Promoting Evidence-Based Care through Nursing Order Sets
Promoviendo el cuidado basado en la evidencia a través de conjuntos de órdenes de Enfermería
Promover o cuidado da saúde baseada em evidências através de conjuntos de critérios de Enfermagem

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Abstract

Introduction: The use of best practice guidelines promotes evidence-based care and quality health outcomes. Traditionally, best practice guidelines were designed for use as a paper-based resource. More recently, best practice guidelines have been developed for use on mobile devices such as smartphones. **Objective:** This reflexive article seeks to document the features and perceived benefits of the RNAO nursing order sets and possible implementation strategies. **Topic:** With the increased use of electronic medical records and hospital information systems in health care, there is now a growing need for best practice guidelines to be seamlessly integrated within these electronic systems. The Registered Nurses' Association of Ontario (RNAO) has recently developed nursing order sets as one strategy to address this need. Nursing order sets facilitate best practice guideline implementation in electronic environments by delineating clear, concise nursing interventions (derived from the best practice guidelines) that can be integrated with an electronic medical record or hospital information system, irrespective of the vendor. **Conclusions:** The integration of nursing order sets derived from RNAO's Best Practice Guidelines within electronic or paper-based systems is one innovative solution to the growing need for evidence-informed decision-making at the point of care. Nursing order sets expedite the knowledge translation process and simplify BPG implementations in electronic environments. *[Wilson R, Bajnok I, Costa T. Promoting Evidence-Based Care through Nursing Order Sets. MedUNAB 2015; 17(3): 176-181].*

Keywords: Evidence-based Practice; Nursing; Knowledge; E-Health; Practice Guideline.

Resumen

Introducción: El uso de las guías de mejores prácticas promueve cuidado basado en la evidencia y calidad en los resultados sanitarios. Tradicionalmente, las guías de mejores prácticas fueron diseñadas para ser usadas como un recurso escrito de forma manual. Más recientemente, las guías de mejores prácticas han sido desarrolladas para el uso en aparatos móviles como teléfonos inteligentes. **Objetivo:** Este artículo reflexivo busca documentar las características y beneficios percibidos del conjunto de órdenes de enfermería de la RNAO y sus posibles estrategias de implementación. **Tema de reflexión:** Con el aumento del uso de registros médicos electrónicos y sistemas de información hospitalaria en el cuidado de salud, hay ahora una creciente necesidad para que las guías de mejores prácticas sean sin lugar a dudas integradas en los sistemas electrónicos. La Asociación de Enfermeras Profesionales de Ontario (RNAO) ha desarrollado recientemente un conjunto de órdenes de enfermería como una estrategia para cubrir esta necesidad.

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Los conjuntos de órdenes de enfermería facilitan la implementación de las guías de mejores prácticas en un ambiente electrónico delineando intervenciones de enfermería claras y concisas (derivadas de guías de mejores prácticas) que pueden ser integradas con un registro medico electrónico o un sistema de información hospitalario, sin importar el proveedor. **Conclusiones:** La integración de los conjuntos de órdenes de enfermería derivada de las guías de mejores prácticas de la RNAO en sistemas a papel o electrónicos, es una solución innovadora para la creciente necesidad de la toma de decisiones basadas en la evidencia al momento de tratar al paciente. Los conjuntos de órdenes de enfermería agilizan el proceso de traducción del conocimiento y simplifican las implementaciones de las guías de mejores prácticas en ambientes electrónicos. *[Wilson R, Bajnok I, Costa T. Promover o cuidado da saúde baseada em evidências através de conjuntos de critérios de enfermagem. MedUNAB 2015; 17(3): 176-181].*

Palabras clave: Práctica Clínica Basada en la Evidencia; Enfermería; Conocimiento; E-Salud; Guía de Práctica Clínica.

