

Quality measurement in nursing: Where are we now?

The American Nurses' Association commissioned a review of the nursing quality measurement literature to understand the state of the art of nursing quality measurement and to influence policy makers to include nurse-sensitive quality measures in health care reform legislation. Using both computer and hand searching methods, 158 articles that described measuring nursing care quality were abstracted. Recommendations based on the analysis of literature include implementing the Nursing Minimum Data Set (NMDS), documenting nursing hours per patient and the education level of nurse providers in large data sets, implementing a system for determining appropriate outcomes for patients that is sensitive to each individual's potential for self-care or recovery, and continued research directed toward nurse-sensitive outcomes. Key words: *large data sets, Nursing Minimum Data Set, outcome measures, public policy research, quality measurement, quality of nursing care*

Marilyn J. Rantz, Ph.D., R.N.
Assistant Professor
School of Nursing
University Hospital Professor of Nursing
University of Missouri, Columbia
Columbia, Missouri

IN THIS ERA of health care reform, legislators are particularly interested in taking steps to assure quality of health care services. The legislative interest is driven by consumer fears that quality of care will plummet as cost containment efforts and access changes are made. It is important for nursing to understand the state of the art of nursing quality measurement and to influence policymakers to include nursing-sensitive quality measures in health care reform legislation. The American Nurses' Association (ANA) commissioned a review of nursing quality measurement literature to achieve that end. This article summarizes the findings of the literature review, discusses implications of the current state of the art of nursing measurement, and suggests directions for the future of nursing quality measurement. [Author Note: The study results will be published in their entirety in "Quality: The State of the Art of Nursing Quality Measurement: A Review of Nursing Studies" by the ANA. As this present article was being prepared, the ANA publication was pending.]

METHOD FOR REVIEW OF NURSING MEASUREMENT STUDIES

To assure a comprehensive examination of the nursing literature surrounding quality measurement for the past five years, two approaches were used. First, four computer databases were searched: CINAHL, HEALTH, MEDLINE, and HSTAR. Search strategies included locating articles that used the terms quality, define, or measure in either the title or the abstract.¹ Practice settings were specified as hospitals, home-health, nursing homes, ambulatory care, or long-term care. Other terms used in search strategies were quality assessment, indicators of quality, quality control, and total quality management. Using these search strategies, 180 computer-generated citations and abstracts were reviewed by the researcher. Literature that was judged appropriate for more careful review was retrieved by a research assistant. Criteria used by the researcher in judging which literature was appropriate for further review included if the focus was obviously nursing, if it potentially impacted or measured some aspect of nursing care, or if there was potential that one or more authors of a publication were nurses. Additionally, the researcher retrieved a sample of articles describing current topics or measurement issues across health care settings from the perspectives of other disciplines such as medicine or health services management. This was to assist the researcher to understand the health care measurement context in which nursing quality measurement efforts are occurring today.

The second approach used in the review of nursing quality literature was a hand search. Following the method of Lang, et al.,² a hand search was conducted of the last five years of publications from the following journals: *Journal of Nursing Quality Assurance*, *Journal of*

Nursing Care Quality, *Quality Review Bulletin*, *Journal on Quality Improvement*, *Journal of Quality Assurance*, *Journal of Health Care Quality*, *Nursing Administration Quarterly*, *Journal of Nursing Administration*, *Nursing Management*, and *IMAGE*.

Using both the computerized searching and hand-searching methods, 158 articles that described efforts to measure quality of nursing care were abstracted by the researcher. Only those articles that specifically focused on some aspect of nursing quality measurement and were authored or coauthored by nurses were abstracted. The abstracts were carefully reviewed and categorized across the major health care settings and major focus of the study using an inductive qualitative method for categorization. A total of 135 nursing quality studies were identified and a sample of 23 nursing discussion or process articles about quality measurement and nurse-sensitive outcomes were selected. The abstracts of the quality measurement studies and the sample of discussion or process articles about quality measurement and nurse-sensitive outcomes are included in the ANA document.

RESULTS OF ABSTRACT ANALYSIS

Tables 1-6 summarize the nursing quality measurement studies according to setting and topic. Hospital-based nursing quality measurement studies far outnumber those conducted in other settings ($N = 83$). Studies focused on patient-specific clinical issues have received the majority of attention of nurses across all settings. Another common focus is patient satisfaction and an emerging focus is quality outcomes or indicators. Many of the nursing quality measurement studies were conducted by multidisciplinary teams: this seems to be an emerging pattern in nursing quality measurement.

