NNN Language and Evidence-Based Practice Guidelines for Acute Cardiac Care: Retaining the Essence of Nursing

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Abstract:

Multidisciplinary management of the acute cardiac patient, for decades, has been driven by best practices, treatment algorithms, and research-based protocols. As nurses continue to develop and implement evidence-based care, they must ensure that the essence of nursing is not lost in the process. In this article, strategies for the development of evidence-based practice guidelines for acute cardiac patients using standardized nursing language are provided.

Article:

For decades, the gold standard of care for acute cardiac patients has included the implementation of multidisciplinary protocols for the management of events such as myocardial infarction 1 and ST-segment elevation.2 Guidelines for care are often adopted for nurses to ensure that nursing practice reflects current best practices. For example, Albert and Lewis 3 adapted an American College of Cardiology/American Heart Association guideline for the management of ST-segment elevation for nurse leaders and clinicians. However, these guidelines remain focused on nurses' understanding and implementation of medical and pharmacological treatments, and the essence of nursing care is missing.

Evidence-based practice (EBP) is most often supported by medical research findings, specifically randomized controlled trials (RCTs). One challenge for acute cardiac care nurses and critical care nurse leaders is to develop and implement evidence-based care guidelines while still retaining the essence of nursing. This article describes the development of EBP guidelines using standardized nursing language, often referred to as NNN language (Nursing Diagnosis [NANDA-International], Nursing Interventions Classifications [NIC], Nursing Outcomes Classifications [NOC]), for acute cardiac patients and provides recommendations for the future of standardized nursing language. Although the focus of this article is cardiac care, NNN language is suitable for the development of EBP guidelines in any area of critical care.

The rush to implement EBP in nursing is a global phenomenon. One example is the Registered Nurses' Association of Ontario, which has developed many EBP guidelines for nurses, as well as a comprehensive framework and methodology for EBP development.4 Another global leader in EBP is the Joanna Briggs

Institute,[5] an Australian organization specializing in EBP resources for health professionals worldwide.

No doubt, the EBP trend is driven by nurses in practice striving to provide the best care possible, as well as the desire for institutions in the United States to attain and maintain Magnet designation by the American Nurses Credentialing Center. One objective of EBP is the development of evidence-based guidelines for the components of care. For example, the implementation of EBP in critical care settings has included the institution of nursing intervention protocols to prevent the occurrence of ventilator-associated or -acquired pneumonia.[6,7]

Essential steps to implementing evidence-based care include examining the available research on nursing interventions and evaluating the level of the evidence. Melnyk and Fineout-Overholt [8] have developed a level of evidence model that is often used by nurses to evaluate research. The highest level of evidence (level 1) includes a meta-analysis of RCTs, or more than 3 RCTs supporting the effectiveness of an intervention. Criteria for other levels include 1 to 2 RCTs (level 2), 1 controlled trial (level 3), case-control or cohort studies (level 4), meta-synthesis of descriptive or qualitative studies (level 6), and expert opinion (level 7), the lowest level on the scale.

NNN LANGUAGE

Several authors have advocated the use of NNN language in the development of EBP guidelines.[9,10] These authors note that standardized language facilitates evidence-based nursing through promoting consistent documentation of nursing practice in multiple settings, improving communication about patients across disciplines, and aiding in the evaluation of nursing care and patient outcomes. In addition, standardized nursing language can be used in electronic documentation of nursing care, with numerous benefits. For example, nurses will be invested in the direction of patient care documentation, and the nursing research process, specifically data collection, can be enhanced through collection and documentation of standardized data.

The components of NNN language include Nursing Diagnosis (NANDA-International),[11] Nursing Interventions Classifications (NIC),[12] and Nursing Outcomes Classifications (NOC).[13] Each NIC intervention lists specific nursing actions called activities, and each NOC outcome lists specific indicators, which can be measured to document progress toward the desired goal. The use of NNN language ensures that EBP guidelines retain the essence of nursing, rather than resembling standardized physician orders, and they include patient outcomes sensitive to nursing intervention.

