Nursing

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Executive Summary

The overall purpose of the Nursing Report is to introduce and structure a nursing perspective within the Hospital Report Series. The objectives were to:

- identify evidence-based indicators representative of nursing care;
- gain consensus from key stakeholders and leaders in nursing in Ontario regarding the relevance of the proposed indicators for nursing;
- determine the availability of data related to nursing indicators deemed important to measure in order to assess feasibility; and,
- identify whether the balanced scorecard approach is congruent with the indicators identified as essential for capturing a nursing perspective in the Hospital Report Series.

A critical review of the literature, including theoretical and empirical work relevant to report cards, balanced scorecards, and specifically, nursing report cards was undertaken for the development of this Report. Literature examining the concepts delineated in the four quadrants of the balanced scorecard – system integration and change, clinical utilization and outcomes, patient satisfaction, and financial performance and condition was also examined. The specific objectives of the critical review of the literature were to:

- determine the state of the literature related to nursing report cards and/or balanced scorecards;
- determine the state of the literature related to indicator development for clinical outcomes of nursing care, financial indicators of nursing care, system integration and change indicators, and indicators reflecting patient satisfaction with nursing care;
- identify the essential characteristics or attributes defining each indicator;
- determine the extent to which each indicator had demonstrated sensitivity to nursing care;
- identify the evidence that has evolved to support the relevance of each indicator for nursing; and
- assess the congruence of these indicators with the balanced scorecard framework.

The literature suggests that the use of a balanced scorecard framework to incorporate a nursing perspective into the Hospital Report Series is a feasible approach to pursue.

A consultation process involving 139 key stakeholders in the nursing field in Ontario was also conducted. These consultations were designed to enable the research team to obtain input from relevant nursing stakeholders on the proposed indicators that emerged from the literature review. The purposes of the consultation process were to:

- highlight indicators identified from the literature;
- obtain stakeholder input on relevant indicators deemed important for inclusion in the Hospital Report Series;
- determine whether relevant and important indicators “fit” with the balanced scorecard framework for hospital reporting;
• discuss definitions for relevant and important nursing indicators; and
• identify potential data sources for these indicators.

System Integration and Change
For the “System Integration and Change” quadrant, the nursing literature relating to nursing system integration, nursing informatics, retention and recruitment, hospital-community integration, and the attributes of magnet hospitals was reviewed. This, combined with a review of the system integration and change indicators included in Hospital Report 2001: Acute Care and feedback from the consultations, formed the basis for the identification of nursing-specific system integration and change indicators. The indicators included in the review were: clinical information technology, clinical data, intensity of information use, nursing databases, development and use of clinical pathways, coordination of care, nursing-CCAC relationships, nursing-community relationships, continuity of care, strategies for managing ALC patients, and nursing integration and management. These indicators are included in the existing System Integration and Change questionnaire.

Clinical Utilization and Outcomes
For the “Clinical Utilization and Outcomes” quadrant, a critical review and analysis of the literature on clinical indicators of nursing care effectiveness was undertaken under contract for the Expert Panel on Nursing and Health Outcomes, Ontario Ministry of Health and Long-Term Care. That report and feedback from the consultations formed the basis for the identification of nursing-sensitive clinical indicators. The primary clinical outcomes included in the review were functional status, self-care, symptom control, pain, and secondary complications. The literature review provides evidence for a relationship between a number of patient outcomes and nurse staffing in acute care inpatient units. A three-staged approach is recommended for the development of clinical utilization and outcomes indicators that are sensitive to nursing care. This includes: (1) for data that are currently available from the Canadian Institute for Health Information (CIHI), we recommend collecting data on the following secondary complications found to be sensitive to nurse staffing variables: bacterial pneumonia, urinary tract infection, pressure ulcers, and falls that result in a codable injury (e.g. fracture or subdural hematoma); (2) for secondary complications where the evidence does not strongly support a relationship to nursing, we recommend collecting data for the purpose of evaluating the sensitivity to nurse staffing variables, specifically for upper gastrointestinal bleeding and failure to rescue; and (3) we recommend further research to establish the feasibility of collecting data on primary patient outcomes found sensitive to nursing care, specifically for functional status, symptom control, and self-care.