Resumo

Introdução: O uso de guias sobre melhores práticas promove o cuidado baseado em evidências e qualidade nos resultados de saúde. Tradicionalmente, as guias de melhores práticas foram elaboradas como recurso a ser usado no papel. Mais recentemente, as diretrizes de melhores práticas foram desenvolvidas para uso em dispositivos móveis, como celulares smartphones. **Objetivo:** Este artigo de reflexão procura documentar as

características e os benefícios percebidos no conjunto dos critérios da enfermagem RNAO e suas possíveis estratégias para colocá-las em prática. **Temas:** Com o uso cada vez mais frequente dos registros médicos eletrônicos e dos sistemas de informação hospitalar no cuidado da saúde, surge uma necessidade sempre crescente para que as guias sobre melhores práticas sejam incluídas nos sistemas eletrônicos. A Organização de Enfermeiras Profissionais de Ontario (RNAO) fez recentemente um conjunto de critérios de enfermagem como estratégia para atender a essa necessidade. O conjunto de critérios de enfermagem facilita a implementação de orientações sobre melhores práticas em um ambiente eletrônico delineando intervenções de enfermagem clara e concisa (derivado de guias de melhores práticas), que pode ser integrado com um prontuário eletrônico ou um sistema de informação hospitalar, independentemente do provedor. **Conclusões:** A integração do conjunto de critérios de enfermagem derivado das Guias sobre Melhores Práticas da RNAO, nos sistemas eletrônicos ou no papel, é uma solução inovadora para a crescente necessidade de tomada de decisões baseadas em evidências na hora de cuidar do paciente. O conjunto de critérios de enfermagem agiliza o processo de tradução do conhecimento e simplifica a implementação das guias sobre melhores práticas em ambientes eletrônicos. *[Wilson R, Bajnok I, Costa T. Promover o cuidado da saúde baseada em evidências através de conjuntos de critérios de Enfermagem. MedUNAB 2015; 17(3): 176-181].*

Palavras-chave: Prática Clínica Baseada em Evidências; Enfermagem; Conhecimento; E-Saúde; Guia de Prática Clínica.

Introduction

To support the transfer of the best available evidence into nursing practice to promote high quality health care and optimal patient outcomes, the Registered Nurses' Association of Ontario (RNAO) is committed to developing, disseminating and actively supporting the adoption and evaluation of Best Practice Guidelines (BPGs) (1). As the professional association representing registered nurses, nurse practitioners and nursing students in Ontario Canada, RNAO's mandate is to advocate for healthy public policy and promote excellence in nursing practice. In keeping with this mandate, RNAO established the Nursing Best Practice Guidelines Program in 1999 with funding from the Government of Ontario (2). In 2011, RNAO launched the Best Practice Guidelines App, bringing the best available evidence to nurses' fingertips, through abbreviated versions of the BPGs developed for mobile devices such as smartphones and tablet computers (3).

Now, with the increased use of electronic medical records and hospital information systems in health care, there is a growing need for BPGs to be seamlessly integrated within these electronic systems (4,5). The RNAO has developed nursing order sets derived from the BPGs as one strategy to address this need.

This reflexive article seeks to document the features and perceived benefits of nursing order sets. It also provides insights into possible implementation strategies to integrate the nursing order sets within the point-of-care activities of frontline nurses.

Nursing Order Sets Defined

Nursing order sets are a set of specific actionable nursing interventions derived from RNAO's BPGs that can be used to formulate a client's plan of care (6). The term "order set" has typically been used in eHealth to define a set of interventions that can be grouped together to be ordered for a patient with a particular condition within a computerized provider order entry system (7). The term was initially used for physicians' interventions but more lately refers to interventions of other health-care providers including nurses (8). The use of nursing order sets enables the translation of evidence into nursing practice by providing clear, concise, actionable evidence-based intervention statements that can be readily incorporated into any clinical context (e.g. acute care, primary care, long-term care, home care or community care) or environment (i.e. electronic, paper-based or hybrid environments that have both electronic and paper processes) (8).

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Table 1. Practice Recommendations Converted To Action-Oriented Nursing Interventions.

Ostomy Care and Management Practice Recommendations	Nursing Order Set Action-Oriented Nursing Interventions
Pre-operative education should be provided to all clients and families requiring ostomy surgery	Teach about basic stoma care and management pre-operatively
Stoma site marking should be performed on all clients undergoing ostomy surgery	Refer to Enterostomal Therapy Nurse for pre-operative stoma site marking
Progressive Muscle Relaxation Therapy (PMRT) should be offered to clients undergoing ostomy surgery as part of routine care.	Promote use of Progressive Muscle Relaxation Training (PMRT) beginning post-op day 5

Table 1 shows three practice recommendations from the RNAO BPG *Ostomy Care and Management* that have been converted to action-oriented interventions in the corresponding nursing order set. The order set identifies the specific nursing intervention and when and how it should be carried out; thus, reducing variation in the care provided. The inclusion of order sets as part of the electronic medical record increases nurses' accessibility to evidence-based interventions to inform their practice, whenever and wherever they need it (6).

