Sustaining health in a new age

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Although many of the changes in today's health care arena in the United States have been beneficial, there continues to be some dissatisfaction with the nation's health care delivery system. Patients and other consumers are overwhelmed by limited access to care, escalating costs, the complexity of the system, and the fragmentation of the care received. Providers are equally overwhelmed by the rise in the acuity and complexity of patient care problems. Health care institutions are pressured by the demands of multiple factors that are perceived to have mutually exclusive needs.

Simultaneously, payers must respond to their constituencies' demands for quality care at a lower cost, as employers and government agencies react to the escalating portions of their dollars that are spent on health care (Brayfield ; Rothe, 2001, p. 182-195). The provision of outcome-oriented, cost-effective health care is no longer a goal. It is a mandate. To accomplish this mandate, the relationship between the costs of care, the quality and desired outcomes of care, and the processes involved in providing care must be reexamined.

The financial aspect of health care has been one of the greatest driving forces in the adoption of the care management model because institutions that have implemented this model have experienced reduced total costs per patient case, decreased patient length of hospital stay, increased patient turnover, and potential increase in revenues. Still, the American health care system is said to have become impersonal, cold, fragmented, expensive, and impractical. Health care workers, government, insurance agencies, and patients are demanding change in today's health care paradigm. Crosby, 1999, p. 28-30).

The central mandate of the new paradigm is to do more for less and achieve equal or better patient outcomes. The new public concern for error and patient safety, together with the continuing “ quest for quality,” creates heightened nursing accountability for the outcomes of patient care, while at the same time the numbers of nurses available to provide that care are decreasing.

The 1996 Institute of Medicine (IOM) study Nursing Staff in Hospitals and “ Nursing Homes: Is it Adequate? noted the paucity of empirical evidence available to support the anecdotal and other informal information that . . . quality of care is being adversely affected by hospital restructuring and changes in the staffing patterns of nursing personnel. Even before the IOM released its findings, the American Nurses Association (ANA) recognized the need to provide a greater amount of evidence-based information. Therefore, ANA initiated a series of activities, which are now referred to collectively as Nursing’s Patient Safety and Quality Initiative.

The initiative is a giant step toward public accountability. It is based on the premise that all nurses must become more knowledgeable about the measurement, improvement, and benchmarking of clinical costs, as well as quality and outcomes specific to nursing. The underlying goal of the initiative is to support the registered nurse’s ability, opportunity, and value as a provider of quality, safe patient care in continuing and new health care delivery systems (Brayfield & Rothe, 2001, p. 202-205).

Of critical importance to the initiative is providing nurses with an appreciation of the underlying definition of quality, which (as it relates to

health care) has evolved over time from the perspective of meeting a minimum standard (through the absence of defects and capacity building) to the current perspective that sees quality as meeting customers' expectations in the delivery of clinically effective, efficient, and affordable health care services. (Needleman, 2002, p. 302).

Nursing Care Report for Acute Care Knowledge of the lack of nursing-sensitive quality indicators, the public perception that adverse occurrences reflected delivery of poor quality nursing care, decreasing levels of satisfaction of both patients and nurses with nursing care being provided, and questions related to the numbers and mix of nursing staff along with those related to staff qualifications provided the underlying rationale for development of the ANA patient safety/nursing quality initiative and the development of the Nursing Care Report Card for Acute Care.

The primary purpose of the initial work reported in the Report Card was to identify relevant nursing-sensitive indicators. In short, to classify indicators that would be sensitive to the input of nursing care. Such a set of indicators has a high degree of specificity to nursing. They also have the ability to be tracked and be widely regarded as having strong links to nursing quality. Finally, they must relate to indicators previously identified as being correlated with high-quality nursing care.

Since the inception of Nursing's Patient Safety & Quality Initiative, ANA has also recognized the need for identification of nursing-sensitive indicators of patient care provided in settings other than acute care. In 1998, an advisory committee charged with the identification of community-based nonacute-

care indicators began work. In February 2000, 10 indicators were named and operationalization work began. The major indicator categories identified are: symptom severity, therapeutic alliance, use of services, protective factors, level of function, and patient satisfaction. (Brayfield & Rothe, 2001, p. 04-207).

As has been stated earlier, there is a worldwide emphasis on measuring and evaluating the quality of health care received by individuals and populations. This demand poses a very difficult problem for those challenged with identifying meaningful and useful measures of quality (Needleman, 2002, p. 303). Health care is generally thought of as a science or, at least, as being knowledge-based. However, a startling estimation is that only about 15% to 20% of all contemporary clinical interventions are supported by objective scientific evidence that they do more good than harm.