Patient Satisfaction
For the “Patient Satisfaction” quadrant, an analysis of the literature and feedback gathered from nursing stakeholders across the Province suggests that there is room for improvement in how patient satisfaction with nursing care is measured in Ontario hospitals. The current measure fails to capture many of the factors identified by nurses and patients in research on determinants of satisfaction with care. Based on our review, we feel comfortable in recommending that the modified version of the Patient
Judgments of Hospital Quality (PJHQ) be considered as a measure of satisfaction with nursing care for the Hospital Report Series. The indicators included in this reliable and valid instrument are: caring style, respectful manner, attention to patient concerns, participation in care, availability/timeliness of care, information sharing/interpretation of symptoms, competence/skill, pain control, physical care, communication with other providers, education/preparation for discharge, pleasant physical environment, and overall satisfaction. Given the integral role of nursing services in the patient care experience and the consistent link between satisfaction with nursing care and overall patient satisfaction, it is crucial to obtain data which can be meaningfully employed to continuously improve patient care quality in today’s highly charged healthcare settings. A reliable and valid measure of patient satisfaction with nursing care is fundamental to achieving this goal.

**Financial Performance and Condition**

For the “Financial Performance and Condition” quadrant, the literature on financial indicators of nursing care was examined. As well, financial data sources such as the Ontario Hospital Reporting System (OHRS) and the Ontario Case Costing Project database (OCCP) were examined for indicators relevant to nursing care. The indicators identified in this process and feedback from the consultations formed the basis for the identification of nursing-sensitive financial indicators. The financial indicators included in the review were: total nursing hours per inpatient weighted case, individual staff mix hours per inpatient weighted case, Registered Nurse (RN) hours as a percentage of inpatient weighted cases, percent of total inpatient nursing hours utilized for direct nursing care, percent of professional nursing staff hours utilized for RNs, percent of direct nursing care hours utilized for non-professional staff, percent of nursing care hours utilized for full time, part-time and casual nursing staff, percent of staff hours used for orientation, absenteeism, ongoing education, overtime, and agency staff. The literature review provides evidence that supports a relationship between financial nurse staffing indicators and patient outcomes in acute inpatient care. A two-staged approach is recommended for the development of indicators of Financial Performance and Condition. This includes: (1) for data that are currently available from the Ontario Hospital Reporting System (OHRS), we recommend collecting data for these indicators and reporting values for each in the next acute care scorecard; and (2) for data that are not currently available from the OHRS, we recommend that the OHRS Management Information System (MIS) database be enhanced in the future to include relevant variables.

**Summary**

The Nursing Report research team has generated a list of indicators that fit within the balanced scorecard framework utilized for the Hospital Report Series. The researchers recommend that these nursing indicators be integrated into the existing Hospital Report Series for validation and testing, and analysis. We acknowledge other important and complementary initiatives currently underway in the Province. Every effort has been made to avoid duplication of effort or overlap.
Introduction

One of the most significant challenges faced by nurse executives and healthcare leaders today is demonstrating accountability for the quality of care provided to patients. While measures of quality care were always of importance, even greater interest from both the consumers and providers of care has been generated since the emergence of the Hospital Report initiative in Ontario in 1998. The acute care Hospital Reports provide information on the relative performance of hospitals and do not focus on specific providers, such as nursing. Given the significant role that nurses fulfill in the provision of healthcare, the Ontario Hospital Association and the Ontario Ministry of Health and Long-Term Care partnered to fund several new reports in 2001 including a report on nursing. This document outlines the process and methods used by the nursing research team to develop the Nursing Report, a component of Hospital Report 2001: Preliminary Studies.

Objectives

The overall purpose of the Nursing Report is to introduce and structure a nursing perspective within the Hospital Report Series. The objectives were:

- To identify evidence-based indicators representative of nursing care;
- To gain consensus from key stakeholders and leaders in nursing;
- To determine the availability of data related to nursing indicators deemed important to measure in order to assess feasibility; and,
- To identify whether the balanced scorecard approach was congruent with the indicators identified as essential for capturing a nursing perspective in the Hospital Report Series.

