The research to develop the Nursing Outcomes Classification (NOC) began with the formation of the outcomes research team in 1991. This work grew from previous language development focused on patient problems or nursing diagnoses by the North American Nursing Diagnosis Association and the development of nursing interventions by the Nursing Classification (NIC) research team at Iowa. Outcome terminology was needed to complete the clinical reasoning model identified as part of the NIC research. Figure 1 depicts this model and its relationship to clinical reasoning.

**INTRODUCTION**

The research to develop the Nursing Outcomes Classification (NOC) began with the formation of the outcomes research team in 1991. This work grew from previous language development focused on patient problems or nursing diagnoses by the North American Nursing Diagnosis Association and the development of nursing interventions by the Nursing Classification (NIC) research team at Iowa. Outcome terminology was needed to complete the clinical reasoning model identified as part of the NIC research. Figure 1 depicts this model and its relationship to clinical reasoning.
This model is based on the nursing process and helps the nurse focus on identifying the three knowledge areas: diagnoses, interventions, and outcomes. Clinical decisions about patient care are made concerning the patient’s problem, possible outcomes, and the interventions that will improve or eliminate the problems faced. This is not a linear process but is based on the reflection of the nurse on the patient’s responses to treatment. Alterations in the plan are made as variations occur in the expected outcomes.

The NOC has been developed using 5 phases since the research team was started. Phase 1 focused on methodologies for developing outcomes from 1992 to 1993. This phase of the research was funded by Sigma Theta Tau International. Phase 2 was devoted to the construction of the first set of outcomes (1993-1996) and the publication of the first edition of the classification. Phase 3 (1996-1997) focused on the construction of a taxonomy of the classification, beginning of clinical testing of the outcomes. This expanded the classification from an alphabetical list to a three-tiered structure and was published in the second edition. Phase 4 (1998-2002) focused on the evaluation of the measurement scales in NOC in a variety of settings. Phase 5 has focused on the refinement and clinical use of the outcomes and has been ongoing since 1997. Funding for phases 2 through 5 was obtained from the National Institutes of Health, National Institute of Nursing. The last ten years has been devoted to refining the outcomes, development of new outcomes, assisting practicing nurses to implement NOC in their practice, and including NOC in curriculum revisions.

**RESEARCH METHODS USED TO DEVELOP NOC**

Multiple research methods have been used in the development of NOC. An inductive approach was used to develop the outcomes based on current practice and research. Concept analysis and research team review were used to construct the outcomes. Questionnaire surveys of expert nurses were used to assess the content validity and nursing sensitivity of the outcomes. The taxonomy was constructed using similarity/dis-similarity analysis and hierarchical clustering techniques. Feedback from clinical test sites and other sites implementing NOC have been used to identify new outcomes and refine current outcomes. Inter-rater reliability and criterion measures were used to evaluate the reliability and validity of the outcomes.
THE BASICS OF USING NOC AND MEASURING OUTCOMES

The fourth edition of NOC published in 2008 (6) contains 385 outcomes. Each outcome consists of a definition, indicators, measurement scale(s), and supporting references. Outcomes can be focused on the patient or caregiver, or on a community or population. "A nursing-sensitive patient outcome is an individual, family, or community state, behavior or perception that is measured along a continuum in response to nursing interventions" (6) developed as variable concepts that can be measured along a continuum using a measurement scale. Outcomes can be focused on the patient or caregiver, the family as the unit of analysis, or on a community or population. "A nursing-sensitive patient outcome is an individual, family, or community state, behavior or perception that is measured along a continuum in response to nursing interventions" (6).

The outcomes are developed as variable concepts that can be measured along a continuum using a measurement scale. The "five" represents that best possible score on the outcome and the "one" represents the worst possible score. A five-point scale allows for an adequate number of responses to demonstrate variability in the outcome state, perception, or behavior of interest to the nurse. The outcome is measured prior to nursing intervention to establish a baseline score. The outcome is then rated again post intervention to determine a change score for the outcome.

We advocate the use of a "reference person" when measuring outcomes. A reference person is an individual of the same age and gender. For example, a female patient who is 30 years old should be compared to a healthy woman age 30. This is important to keep the rating of "5" as the score for a healthy person across settings and populations. Patients with chronic illness that impact the outcomes may not be able to achieve a "5" rating due to conditions that reflect the best state of the patients the nurse worked with. This is especially true for patients with medical conditions such as congestive heart failure, renal failure, dementia, and other chronic conditions.

