomes, ICNP performance was difficult to assess due to the lack of documentation in acute care, mental health care, and long-term-care records. There were no matches for three outcome notations: "little improvement," "no complaints at present," and "tolerated well" (none of which comply with ICNP guidelines for nursing outcomes). In home-care records, ICNP assessment was not significantly hampered by excessive gaps in the documentation of nursing outcomes. The ICNP was unable to capture outcomes for 41 home-care cases because no codes existed to adequately reflect the nursing outcome (32.8%), with the main challenges to the ICNP being a limited number of recurring themes in the documentation — namely "stable," "comfortable," and "improved." Additionally, no match was obtained for "patient discharged from service" (although it might be argued that this could be coded as a conceptual match for "scheduling").

Combined Records

The overall impression of ICNP performance emerges from an examination of the cumulative records. The combined records for Nursing Phenomena in all nursing domains indicate a cumulative match exceeding 70%. Only 28 cases (5.6%) could not be coded using ICNP terms, and a total of 127 records lacked nursing assessment. The frequencies for nursing actions in combined nursing domains demonstrated a cumulative match profile exceeding 78%. Only two cases (0.4%) did not achieve a match, and 106 cases (21.2%) did not document any nursing actions. Based on this performance, it is reasonable to conclude that if all records provided adequate nursing documentation, the ICNP could represent the majority of Nursing Phenomena (nursing diagnoses) and Nursing Actions. As noted above for individual practice settings, nursing outcomes were conspicuously absent in the documentation and represent a limitation of the data. It is difficult to assess the ICNP in this circumstance; however, it may be projected that, given the ICNP's performance in Nursing Phenomena and Nursing Actions, its performance would improve with greater opportunities for coding adequate nursing outcomes documentation.

Limitations of the ICNP

As the ICNP was applied to nurses' records, it became clear that the Beta Version has a strong biomedicine perspective, as evidenced by its emphasis on the biophysical and task-based coding. Limitations of terms and codes in the ICNP became further apparent during data coding from nursing notes. The list of terms in the ICNP is not exhaustive. Undoubtedly it will continue to expand in subsequent iterations of the system. Table 4 identifies both professional and natural language terms missing from the Beta Version.

Given the incomplete documentation, it is difficult to determine whether there were limitations beyond those identified. In general, the gaps were due to a lack of "granularity" or specific detail at the terminal level, where a descriptive label is needed to accurately capture the actual nursing event (whether assessment, action, or outcome). Each term necessarily "fits" under a specific heading in each axis — for example, pastoral (or spiritual) care is missing from the Profession heading in the Target axis of the Nursing Interventions category.

Discussion

As nurses construct their records they make visible selected nursing elements, while other aspects of nursing become, or remain, invisible simply by virtue of what is and is not documented. In this study, nursing documentation was incomplete according to ICNP standards for Nursing Phenomena, Nursing Actions, and Nursing Outcomes and reflected a task orientation and a biomedical perspective. It may be argued that the absence of any outcome as a consequence of the nurse's professional interventions contributed to the invisibility of nursing. However, records from all practice settings examined in the study exhibited variable documentation gaps, from assessments to nursing actions, and this also contributes to the invisibility of nursing. As indicated earlier, there may be multiple factors affecting this issue. In a study linking interventions to outcomes in acute care, Doran et al. (2006) also encountered incomplete documentation. This lack of documentation influenced the analysis of nursing-sensitive outcomes by limiting the calculation of intervention dose or intensity, but also necessarily omitting nursing interventions when not documented.

The question of how often outcomes should be assessed may also influence future evaluations of ICNP effectiveness. Doran (2004) proposes that outcomes be measured in variable time frames depending on the specific client situation. For example, pressure ulcers would not necessarily require measurement after each intervention, whereas acute symptoms (such as pain) would be assessed frequently. The present study

Table 4 *Professional and Natural Language Terms Missing from ICNP Beta Version*

Nursing Phenomena Classification	Focus of Nursing Practice			
	exudate	sedation	balance	
	depressed	affect	irritable	
	behaviour	psychosis	paranoid ideation	
	suicidal ideation	discharge instructions		
	challenging	self care: social interaction *vs.* isolation		
	homicide	homicidal ideation	orientation	
	stalking	verbal abuse	physical abuse	
	emotional abuse	financial abuse		

Nursing Actions Classification				
Action Type	consulting	receiving orders	orienting	discharging
	contacting/notifying physician	reviewing	reassuring	
Target	packing	subcutaneous catheter	razor/shaver	
	discharge instructions	pastoral care		
	blood sugar/glucose/chem strip			
	physical environment (temperature, noise, lighting, etc.)			
	expand "medicines" to include at least major categories of drugs			
	(antiemetics, beta blockers, hytertensives, antipsychotics,			
	anxiolytics, narcotic analgesics, etc.)			
	electroconvulsive shock therapy			
Means	rectal tube	packing		
	personal belongings	enema		
	antiemetic (see previous comment about "medicines")			
Time	Stat			

evaluated each nursing notation for all three ICNP elements (Nursing Phenomena, Nursing Actions, and Nursing Outcomes). Doran's work offers a new perspective to inform the assessment of outcomes for the ICNP and could be incorporated either into the individual application of the ICNP at a local level or through a formal time-dimensional analysis of outcome evaluation within the tool itself.