Background

Changes in the nursing workforce resulting from hospital restructuring and downsizing in the 1990’s prompted concern from nurses and other healthcare administrators regarding quality of patient care. These concerns have become magnified with the emergence of a nursing shortage and projections of continued problems with nursing resource availability.

Pressures for increased accountability have precipitated the development of numerous healthcare report cards in North America. However, the majority of these initiatives either do not include nursing, or use broad indicators that do not always reflect meaningful representations of the quality of nursing care provided in the system. This Nursing Report provides the opportunity to build on work completed in the broader healthcare sector, and specifically in the field of nursing, and identifies nursing indicators considered feasible for inclusion in the next iteration of the Hospital Report Series.

Scope of Healthcare Delivery for Nursing

Nurses represent the largest single occupational group within the healthcare workforce in Ontario. Nurses are the largest contributors to patient care in all sectors of the healthcare system (e.g. acute care, long-term care, home care). Therefore, their contribution to the quality of patient care is an essential element in healthcare delivery.
Scope of the Report

This Report includes a review and examination of a range of indicators describing nursing performance within the healthcare system and the evidence base to support their use. Because indicators that measure the performance of acute care hospitals are most established, this Report focuses primarily on acute care hospitals and presents system-level indicators covering all quadrants of the balanced scorecard. It is proposed that these indicators be tested and validated next year as part of an iterative process of indicator development. However, the indicators selected are sufficiently generic to be utilized in scorecards for other sectors of the Hospital Report Series in future years to reflect nursing care (e.g. complex continuing care and emergency care).

Related Initiatives Underway

Within the Ontario healthcare environment, a number of initiatives that are complementary to this Nursing Report are currently underway. The Ontario Ministry of Health and Long-Term Care (MOHLTC) has taken the lead on a project designed to identify nursing-sensitive patient outcomes and their attendant nursing inputs and processes that could be entered and abstracted from patients’ charts or collected in other formats. The Nursing and Health Outcomes Project is an initiative that evolved in an effort to produce “health information systems that provide comprehensive and reliable data on nursing services.” This work is expected to allow administrators and researchers to describe the impacts of different nursing interventions and different numbers and types of nurses (Registered Nurses - RNs, Registered Practical Nurses - RPNs) on patient outcomes in the future. The project focuses on acute care, long-term care and community care (home care). To date, work on the project has focused on an analysis of current databases in Ontario for nursing-relevant content, nurse-sensitive patient outcomes and the structures and processes that are associated with these.

A second project currently underway is The Nursing Best Practices Project, led by the Registered Nurses Association of Ontario (RNAO). Launched in November of 1999, this multi-year project is intended to develop best practice guidelines for patient care in five clinical areas. These include gerontology, primary healthcare, home healthcare, mental healthcare, and emergency care. Designed in multiple cycles, each cycle consists of five phases: (a) planning; (b) development; (c) implementation; (d) evaluation; and (e) dissemination. To date, 17 best practice guidelines have been developed. Four of these are being prepared for dissemination, seven are currently being evaluated and six are being prepared for pilot implementation. Best practice guidelines being prepared for dissemination in the fall of 2001 include: (a) promoting continence using prompted voiding; (b) reducing constipation; (c) risk assessment and prevention of pressure ulcers; and (d) risk assessment and prevention of falls in the older adult population. Those currently under evaluation include: (a) enhancing healthy adolescent development; (b) client-centred care; (c) crisis intervention; (d) pain assessment and management; (e) establishing therapeutic relationships; (f) assessment and management of Stage I to Stage IV pressure ulcers; and (g) supporting/strengthening families through expected and unexpected life events. Finally, the best practice guidelines being prepared for pilot implementation include: (a) adult asthma care; (b) breastfeeding best practices; (c) screening for delirium, dementia and depression in older adults; (d) reducing foot complications for people with diabetes; (e) smoking
cessation; and (f) venous leg ulcers. Indicators have been developed for the evaluation of each of the best practice guidelines. These indicators are categorized into a structure, process and outcomes framework. While healthcare organizations are not mandated to participate in this project, a variety of sites have been involved in the pilot projects and the evaluation process. This work has the potential to create a “gold standard” for best practices for nursing in the selected clinical areas.