Development Approach

RNAO's nursing order sets were developed using a systematic approach shown in Figure 1. Individual practice recommendations and the corresponding evidence published in each of RNAO's BPGs were analyzed to identity the required nursing interventions and pertinent clinical decision support resources for inclusion in the nursing order set.

Each nursing intervention was formulated by experienced nursing informaticians in accordance with two international nursing-specific standards: 1. *Integration of a Reference Terminology Model for Nursing (ISO 18104:2003)* which is published by the International Organization for Standardization (ISO) (9); and, 2. *International Classification for Nursing Practice (ICNP®) 7-Axis Model* which was developed by the International Council of Nurses (10). These interventions were then validated using a collaborative approach involving RNAO's guideline development team of registered nurses and members of the expert panels who developed the RNAO Best Practice Guideline.
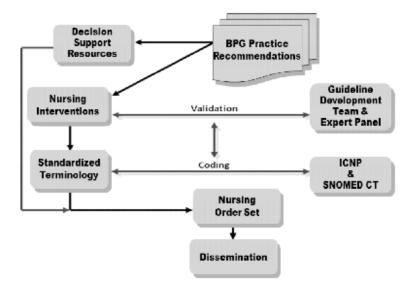

Figure 1. Nursing Order Set Development Life Cycle

A working group comprised of RNAO's expert nursing informatician and expert terminologists from the International Council of Nurses then mapped the standardized interventions to ICNP. The International Council of Nurses developed ICNP as the international standardized terminology language for nursing to describe the work that nurses do (11).

Mapping is the process by which similar or related concepts or terms are connected with each other using a standardized terminology language comprised of a numerical coding system (12). Standardized terminology language allows electronic health-care systems to identify different terminology referring to similar conditions (e.g. HTN, high blood pressure, and hypertensive) as synonyms, and to assign the same numerical code to each of these terms (12). This strategy facilitates the extraction of more accurate data for research, policy and quality improvement initiatives in practice (6).

The nursing order sets are also being mapped to the Systematized Nomenclature of Medicine—Clinical Terms (SNOMED CT) as part of the Harmonization Agreement between the International Council of Nurses and the International Health Terminology Standards Development Organization (IHTSDO) (13). IHTSDO is the not-for-profit association that owns and maintains SNOMED CT, which is recognized as the most comprehensive terminology language in use globally to facilitate the exchange of health information (14).

Key Features and Perceived Benefits

There are a number of key features inherent in the design of RNAO's nursing order sets that make them invaluable for nurses. First, the order sets are comprised of clear, concise, evidence-based nursing interventions. It is reported that it takes approximately 17 years for research findings to become a routine part of a nurse's day-to-day practice (15). By embedding RNAO's evidence-based nursing order sets within electronic medical records and hospital information systems nurses will immediately have access to the best available evidence at their fingertips, to inform their practice.

Second, the order sets are built on the framework of the nursing process. The nursing process was chosen as it mirrors the nurse's typical workflow (16). According to the American Nurses Association, the nursing process is "the common thread uniting different types of nurses who work in varied areas" (17). The interventions in each nursing order set are aligned with each component of the nursing process: assessment, planning, implementation and evaluation. None are pre-selected to support the nurses' clinical decision-making processes.

Third, each intervention is linked to the specific practice recommendations from which they were derived. For example, in the subset of the Reducing Foot Complications for People with Diabetes Nursing Order Set shown in Figure 2, the intervention "assess risk for foot ulceration/amputation at least annually in all clients with diabetes 15 years or older and more frequently for those at higher risk" was derived from practice recommendations 1.0, 1.1 and 2.0 as indicated by the numbers "1.0-2.0" displayed in the column entitled PR#. The actual practice recommendations published in the BPG are:
- Physical examination of the feet to assess risk factors for foot ulceration/amputation should be performed by a health care professional;
- This examination should be performed at least annually in all people with diabetes over the age of 15 and at more frequent intervals for those at higher risk; and,
- Nurses should conduct a foot risk assessment for clients with known diabetes. This risk assessment includes the following: history of previous foot ulcers; sensation; structural and biomechanical abnormalities; circulation; and self-care behaviour and knowledge".