The NIC interventions were developed by the Center for Nursing Classification and Clinical Effectiveness at the University of Iowa School of Nursing.[12] Initial development of the NIC interventions began in the late 1980s, and there have been periodic updates. The interventions and nursing activities were derived from

nursing textbooks, nursing care planning guides, and other information systems. The criteria for selection included interventions that were discrete, clear, and comprehensive and represent current nursing practice. The selected NIC interventions were validated by expert nurses using the Delphi technique and focus groups. It is important to note that even though these methods were rigorous, the evidence supporting the nursing interventions was based on expert opinion, which is considered the lowest level of evidence by Melnyk and Fineout-Overholt.[8] Nevertheless, expert opinion is important because it "often fills the gaps in the evidence base."[14](p84)

The Center for Nursing Classification and Clinical Effectiveness also developed the NOC outcomes to evaluate the effectiveness of nursing care. The current 330 NOC outcomes provide measures for NIC interventions and activities. These outcomes are defined and contain specific indicators relevant to patients, families, caregivers, and communities. Each NOC indicator of a patient's current status is measured on a 5-point Likert-type scale (eg, severely compromised to not compromised; never demonstrated to consistently demonstrated). The NOC outcomes are appropriate for nursing and multidisciplinary research, as has been noted by others.[13]

The NOC outcomes were developed and validated through the collaboration of nurses from a wide range of specialties. A 3-phase process began by gathering and labeling nurse-sensitive outcomes, which were validated in the second phase using concept analysis and survey research. The third phase tested the psychometric integrity of the NOC scales using descriptive methods in a variety of clinical settings. Thus, even though the NOC outcomes are research based, they are based on descriptive research, which is only level 6 evidence according to Melnyk and Fineout-Overholt.[8]

NNN Language and Evidence-Based Practice

Even with the limited research evidence supporting NNN language, it is a logical fit for the development of EBP guidelines. For example, the NIC intervention, "cardiac care: acute," provides nursing interventions designed to ensure optimal patient outcomes following an acute cardiac event.[12](p197) Two NOC outcomes, "tissue perfusion: cardiac" and "cardiac pump effectiveness," include indicators to measure the effectiveness of nursing care in achieving patient outcomes after a cardiac event.[13](pp703,211)

The NIC intervention activities and NOC outcome indicators were developed prior to the current EBP movement. Although they may be supported by current research, the level of evidence is not documented in the NIC and NOC texts. In one notable exception, Ackley and colleagues [9] provided the level of evidence for 192 nursing care guidelines based on NNN language. They coordinated the work of 161 authors, who evaluated and synthesized the research literature. Based on the type of research evidence available, the authors determined the level of evidence for each NIC activity, then classified NIC activities as "effective," "possibly effective," "not effective," or "possibly harmful." In addition, some NIC activities were determined effective

but not amenable to research, and these were labeled standards of practice.

Effective

- Perform uninterrupted cardiac rhythm monitoring by a dedicated "monitor watcher." LOE 2
- Monitor multiple ECG leads including V_1 when capability is present to maximize P-wave size, QRS interval, and morphology. LOE 3
- Evaluate and document QT interval corrected for heart rate in one consistent lead at least every 8 h for detection of proarrhythmia. LOE 4
- Implement an open visiting policy. LOE 2
- Initiate patients' education/discharge planning. LOE 1
- Provide music therapy to improve psychological and physiological state. LOE 1
- Ambulate after bed rest for 2 h following cardiac catheterization. LOE 1