Along with these initiatives, there are a number of individual hospitals across the Province involved in the development of additional balanced scorecard projects. For example, St. Michael’s Hospital in Toronto, Ontario is involved with the Institute for Work and Health in the development of a healthy workplace balanced scorecard intended to complement the corporate scorecard at the site. A discussion paper has been generated that identifies health-related themes for assessment, potential indicators and data sources.4 In another example from Northern Ontario, the Sault Area Hospitals have developed a corporate balanced scorecard for performance improvement. This format is being followed by different programs within the organization to monitor ongoing performance and improvements. These are just two examples of the various initiatives underway in a number of hospitals across the Province.

Applicability of the Balanced Scorecard Framework

The balanced scorecard framework developed by Kaplan and Norton5 has been utilized by the Hospital Report Research Collaborative as the model for the Hospital Report Series since 1998. The four quadrants included in the balanced scorecard are: (a) clinical utilization and outcomes; (b) financial performance and condition; (c) patient satisfaction; and (d) system integration and change.6 In addition to providing information for quality improvement purposes, these reports demonstrate the accountability of acute care hospitals in Ontario and have been referred to by many as a form of “report card”.

To date, this framework has not been explored by nursing. In 1994, the American Nurses Association (ANA) started the Patient Safety-Nursing Quality Initiative using a multi-pronged approach. A number of separate activities relate to the prototype report card.7 The first of two areas of research in this Initiative is the development, testing, storage, and evaluation of nursing-sensitive indicators. This work is currently being conducted for the ANA by the University of Kansas School of Nursing and Medical Center Research Institute.8 This project pilot tests draft indicators and manages the collection, submission, evaluation, and reporting of hospital-specific data and cohort benchmarks. Currently there are 256 hospitals in 36 states participating in the National Database of Nursing Quality Indicators (NDNQI).8

The second area of research in this Initiative is the exploration of the relationships between nurse staffing and patient outcomes. Data for these studies come from state and Medicare hospital discharge databases purchased by ANA. Potential new indicators as well as existing indicators are evaluated using these data. The ANA reports – Implementing Nursing’s Report Card: A Study of Staffing, LOS, and Patient Outcomes9 and Nurse Staffing and Patient Outcomes in the In-Hospital Patient Setting were published in 1997 and 2000.10 The latter expands upon the former by adding six additional states (total=nine) and one additional year (total=three).
The ANA developed and piloted a prototype for a nursing report card for acute care in the United States (U.S.). In response to changes in the healthcare environment that resulted in decreased numbers of registered nurses, the ANA became concerned with reports of an increased number of incidents threatening patient care quality. The aim of the nursing report card was to explore the nature and strength of linkages between nursing care and patient outcomes by identifying nursing quality indicators. A total of 21 nursing quality indicators were identified for inclusion in a nursing report card using Donabedian's structure, process and outcome quality framework. However, difficulties with measuring and tracking many of the indicators, and an overall lack of available data, resulted in only seven of these outcome indicators being reported in a pilot report card.

The ANA indicators included: (a) total nursing hours per nursing intensity weight; (b) registered nurse hours as a percentage of all nursing hours; (c) length of stay; (d) pressure ulcers; (e) pneumonia; (f) urinary tract infections; and (g) post-operative infections. The pilot study included 502 hospitals from three U.S. states including California, Massachusetts, and New York. These states were selected because data were: (a) available at a reasonable cost; (b) reasonably current; (c) representative of a sizeable percentage of U.S. hospitals, patients and nurses; and (d) representative of regional differences in patient care. Findings indicated that shorter patient lengths of stay were strongly related to higher nurse staffing per acuity-adjusted day; patient outcomes of pressure ulcers, pneumonia, post-operative infections, and urinary tract infections were found to have a statistically significant inverse relationship with registered nurse skill mix (i.e. better outcomes with higher proportions of RNs), and to a lesser extent with nurse staffing per acuity-adjusted day. Finally, nursing intensity weights by DRG were statistically significantly related to differences in nurse staffing ratios per patient day in all three states. This study was conducted using the Hospital Discharge Database that is mandated for hospitals in the targeted states.