In other words, health care interventions overall are based not on what has been scientifically demonstrated to be helpful, but are more often based on the practitioner’s experiences or perceived knowledge (the provider was taught to do it, “ folk lore,” rational thought, etc) (Crosby, 1999, p. 35-38). Years of research into factors influencing health have identified a number of societal, physical, psychological, environmental, and organizational factors.

Therefore, when one attempts to evaluate patient care outcomes, a multitude of factors must be incorporated into any model meant to evaluate patient care and, eventually, the outcomes of care. Considering that health services research has focused on medical care, using primarily reimbursement and use data as proxies for patient care, it becomes evident

that much of “ health care” or contributors to health are omitted from consideration. If one is to assess quality of care, indicator sets must capture the inputs of the full array of patient care providers (Needleman, 2002, p. 11-312).

Since there had been limited focus on such indicator development, the American Nurses Association engaged in research efforts to identify and develop indicators that reflect the contribution of nursing care to patient outcomes and to make the indicators available to the health care community. ANA’s intention is to broaden the sets of indicators included in research and evaluation of health care, through focusing ANA’s research on those factors that demonstrate the nursing profession’s contributions to patient care.

ANA believes the focus of the health care system and health care providers must be kept on the patient and the patient’s family and their needs. From a national perspective, understanding and more completely measuring health care will save money (Brayfield ; Rothe, 2001, p. 210-11). Database Analysis To affirm nursing’s role in emerging health care systems and to advance knowledge in these areas, ANA commissioned a subsequent study.

This study sought to identify relationships between nurse staffing and patient outcomes for a large-scale cross-section of US hospitals and their inpatients. Whereas such relationships may be assumed by some to exist prima facie, little evidence exists that quantifies nursing’s impact or particular outcomes. Today’s pressures for hospital cost control make it imperative to determine whether differences across acute care hospitals in nurse staffing can be

statistically shown to relate to measurable differences in important patient outcomes.

The outcome measures chosen for this study are morbidities that could reasonably be theorized to be preventable in some patients by the amount and skill mix of nursing care provided (Brayfield & Rothe, 2001, p. 214-218). Numerous factors in a hospital's environment are likely to impact the incidence of selected adverse outcomes and patients' lengths of stay (LOS). Case-mix is one so basic to nurse staffing and patient outcomes that it is directly adjusted for in expressing the study's staffing, adverse outcomes rate, and length of stay index variables.

Nursing Intensity Weights (NIW) were used to acuity-adjust the patient mix at each hospital. Two other factors, which have frequently been shown to impact hospital's costs, staffing, and patient outcomes are teaching status (defined herein as primary medical school affiliate, other teaching hospital, or nonteaching hospital) and setting (defined herein a large urban, urban, or rural). These factors were taken into account in the statistical analyses. A number of complications were theorized to be more likely to occur in the absence of sufficient nurse staffing.

A nurse advisory committee was convened to review these complications and their definitions and to explore other complications that might be related to nurse staffing levels. This exercise relied solely on secondary medical diagnoses on patient records that are influenced by a multitude of factors (including the quantity and quality of medical care provided) in addition to nursing care. Nursing diagnoses that are much more likely to relate to nurse

staffing were and are not available for large inter-hospital data sets (Needleman, 2002, p. 320).

Each outcome was measured as an index for each hospital, calculated as actual outcomes divided by case mix adjusted expected outcomes. Since the diagnoses flagged as adverse outcomes may or may not have been iatrogenic outcomes, the average adverse outcome rate for each condition across all patients in a sample was used as an estimate of the normal rate by which these diagnoses could be expected to occur, and indices were calculated so that hospitals above or below this average (once applied to each hospital's mix of patients) were considered to have higher or lower adverse outcome rates respectively.

Simply put, all analyses of the five original outcome measures (length of stay, pneumonia, postoperative infections, pressure ulcers, and urinary tract infections) show both statistically significant equations and relationships in the predicted direction with nurse staffing. Shorter lengths of stay were found to be associated with greater staffing levels (defined as licensed hours per acuity adjusted day). Secondary bacterial pneumonias, postoperative infection, pressure ulcer, and urinary tract infection rates were lower in hospitals with higher registered nurse skill mixes and in some instances with greater staffing levels as well.