Possibly effective

- Monitor ST-segment ischemia for a minimum of 24 h and until event-free for 12-24 h. LOE 3
- Achieve hemostasis following cardiac catheterization using mechanical compression or an arterial closure device. LOE 2
- Offer family presence during cardiopulmonary resuscitation. LOE 5
- Administer supplementary oxygen. LOE 3
- Administer NPO or clear liquids only when the patient is nauseated or the infarction size is large. LOE 6
- Assess anxiety status. LOE 5
- Assess for symptoms of depression. LOE 5
- Increase the level of perceived control through education and counseling that reframes an acute cardiac event from an out-of-control crisis to a chronic condition that can be controlled with adherence to recommended therapy and lifestyle changes. LOE 4
- Take thermodilution cardiac output measurements with the patient in one consistent position using 5 or 10 mL of room-temperature solution. LOE 2
- Provide a quiet, restful environment with uninterrupted periods (>2 h) of sleep. LOE 3

Not effective

- Monitoring hemodynamic status with a pulmonary artery catheter. LOE 1

Abbreviations: ECG, electrocardiogram; LOE, level of evidence; NPO, nothing by mouth.
This table was compiled from the work of Ackley et al.[9(pp132-137)]

TABLE 1. NIC Activities for Cardiac Care: Acute by Moser et al 15

NIC Intervention "Cardiac Care: Acute"

The NIC intervention, cardiac care: acute,12(p197) contains 27 nursing activities that guide nurses to focus on the assessment of physiological function (monitor cardiac rate and rhythm, auscultate heart and lung sounds), bedside nursing interventions (provide small frequent meals), and administration and evaluation of medical treatments (administer and monitor effectiveness of medications and oxygen therapy, monitor laboratory values) to stabilize the patient. Moser and colleagues 15 have reviewed the current evidence that supports nursing activities for the NIC intervention, cardiac care: acute. They grouped activities according to the level of evidence as effective, possibly effective, or not effective (Table 1).

Moser and colleagues 15 also added nursing activities supported by research that were not included in the original NIC activities. These additions include more autonomous nursing actions, and they are also multidisciplinary, holistic, and more comprehensive than the original NIC activities. For example, some address family needs related to open visitation and presence during cardiopulmonary resuscitation. Activities related to patient education, discharge planning, music therapy, and promotion of mental health and sleep are also included. The incorporation of discharge planning early during hospitalization guides nurses to focus on intended patient outcomes and moves the patient toward self-care.

Cardiac Care: Acute NIC Activities From Moser et al[15(pp132-137)]	Nursing Interventions Classifications[12]
Implement an open visiting policy	Visitation facilitation
Initiate patient's education/discharge planning	Discharge planning
Provide music therapy to improve psychological and physiological state	Music therapy
Ambulate following cardiac catheterization	Exercise therapy: ambulation

TABLE 2. Comparison of EBP Supported NIC Activities and Existing NICs

NOC Outcome "Tissue Perfusion: Cardiac"

Just as multiple NIC interventions are useful in providing comprehensive care for the acute cardiac patient, multiple NOC outcomes can be used to measure the effectiveness of nursing care. Two appropriate NOC

outcomes that nurses can use to measure cardiac patients' status are tissue perfusion: cardiac and cardiac pump effectiveness.13(pp703,211) These 2 NOC outcomes share some physiological indicators, including systolic and diastolic blood pressure, apical heart rate, ejection fraction, and cardiac index. The two also share some symptomatic indicators, including angina, diaphoresis, and nausea. Each also has unique indicators that distinguish the 2 outcomes. The indicators for these NOC outcomes are appropriate for nurses to use in documenting patient outcomes because they are supported by many RCTs, as noted by Moser and colleagues.15

Conclusions

Evidence-based practice has become a driving force in healthcare. The "NIC interventions and NOC outcomes can be useful to clinical nurse leaders in providing the foundation for EBP guideline development in all areas of critical care. However, when selecting nursing interventions for these guidelines, the authors recommend the use of a text that provides the level of evidence for nursing interventions, as demonstrated by the work of Ackley and colleagues.9

Some nurse scholars note that one danger of the rush to adopt EBP is that nursing may adopt the medical model and lose the essence of nursing care. Combining NNN language, EBP, and documentation of levels of evidence will aid in establishing sound research support for the care that nurses provide, foster nursing research, and, most importantly, retain the essence of nursing care in EBP.

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