In a follow-up report released by the ANA in March 2000, that replicated and extended this work, similar findings were reported. Higher staffing levels (licensed hours per acuity adjusted day) were associated with shorter lengths of stay. As well, patient outcomes, including secondary bacterial pneumonia, post-operative infections, pressure ulcers, and urinary tract infections were reported to be lower in hospitals with higher registered nurse skill mixes, and with greater staffing levels in some cases. Attempts to include additional indicators generated no statistically significant findings. The additional indicators explored included: (a) adverse drug reactions; (b) anoxic brain damage; (c) communicable conditions; (d) complications in the immediate postpartum period; (e) diabetic complications; (f) joint effusion; (g) metabolic imbalances; (h) personal care complications; (i) secondary psychiatric diagnoses; (j) transfusion reactions; (k) trauma in non-trauma patients; and (l) vascular complications. Specific reports of nursing research from the individual states involved in the development of the ANA report card initiatives have been published.

The ANA also funded six unique pilot projects to State Nursing Associations (SNA) in Arizona, California, Virginia, Minnesota, North Dakota, and Texas to provide a basis for developing a National Database of Nursing Quality Indicators (NDNQI). Staff in those projects served as advisors to the Midwest Research Institute and the University of Kansas School of Nursing in developing the National Database, and hospitals participating in the SNA projects were the first members of the database. The aim was to permit
hospitals to benchmark themselves against others across the U.S. in evaluating the relationship between nursing staffing levels and quality of care. Six state nursing associations compiled data on nursing-sensitive quality indicators. These indicators included: (a) nursing hours per patient day; (b) nursing skill mix; (c) pressure ulcers; (d) falls; (e) nosocomial infections; (f) patient satisfaction with pain management; (g) patient satisfaction with educational information; (h) patient satisfaction with nursing care; (i) patient satisfaction with overall care; and (j) nurse staff satisfaction.9

There have been other nursing report cards developed, beyond those produced by the ANA. A number of authors have described the development and implementation of report cards measuring quality of care by divisions of nursing or multi-institutional groups of nurses, patterned after the work of the ANA.16-20

While much of the work on report cards in nursing has utilized the structure, process and outcomes framework, alternatives to this model have also been examined. For example, one of the states involved in the ANA report card used Holzemer's Outcomes Model incorporating the constituents of patient, provider and setting to guide their research.13 As well, the use of the clinical value compass is described for the development of a report card for outcomes management in a Michigan hospital.21

The use of a balanced scorecard framework to incorporate a nursing perspective into the Hospital Report Series is a feasible approach to pursue. Although the majority of work in nursing, to date, has utilized Donabedian's11 framework, both it and the balanced scorecard approach are oriented towards improving the quality of patient care. The indicators used in the ANA Nursing Report Card can be categorized within the four quadrants of the balanced scorecard. Specifically, the system integration and change quadrant could include nurse staff satisfaction. The clinical utilization and outcomes quadrant could include: pressure ulcers, falls, and nosocomial infections. The patient satisfaction quadrant could include: patient satisfaction with educational information, with nursing care, with pain management, and with overall care. Finally, the financial performance and condition quadrant could include nursing hours per patient day and nursing skill mix. The advantage of the balanced scorecard is its underlying objective to facilitate continuous quality improvement through response to the results.

During the development of this Report, consultations were held with nursing representatives from across the Province. Participants in the Consultation Sessions provided support for the use of the balanced scorecard approach for nursing. First, they supported the integration of nursing indicators into various sector reports within the Hospital Report Series, since nursing practice takes place in all sectors of care. Second, participants indicated that Donabedian's11 structure, process, and outcomes approach provides limited information on "processes" of care. It was suggested that this gap could be addressed using a balanced scorecard framework, specifically through the system integration and change quadrant.
Methods

A descriptive analytical methodology was used for the development of the Nursing Report. The research underlying this Nursing Report was conducted in three phases extending over 12 months. The objective of phase one was to conduct a critical review and analysis of the literature on nursing report cards, balanced scorecards in nursing, and the concepts delineated in the four quadrants of the balanced scorecard. As part of this process, we conducted a review of the indicators included in each quadrant of Hospital Report '99 and Hospital Report 2001: Acute Care to determine their relevance to nursing care. Phase two objectives included consultations with stakeholders and leaders in nursing in Ontario. The third and final phase focused on determining the availability of data for the proposed nursing indicators to enable measurement of the indicators at a system level in the next iteration of the Hospital Report Series.