Table 1. Hospital-based nursing quality measurement studies ($N = 83$)

Topics	Number of studies
Quality outcomes	2
Specific clinical issues	26 (*10 of these)
Falls	5 (*2 of these)
Medication errors/medications	7 (*4 of these)
Laboratory	3 (*3 of these)
Universal precautions	2
Discharge planning and patient teaching	6
Planning and documentation	2
Patient satisfaction	8 (*1 of these)
Organizational factors	8
Case management/critical paths	8 (*2 of these)
Regulatory/large databases/mortality	6 (*1 of these)

* Multidisciplinary teams involved in studies.
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DISCUSSION

Hospital-based and VA Medical Center-based nursing quality measurement studies

Nurses practicing in hospitals have identified a wide range of quality indicators. Patient-sensitive clinical indicators of physiologic status are common.¹ Criteria are carefully defined and written in measurable terms. Important clinical issues that have been studied include medication administration, patient falls, universal precautions, discharge planning, and patient teaching. Multidisciplinary approaches are increasing in

Table 2. VA Medical Centers nursing quality measurement studies ($N = 10$)

Topics	Number of studies
Specific clinical issues	6 (*1 of these)
Advanced directives	1
Documentation	1
Organizational factors	1 (*1 of these)
Mortality	1

* Multidisciplinary teams involved in studies.
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frequency particularly surrounding critical path projects. Nurses are examining organizational factors, the effectiveness of case management, the use of large databases as well as basic criteria of quality such as mortality. The VA Medical Centers have quality measurement studies that are similar to the other hospital-based settings. In addition to those topics, they have other studies that are reflective of the geropsychiatric and the long-term nature of some of the clients they serve.

From the hospital-based and VA Medical Center-based nursing quality measurement

Table 3. Home care nursing quality measurement studies ($N = 19$)

Topics	Number of studies
Quality indicators	6 (*2 of these)
Instruments	7
Discharge planning	3 (*1 of these)
Patient satisfaction	3

* Multidisciplinary teams involved in studies.
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Table 4. Ambulatory care nursing quality measurement studies (N = 9)

Topics	Number of studies
Quality outcomes	1
Instruments	2
Patient teaching	3 (*1 of these)
Case management/ continuity	3 (*2 of these)

* Multidisciplinary teams involved in studies.
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studies reviewed there is an apparent need to expand capabilities for monitoring more nurse-sensitive quality outcomes. If we are to achieve expanding monitoring capabilities, using data elements of the Nursing Minimum Data Set (NMDS) is critical. Those elements of special concern are nursing diagnosis, nursing interventions, nursing outcomes, and nurse provider. These are essential elements for quality measurement and analysis and need to be routinely collected and analyzed. Other essential elements include organization delivery system variables, such as the

Table 5. Long-term care nursing quality measurement studies (N = 9)

Topics	Number of studies
Quality indicators	3 (*2 of these)
Specific clinical issues	4 (*3 of these)
Organizational factors	1 (*1 of these)
Patient satisfaction	1 (*1 of these)

* Multidisciplinary teams involved in studies.
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Table 6. Nursing quality measurement studies that cross all settings (N = 5)

Topics	Number of studies
Quality indicators	1
Nursing minimum data set (NMDS)	3
QA curriculum	1 (*1 of these)

* Multidisciplinary teams involved in studies.
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use of critical paths, the use of case management, or the presence or the absence of an organized nursing delivery system that designates a nurse who is accountable for coordinating patient care. Nursing must focus energy toward assuring these elements are in hospital data systems as well as in regulations that are likely to enforce the collection of these data.¹ Systems in which these data are collected must be designed so that data can be analyzed at the health care provider level as well as in aggregate. Focusing energy on achieving NMDS and nursing delivery system data collection will do much to advance the development of quality measurement in nursing.

Home care

The largest number of home care quality measurement studies identified in this review were related to instruments designed to measure the process of nursing care and the general quality of care in the home care setting. The instruments are multidimensional, evaluating physical, medical management, psychosocial, environmental, human rights, and financial issues. Discharge planning and patient satisfaction as well as other quality indicators have received attention in home care.

A critical issue in the home care setting, as well as other health care settings, is determining what constitutes an appropriate outcome for a client. One particular clinical outcome analysis classifies patients into one of five categories: (1) recovery, (2) self-care, (3) rehabilitation, (4) maintenance, or (5) terminal.³ After determining the outcome classification, nursing staff identify goal attainment at one of three levels upon discharge from service: Level I indicates that all objectives were met; Level II indicates that some were met; and Level III indicates that none were met. Essentially, this clinical outcomes analysis first classifies a client and then grades actual achievement of goals. It monitors patient-sensitive goal attainment while controlling for patient-specific rehabilitation potential. This system, or one addressing both goal attainment as well as rehabilitation or outcome potential, is recommended for industrywide use. Work toward the further development and testing of such a system is highly recommended.

While patient satisfaction is an important outcome measurement across all settings, it is a particular issue in the home care setting. Caregivers are guests in the homes of the patients receiving services. Riley, Fortinsky, and Coburn⁴ advance that the development of an effective quality assurance system in home care requires a fundamental change in thinking about what consumers want, their definition of quality, and their objectives for home care. Evaluating patient satisfaction, involving clients in identifying rehabilitation

potential, and measuring goal attainment are important areas for nurses to focus quality measurement activities.