Fourth, the order sets use bold font to easily identify the interventions that are supported by the strongest evidence (e.g. meta-analyses, systematic reviews of randomized controlled trials or randomized controlled trials). This feature is evident in the intervention "Teach about basic foot care" in Figure 2.

Fifth, the nursing order sets include hyperlinks to clinical decision support resources derived from the BPGs, which are called associated documents. A case in point is the associated document, Neurological Assessment Tools, shown in Figure 3. Associated documents might include other types of resources such as algorithms or signs and symptoms of adverse conditions.

Sixth, the nursing order sets incorporate alerts in red font to instruct the nurse on specific practices or factors that might jeopardize patient safety. The example shown in Figure 3 is: "Monitoring vital signs is important to reduce the risk of secondary brain injury and improve outcomes". This content will be particularly useful for nurses using systems with more advanced functionality such as triggers and reminders that can be preprogrammed to generate alerts.

Seventh, as previously mentioned, each intervention in the nursing order sets is formulated using standardized terminology. A key advantage of using standardized terminology language is the fact that nurses do not have to change their vocabulary when using the electronic medical record. The numerical codes (e.g. ICNP or SNOMED CT codes) are stored in tables built into the technology behind the scenes and referenced as needed when data are extracted for analysis or exchanged among health-care facilities. For example, researchers would be able to extract data from
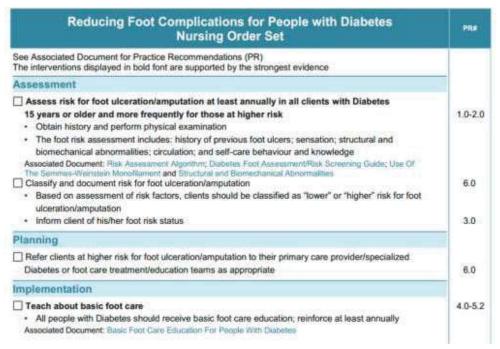
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Figure 2. Subset of Reducing Foot Complications for People with Diabetes Nursing Order Set

Figure 3. Subset of Stroke Nursing Order Set

different health-care agencies that were using ICNP mapped nursing order sets and aggregate the data to perform comparative analyses to establish benchmarks and support continuous quality improvement.

Finally, RNAO's nursing order sets will facilitate the evaluation of BPG implementation by providing a mechanism to link specific evidence-based interventions to clinical outcome measures as is the case with RNAO's Nursing Quality Indicators for Reporting and Evaluation

(NQuIRE®) initiative. NQuIRE is a database of organization-level structural indicators as well as nursing sensitive process and outcome indicators designed to systematically monitor the progress and evaluate the outcomes of implementing the RNAO BPGs. Both sets of indicators are derived from the evidence and recommendations in RNAO's clinical BPGs. The process indicators are aligned with specific interventions in the nursing order sets which allows for data capture to evaluate the outcome indicators.

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Integrating Nursing Order Sets into Nursing Practice

RNAO's nursing order sets are designed to be incorporated into an electronic medical record or hospital information system, irrespective of the vendor. They may also be used in a paper-based or hybrid order-entry system. Since their introduction in 2012, twenty-five health-care organizations across the spectrum of care including primary care, acute care, home health care and long-term care are in various stages of the nursing order set implementation process. Some of these organizations have implemented the nursing order sets as a paper-based tool as a first step to reducing variation in practice before introducing an electronic system. Others have embedded the content directly into their electronic medical record system.

Conclusions

The integration of nursing order sets derived from RNAO's Best Practice Guidelines within electronic or paper-based systems is one innovative solution to the growing need for evidence-informed decision-making at the point of care. Nursing order sets expedite the knowledge translation process and simplify BPG implementations in electronic environments. Health-care organizations across the globe will derive many benefits from implementing these nursing orders; the most significant of which is the ability to link specific interventions to clinical outcomes and extract the data for analysis and continuous quality improvement. In addition, nursing order sets embedded within electronic systems will increase the visibility of nurses' contributions to patient care and health outcomes. For more information on RNAO's nursing order sets, please visit www.RNAO.ca.

Conflict of interests

The authors state that they have no conflict of interest.

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