Literature Review

A comprehensive literature review examined theoretical and empirical work relevant to report cards, balanced scorecards, and specifically, nursing report cards. Literature examining the concepts delineated in the four quadrants of the balanced scorecard were examined.

The objectives of the literature review were:

1. To determine the state of the literature related to nursing report cards and/or balanced scorecards;
2. To determine the state of the literature related to indicator development for clinical outcomes of nursing care, financial indicators of nursing care, system integration and change indicators, and indicators reflecting patient satisfaction with nursing care;
3. To identify the essential characteristics or attributes defining each indicator;
4. To determine the extent to which each indicator had demonstrated sensitivity to nursing care;
5. To identify the evidence that has evolved to support the relevance of each indicator for nursing; and
6. To assess the congruence of these indicators with the balanced scorecard framework.


Consultation Process

The consultation process was designed to enable the research team to obtain input from key stakeholders in the nursing field in Ontario on the proposed indicators that emerged from the literature review. The objectives of the consultation process were to: (a) highlight indicators identified from the literature; (b) obtain stakeholder input on relevant...
indicators deemed important for inclusion in the Hospital Report Series; (c) determine whether relevant and important indicators “fit” with the balanced scorecard framework for hospital reporting; (d) discuss definitions for relevant and important nursing indicators; and (e) identify potential data sources for these indicators.

Since the northern region of the Province encompasses a large geographic area, it was difficult for many of the invitees to attend the Consultation Session in person. To ensure sufficient representation from this group, participants were given the option of participating via teleconference. Fourteen (14) of the 23 contributors at the Sudbury session elected to participate via telephone. Included in the extensive list of participants from across the Province were representatives from Ontario hospitals and other healthcare organizations, professional nursing organizations and unions, Community Care Access Centres, community nursing organizations, universities and colleges, the Ontario Joint Policy and Planning Committee, the Canadian Institute for Health Information, the Ontario Ministry of Health and Long-Term Care, and Health Canada (see Appendix A).

During the three-hour Consultation Sessions, stakeholders were given an overview of report cards and balanced scorecards including the emergence, purpose, and state of their development in Ontario. After receiving background information on nursing indicators identified in the literature, the sessions provided a unique opportunity for participants to collaborate and assist in the identification of relevant indicators for inclusion in this Report.

Key Informant Interviews
A number of key informant interviews were also conducted by individual members of the research team related to the specific quadrants. As well, the principal investigator met with the project leaders of related initiatives currently underway to determine the focus of these initiatives and to determine whether there was any overlap in objectives (see Appendix B).

Proposed indicators for the clinical utilization and outcomes quadrant and the financial performance and condition quadrant were reviewed by key members of the Hospital Report Research Collaborative. As well, input from a recognized expert in the field of nursing who has been responsible for developing the nursing methodology for the nursing component of the Ontario Hospital Reporting System (OHRS) was also obtained.

For the patient satisfaction quadrant, a preliminary analysis of concerns identified by nursing administrators with regard to current patient satisfaction instruments was also undertaken. Nine key informants, comprising nursing leaders with extensive knowledge of patient issues related to nursing care from Ontario hospitals and nursing organizations, provided input via personal telephone interviews. Participants were asked to comment on the adequacy of the current Patient Satisfaction tool, the Parkside Quality of Care Monitor, as a measure of satisfaction with nursing care. The same group of experts was also given the opportunity to offer suggestions for improving the measurement of patient satisfaction with nursing care for Ontario hospitals.
Survey

A survey was developed to assess the feasibility of data collection for selected clinical utilization and outcome indicators. Included in the ‘Clinical Utilization and Outcomes Survey’ were questions relating to the following primary outcomes: (a) functional status; (b) self-care status; and (c) symptom control; and the following secondary outcomes: (d) patient falls; and (e) hospital-acquired pressure ulcers. In the interest of limiting response burden, the remaining secondary outcomes proposed in this Report (bacterial pneumonia and urinary tract infections) were excluded from the survey since these indicators have been previously measured in the acute care reports of the Hospital Report Series. The questions comprised simple “yes/no” responses indicating: (a) whether the organization could provide information on the occurrence of each specified indicator for the past year; and (b) whether the information could be provided in an electronic format. One short answer response required respondents to indicate the primary source for information on each of the specified indicators.