Hospital-by-hospital result using all-payer or Medicare-only data was highly consistent, despite the use of different basis patient data sets (Willson, 1999, p. 32-34). To assure quality, safe patient care must be at the center of the health care vortex. The vortex (and thus, the quality and safety of patient

care) is impacted by patient variables including personal and familial characteristics, the acuity of self-defined and other patient-care needs and the level of satisfaction with how patient and family expectations are met.

Also of relevance are staff variables such as the overall staffing plan, the number and mix of staff, nursing care hours per patient day and staff satisfaction. In addition the vortex is affected by contextual factors such as unit size and location and the availability of other necessary resources for providing patient care. Finally, the vortex is impacted by other requirements imposed by state and federal agencies, accrediting bodies and third party payers. The vortex is dynamic and each aspect is fluid over time.

The facets impact upon each other as well as on the patient and are, in turn, affected by the patient. Consideration by nurse administrators of the aforementioned is critical in order to ensure quality through safe patient care-quality that can be documented through use of nursing sensitive quality indicators (Gallagher, 2002, p. 81-85). Implications for Nursing The availability of unit specific data on quality of nursing care offers the nurse administrator the opportunity to evaluate nursing care at a meaningful level for intervention.

Data aggregated to the hospital level results in the loss of the variance among nursing units. In an environment where constant improvement in patient care is a goal, nursing unit level data provide a view of the nursing subsystem amenable to learning and change. When viewing data at the unit level, the opportunity to find units which exceed expectations offers administrators a way to identify units that can be studied to determine what

supports their excellence of care. With such an opportunity, replication of the learning gained can be attempted on other units.

The sharing of professional expertise and knowledge are marks of professionals that can be reinforced through nursing grand rounds, seminars, or mentoring arrangements between units. An environment of continuous learning and improvement can replace one of blame placing as seen in the identification of under performing units (Gallagher, 2002, p. 92-94). The act of providing unit specific data to the specific nursing care unit recognizes that change occurs when those who are providing the care are included in the exploratory and improvement processes. It is also an important recognition that the patient is the focus of the care process.

Health Care and Information Systems Health care improvement has a significant influence on the way how the care is delivered. Changes in the way of health care delivery include support for managed care, case management, quality improvement initiatives, and clinical outcomes management. Those organizations have access to timely, accurate, and complete information will be the survivors in the future health care environment. Intermountain Health Care (IHC) understands the importance of an effective information system as the source for this vital information and includes information systems in its strategic plan for the future (Aiken, 2002, p. 6-57).

Changes in health care affect not only how health care is delivered but also the way nurses practice in an acute care setting. The ideal information system will support these changes to nursing practice. This article examines

the trends occurring in nursing practice in response to changing health care delivery needs and the supportive role that information systems are playing. Although IHC and its clinical information system are used as examples, the trends described here are not unique to IHC. (Aiken, 2002, p. 58). Documentation with the traditional paper medical record has at least five inherent limitations.

Disorganization is the first. Usually when a provider records information on a form, it is generally written in a way that reflects that class of provider's need to view data and information. Other providers may need the same data reported to them in an entirely different way. Proliferation, the second limitation, is the usual response to the first problem. Data are recorded multiple times in multiple formats in an attempt to address the need for each class of provider to see the data in their own way, thus proliferating forms.

McKay-Dee Hospital found that, on its rehabilitation unit, 75% of the data elements found on paper forms were duplicate data elements. Significance, or the distinction of what is significant data from what is normal, is difficult to provide in the paper record and represents the third limitation. Clinicians spend too much time looking through the masses of patient data for the few data elements that may be significant for that patient. Having access to the chart, or co-location, is the fourth limitation of the paper record. There is only one paper record, but many clinicians may need access to that record at the same time.

Finally, the ability to examine health care data with the goal of doing current and retrospective analysis and processing is severely limited with the paper

record. (Crosby, 1999, p. 43-46). A good information system can help improve all five of the limitations of the paper record. The problems of disorganization and proliferation of forms are easily solved with an information system that is integrated and uses a coded database. Laboratory results, vital signs, intake and output, medications given, and other patient data can be viewed in a variety of formats depending on the clinical need.

For example, the shift report only shows those data gathered during the shift or for a 24-hour period. Accumulated data for other time periods can be displayed in the 72-hour report or the 7-day report. Other useful ways of viewing some of the same data elements are the diabetic report (blood glucose levels and insulin given) and the anticoagulation flow sheet (partial thromboplastin time, heparin, platelets, hematocrit, prothrombin time, international ratio, warfarin, and current medication orders). (Aiken, 2002, p. 67-71).