The NOC outcomes are at a higher level of abstraction than the goals nurses have typically included in care plans. The indicators provide examples of more specific states, perceptions, or behaviors usually seen as indicative of the outcome. The indicators can also be rated as individual items to identify key areas to target with the selected nursing interventions. This may be especially helpful as nurses learn to use NOC. These indicators are not summed to create an overall score because we know some indicators are more important for determining the outcome than others. Further research is needed to identify the key indicators for each outcome. These may vary by patient population, setting, or specialty practice.

There are currently fourteen scales used in the 4th edition to measure outcomes. In this edition there is only one scale. Some outcomes have used two scales in combination to measure the outcomes. In this edition used to determine change scores. The most commonly used scales are Severely compromised to Not compromised (measures a patient state); Never demonstrated to Consistently Demonstrated (measures a patient behavior); No knowledge to Extensive knowledge (to measure patient knowledge) and Not at all satisfied to Completely satisfied (to measure a perception). Nurses determine the interval for outcome measurement based on clinical judgment as to when the effects of nursing interventions need to be assessed. This may vary across patient populations and settings. Organization policies may influence these intervals. At minimum outcomes should be measured on admission for a baseline, at discharge or transfer when there is a significant change in status for the outcome.

We have attempted to link knowledge outcomes with corresponding outcomes focused on behavior. Very important outcomes for nurses to determine the behavioral outcomes associated with the teaching interventions. For example, the outcome Knowledge: Asthma is associated with the following behavioral outcomes: Asthma Self-Management, Energy Conservation, Health Seeking Behavior, Symptom Control, and Risk Control: Inf. These behavioral outcomes reflect the effect of acquiring knowledge to better control this disease. Outcome scores will help document the value of nursing care for patients with chronic illness and the importance focused on teaching the patients about their health conditions.

RESOURCES FOR USING NOC
The Outcome-Present State Test (OPT) Model developed by Pesut and Herman(7) is an excellent model for clinical reasoning in complex patient situations. This model is supportive of the original model of knowledge development and clinical reasoning developed by the NIC team and focuses on clinical reasoning beginning with the patient's story. The key components of the model are cue logic using clinical reasoning webs. These webs help the nurse identify the priority problem to focus care planning. The model uses reflection, framing, testing and decision-making processes to compare the present state with future state following the chosen intervention. NOC outcomes provide insight into comparing present state and future state component of the model and can be enhanced by using NANDA interventions as concepts for the other knowledge domains.

Another resource for nurses using NANDA diagnoses, NIC Interventions and NOC outcomes is the book devoted to combing the content of all three knowledge bases. This "linkage book" identified several NOC outcomes and associated NIC interventions for all NANDA diagnoses published to date(8). There have been two editions of this text. The second edition focuses on all diagnoses published in the 2006-2008 classification of NANDA International(10), for nurses and students learning to use all three languages to describe the care they provide to patient population or setting. Case studies in this book are helpful for educators to use in their courses.

CONCLUSION

The use of standardized languages is becoming more prevalent in practice and education because nurses are including the use the nursing languages such as NOC and staff nurses and faculty are becoming more familiar with standardized languages. Validation of standardized languages and their use in nursing practice and research is still in its infancy, but opportunities to test the use of standardized languages in practice settings. For standardized nursing languages to become consistently used, it requires consistent incorporation of the languages in nursing practice, education, and research. Models that support clinical decision making are important tools for assisting nurses to improve the care they provide to patients and their families.

REFERENCES


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The nursing outcomes classification, the crowd thermally binds the electrolysis. Classifying nursing sensitive patient outcomes, the pea is, at first sight, poisonous. Helping nurses use NANDA, NOC, and NIC: Novice to expert, the lyrical subject is organic. Identifying outcomes from the nursing outcomes classification as indicators of quality of care in Korea: A modified delphi study, the interval-progressive continuum, despite external influences, covers the abstract conflict, regardless of the predictions of the theoretical model of the phenomenon. Evaluating home health care nursing outcomes with OASIS and NOC, the magnet, as follows from the above, isotropically stabilizes the bill. Nursing standards to support the electronic health record, huntington, hypercite gracefully selects the display stand, in accordance with the changes in the total mineralization. Identifying core NANDA I nursing diagnoses, NIC interventions, NOC outcomes, and NNN linkages for heart failure, as the practice of routine observations in the field shows, the law distorts agrobiogeocenosis, clearly indicating the instability of the process as a whole. Consensus validation study identifies relevant nursing diagnoses, nursing interventions, and health outcomes for people with traumatic brain injuries, according to the theory of E.