Representatives from acute care hospitals in Ontario who attended or were invited to the Nursing Consultation Sessions received the survey. Duplicate representatives from each hospital were excluded. Some participants from the Consultation Sessions could not be reached for various reasons.

Results

System Integration and Change

Indicator Identification

A critical review and analysis of the nursing literature was performed examining system integration and change, nursing informatics, retention and recruitment, hospital-community integration, and the attributes of magnet hospitals (hospitals that have been evaluated as demonstrating good practice in human resource management and report lower than average rates of nursing turnover22). This, combined with a review of the system integration and change indicators included in Hospital Report 2001: Acute Care, formed the basis for the identification of nursing-specific system integration and change indicators for this Report. The indicators included in the review were: clinical information technology, clinical data, intensity of information use, nursing databases, development and use of clinical pathways, coordination of care, nursing-CCAC (Community Care Access Centre) relationships, nursing-community relationships, continuity of care, strategies for managing Alternate Level of Care (ALC) patients, and nursing integration and management. The work that follows is a summary of the literature and evidence on each of the indicators and how each relates to nursing.

Literature Review

It was a challenge to identify indicators that are feasible, relevant to nursing and scientifically sound for inclusion in the system integration and change quadrant of the Hospital Report Series. This is a result of there being few standardized measures applicable to this area that are routinely collected by organizations.
Information Use

1) Clinical Information Technology

As well as delivering and monitoring patient care, nurses generate, integrate and coordinate information.\(^{23}\) There are estimations that nurses generate over 50% of patient care information primarily using paper documentation taking up approximately 30% of nursing time.\(^ {23}\) However, paper documentation is often inconsistent, and the ability to extract information from paper documentation for evaluation and research purposes is difficult.\(^ {24}\)

Most information systems focus on financial and administrative aspects of healthcare with much less focus on automating the clinical side.\(^ {25}\) Presently, nursing is essentially invisible in clinical and administrative databases.\(^ {2,26}\) Existing information systems do not contain data that reflects the delivery and magnitude of nursing practice and the evaluation of nursing care.\(^ {25}\) As health policy is being made based on data originating from comprehensive and advanced health information systems, it is imperative that information related to nurses’ contributions to patient care be collected, stored and easily retrieved.\(^ {28,29}\)

Graves and Corcoran\(^ {30}\) indicate that a nursing information system should: (a) serve as a repository for both demographic and clinical data; (b) allow for documentation of nursing action and patient/client outcomes of care; (c) organize data into information structures for retrieval in different ways depending on the needs of the practitioner; (d) provide access to the body of relevant knowledge; and (e) provide a technology for continuous building of knowledge of the discipline. The availability of nursing data will increase knowledge of the effectiveness of nursing practice and will influence health policy and enable the study of health problems across populations, settings and caregivers.\(^ {25,31}\) Nurses also require access to multi-sectoral information and information on resources specific to their profession because of their scope of practice.\(^ {32}\) Organizational policies and environments are critical in promoting the proficient use of information systems and evidence-based practice.\(^ {32}\)

2) Clinical Data - Collection, Dissemination, and Benchmarking

To measure and evaluate clinical outcomes and the nursing profession’s impact on them, there is a need to access nursing information from the organization’s databases. The collection of primary and secondary outcome data sensitive to nursing care reflects the impact of nursing practice on the quality of patient care, the organization and the healthcare system. Nursing sensitive patient outcomes are defined as “a general patient state, behaviour or perception resulting from nursing interventions.”\(^ {33}\) The literature on nursing clinical indicators was reviewed for this Report and primary and secondary outcomes reflecting nursing practice are recommended in the clinical utilization and outcomes quadrant of this Report. If these measures are to be reported, it will be important for hospitals to collect and disseminate information on these indicators on an ongoing basis.