When considering the impact of gaps in the ICNP, the risk of misrepresenting or omitting nursing practice escalates. In the case of terminological gaps in the classification system, the nurse or medical records professional entering nurses' records into the ICNP has to find an indirect or incomplete fit with an existing term in the taxonomy, instead of employing the term used by the documenting nurse. Based on the comments of Moen et al. (1999), this incomplete coding process results in the "lossy" data being recorded or data being omitted altogether, if no acceptable option exists, and thus in a skewed representation of nursing practice.

There is another consequence of using a tool that requires application of a single term from each axis and that is essentially a unidimensional, linear descriptive representation of what is necessarily a multidimensional process: it applies a deconstructionist lens to nursing practice. By focusing on task-based activities, the nurse is displaced as the central unifying "text" of nursing and the context in which skilled nursing care is delivered. We are unlikely to see the development of one classification system that fully captures the richness and synchronous complexity of nursing practice. However, Doran's work in modelling the role of nursing in achieving specific outcomes offers a mechanism for enriching the dimensionality of the ICNP (Doran, 2004; Doran et al., 2006). Doran's work might well not only lead to further refinement of coding outcomes subsets but also represent nursing as a dynamic and complex process.

Conclusions

During examination of records across the four practice settings, the fragmented documentation negatively impacted nursing representation and ICNP analysis. In spite of the limitations identified, the ICNP offers nurses a way to document their care more fully and systematically. With progressive implementation of the Pan-Canadian Electronic Health Record, the potential to incorporate the ICNP into system architecture and clinical terminologies offers nursing an opportunity to engage in documentation that encompasses Nursing Phenomena, Nursing Actions, and Nursing Outcomes. More comprehensive nursing representation is possible as research continues to inform various aspects of ICNP development. Nurses need to be active partners in determining how their

profession is best represented and in contributing to ongoing evaluative research using the ICNP across multiple practice settings.

Recommendations

The results of this study lead to a number of recommendations. The greater clarity and comprehensiveness in documenting nursing practice afforded by the ICNP can result in greater recognition of nursing's contributions. Research on ICNP integration into the Pan-Canadian Electronic Health Record could be highly informative in terms of the ICNP's representational impact on a multidisciplinary health record. We also need to further explore the area of nursing-sensitive outcomes and the timing of evaluation. Using Doran's work as a basis, it could be enlightening to explore the ICNP's effectiveness based on variable time dimensions of evaluation. Future research could also serve to generate a pan-Canadian sample of nursing records with which to evaluate the ICNP. The ability to evaluate differences in documentation could then be explored by practice setting as well as by province. Lastly, education in effective documentation and the ICNP should be provided to all nurses. It is imperative that all elements of ICNP — Nursing Phenomena, Nursing Actions, and Nursing Outcomes — be documented. Nurses should be aware that documenting all aspects of professional nursing care, including outcomes, brings significant attention to nurses' contribution to the health-care outcomes of clients. As the Pan-Canadian Electronic Health Record continues to progress, and if the ICNP is progressively integrated into the system architecture, it will be possible to create prompts or reminders for nurses to ensure that documentation is complete. It is through active, engaged partnerships that nurses will benefit most from the ICNP and that documentation will be most effectively developed.

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### Appendix 1   *ICNP Nursing Phenomena Classification*

```
            A★
         Focus of
          nursing
         practice
   H                    B★
 Bearer              Judgement


   G★                    C
 Likelihood          Frequency


   F                    D
 Body site           Duration

            E
         Topology
```
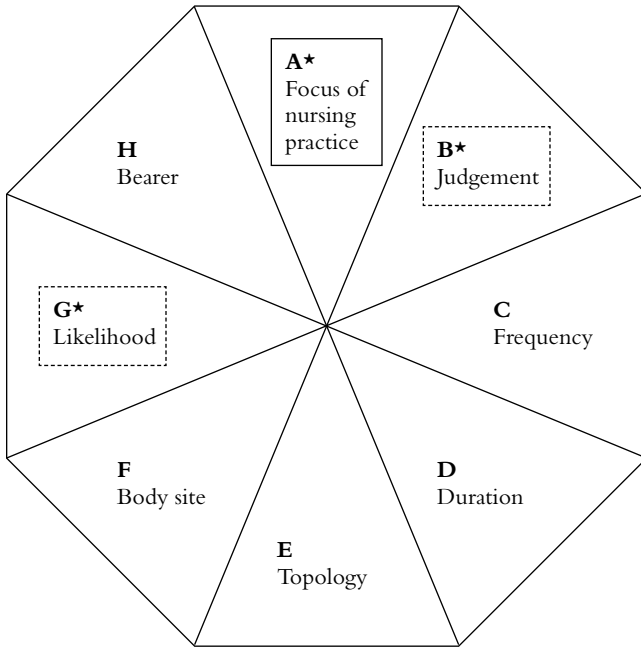
Legend

A – *Focus of nursing practice*	nursing attention (pain, body image, self-care, etc.)
B – *Judgement*	clinical evaluation of the phenomenon, including severity or intensity (enhanced, diminished, etc.)
C – *Frequency*	number of episodes/occurrences within a time frame
D – *Duration*	duration of the phenomenon (acute, chronic, etc.)
E – *Topology*	anatomical location relative to media location or extent of regional involvement (right, partial, total)
F – *Body site*	anatomical location (finger, toe, etc.)
G – *Likelihood*	probability of occurrence (risk)
H – *Bearer*	entity experiencing phenomenon (individual, family, community, etc.)