Ambulatory care and long-term care

The ambulatory care setting and the long-term care setting have received the least attention from nurses conducting quality measurement studies. This most likely reflects the smaller number of nurses practicing in these settings and the lack of nurses in designated quality assessment positions in these organizations. As more nurses become involved in primary care delivery, particularly as advanced practice nurses, it is likely attention will be drawn to the importance of quality measurement studies in ambulatory care. While many nurses have devoted their careers to practicing in the long-term care setting, the publication of nursing quality measurement studies does not indicate that quality measurement has been a major focus. Both settings could greatly benefit from nurse researcher attention.

In ambulatory care settings it will be important that data retrieval mechanisms be in place to evaluate costs and outcomes of care by specific nurse providers. Data specific to the educational preparation of the nurse provider and the role played in delivering primary care and other care in ambulatory care settings will be essential. To facilitate the measurement of nursing quality indicators in long-term care settings, the implementation of the NMDS is imperative. Data regarding nursing diagnosis, specific interventions, and resident outcomes related to those interventions must be collected and analyzed. Long-term care settings could benefit from a system of determining what constitutes an appropriate resident outcome as Harris³ developed in home care. Efforts to develop, implement, and test such a system are needed.

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The use of large data sets to assess quality of care in nursing homes is receiving considerable attention by some researchers. The Nursing Home Case Mix and Quality Demonstration Project, which is in progress at this time, is focused toward that end.⁵ This work uses the nursing home Minimum Data Set (MDS) of resident assessment data as a database to assess quality. Assessment information using the MDS is being collected by nurses annually and quarterly for all nursing home residents in this country. There is a vast opportunity for interpreting the quality of care from these assessment data. Work should continue to determine how to interpret quality from MDS data. To enhance this interpretation, organizational variables such as hours of nursing care, hours of professional staff, educational level of nursing staff, educational level of administrative staff, the use of advanced practice nurses, and the use of other professional rehabilitative staff and medical staff should be collected to correlate with MDS information. Nursing quality measurement studies are sorely needed in this arena.¹

Other issues across settings

In the late 1980s Lohr projected four facets of outcome measurement that warranted further conceptual development and empirical research:

demonstrating linkages between the processes of care and outcomes, assessing medical technologies in ways that will provide useable information about the processes of care, exploring better ways to adjust nonintrusive outcomes for severity of illness, and expanding and improving the set of health status and functional outcome measures presently available.^{6(p.44)}

The National Center for Nursing Research launched a major nursing initiative on outcomes research in May of 1990 when it

convened an expert planning group to discuss patient outcomes and nursing research.⁷ The group coined the term "nurse-sensitive outcomes," meaning those patient outcomes that are sensitive to nursing intervention. Other researchers have cautioned that nursing outcome should rarely be used because the focus of outcomes is on the recipient of care not the provider.⁸ Members of the nursing outcomes research team at the University of Iowa have taken the position that while most patient outcomes reflect the coordinated efforts of a multidisciplinary health care team, identification of nursing-sensitive outcomes will ensure that a wider range of patient outcomes are assessed and allow for the unique contributions of nursing to be recognized.⁹ It is important that outcome work continue and researchers recognize that many patient outcomes are the result of interdisciplinary efforts *in consort* with patients and their support systems.

Linking patient outcomes with nursing diagnoses has also been suggested and explored.¹⁰⁻¹² Marek summarized the possibilities regarding nursing diagnoses and outcomes: "If nursing diagnoses were identified completely during initial assessment of a client, the resolution of nursing diagnoses at discharge would be a powerful measure in evaluating the outcomes of nursing care."^{13(p.6)}

RECOMMENDATIONS

Based on the analysis of nursing quality measurement studies and a review of quality measurement literature, the following recommendations are advanced:

- Implementation of the NMDS elements in all computerized medical records systems is essential. Additionally, these elements should be put forth as essential data to collect as regulations are

written to enforce legislative efforts directed toward quality assurance of health care services.

- Documenting nursing hours of care per patient, the educational preparation of the nurse provider, and the use of assistive personnel in the delivery of care is critical and should be included in all large data sets for all settings.
- A system for determining what constitutes appropriate outcomes for patients that is sensitive to each individual's potential for self-care or recovery is needed across all delivery settings.
- Continued support for research efforts directed toward identifying nurse-sensitive outcomes and the relationship

between nursing diagnoses, interventions, and outcomes is essential.

- Nursing can and should provide leadership in quality improvement efforts. We have a long history in quality measurement that can be invaluable to other members of the health care team.

Nursing has an impressive track record in quality measurement that reflects our professional commitment to our patients and service delivery. Reflecting on the recent efforts in nursing quality measurement can assist in not only achieving better care but also advancing the state of the art of quality measurement. Efforts to assure nurse-sensitive quality measures are included in health care reform legislation are essential.

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