★ Solid line denotes required field; dotted line denotes required field (use either field).
Source: ICN (2001), p. iii–iv. Permission pending.
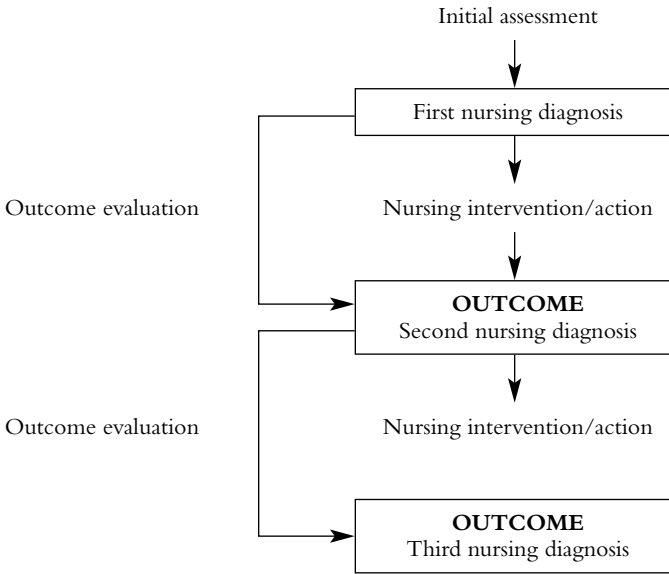

Appendix 2 *ICNP Nursing Actions Classification*
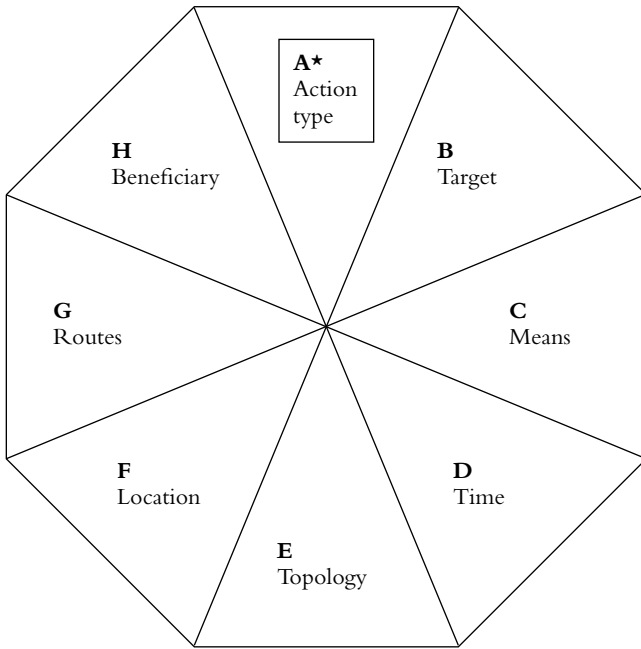
Legend

A - *Action type*	nursing activity (monitoring, teaching, etc.)
B - *Target*	recipient of nursing action (pain, individual, etc.)
C - *Means*	instruments and services used in the implementation of nursing action (dressing, pre-operative instructions, etc.)
D - *Time*	specific points in time and time intervals (pre-operative, postnatal, etc.)
E - *Topology*	anatomical location relative to media location or extent of regional involvement (right, partial, total)
F - *Location*	anatomical location and spatial orientation of nursing actions (head, shoulder, home, community centre, etc.)
G - *Routes*	pathway through which nursing action is implemented (oral, intravenous, etc.)
H - *Beneficiary*	entity benefiting from nursing action (individual, family, community, etc.)

★ Solid line denotes required field.

Source: ICN (2001), p. vii–viii. Permission pending.

Appendix 3 *ICNP Nursing Outcomes Classification*

Initial assessment

↓

First nursing diagnosis

↓

Outcome evaluation   Nursing intervention/action

↓

OUTCOME
Second nursing diagnosis

↓

Outcome evaluation   Nursing intervention/action

↓

OUTCOME
Third nursing diagnosis

Nursing outcomes must:

1. include a term from the Focus of Nursing Practice
2. include a term from the Judgement Axis or the Likelihood Axis
3. include terms from other axes as necessary to expand diagnosis
4. use only one term from each axis
5. be made only after an action is completed.

Source: ICN (2001), p. iii–iv. Permission pending.