Benchmarking is a process improvement technique that provides data for organizations to compare performance on specific variables to achieve best performance practices.\(^ {34}\) The addition of primary and secondary patient outcomes related to nursing practice, nursing financial data, and information related to nursing health human resources will facilitate the development of improvement strategies and benchmarking of nursing practice.
3) Nursing Databases and Intensity of Use of Information

The challenge for any nursing database is identifying relevant information that should be included and determining how best to enter the data. Schlehofer identified that nursing clinical databases should collect and record hemodynamic values, document interventions, collect data for quality monitoring, facilitate the daily administrative aspects of nursing, and provide tools to reduce repetitive documentation.

There is a wide body of literature recommending a standardized language for nursing and collection of a minimum data set of uniform indicators that reflects nursing practice and its impact on patient care. Without a standardized language, it will be difficult to compare nursing information data and identify trends within and among organizations. There are classification systems in the United States such as the North American Nursing Diagnoses Association, the Omaha System, the Home Healthcare Classification and the Nursing Intervention/Outcome Classification that have been developed and used for documentation of nursing practice. The Canadian Nurses Association is supporting the International Classification of Nursing Practice (ICNP) as a starting point for classifying and coding nursing data. The three primary elements of ICNP are nursing phenomena (sometimes stated as nursing diagnoses), nursing interventions, and nursing outcomes.

Primary and secondary nursing data need to be collected to reflect the magnitude of nursing practice, allocate nursing resources, create new programs and policies, develop benchmarks and identify improvement strategies within the organization. In Canada, the debate continues regarding the use of standardized language and minimum data sets to document the amount and nature of nursing interventions as well as the quality and the effectiveness of nursing care. Presently, there is minimal and inconsistent nursing data being collected in organizations. Before nursing data can be routinely collected, it is important to gain an understanding of the type of nursing information available within organizations. An assessment of the electronic availability of nursing history, notes and flow sheets is recommended to identify the type and availability of nursing data across Ontario.

Internal Coordination of Care

4) Development and Use of Clinical Pathways

Clinical pathways are developed to improve the quality and efficiency of care for select patient populations, standardize care and reduce costs. Multidisciplinary teams should formulate clinical pathways that emphasize enhanced communication and the coordination of care across health disciplines. A multidisciplinary team also ensures that pathways are evidence-based, comprehensive, practical and used across the organization. Once the pathway has been established, this team should continue to monitor its effectiveness and relevance and make revisions when necessary.

Clinical pathway implementation will not succeed unless the value is evident to members of the healthcare team. As nurses are primarily involved in implementing the clinical pathways, it is imperative that they are part of the development and evaluation team. Nurses also need to champion pathway development and implementation within the organization. Presently, the Hospital Report only measures the participation of physicians in the clinical
pathway process. Nursing participation should also be assessed through nursing indicators.

5) Coordination of Care

With changes in the healthcare system, there is an increased need for the coordination of care across the healthcare continuum among healthcare professionals of different clinical backgrounds and expertise.42 Coordination has been defined as "the conscious activity of assembling and synchronizing differentiated work efforts so that they function harmoniously in the attainment of organizational objectives".42 Research findings indicate that patient outcomes are related to how effectively healthcare organizations coordinate work responsibilities among their staff.42 Changes in the complexity and diversity of the healthcare system create barriers for individuals accessing and moving through the system.44 Nurses play a key role in the coordination of care as they are with patients 24 hours a day in acute care organizations, as well as being the primary caregivers who implement care in community settings. While there is recognition of the importance of coordination of care for positive patient outcomes, there is limited research on how to implement and achieve effective coordination.42

In some healthcare coordination studies, a coordination typology has been used. They identify two major types of coordination: programming and feedback.43 Programming coordination approaches attempt to clarify work responsibilities and activities prior to performing the work and include the use of rules, regulations, schedules, plans, procedures, policies, and protocols to complete specific activities.43 Coordination by feedback involves the exchange of information verbally and in written form amongst staff.43 In healthcare where there is relatively unpredictable and uncertain work that requires flexibility of staff and interdependence among healthcare professionals, Young et al.'s43 findings indicate that utilizing both programming and feedback coordination facilitates the implementation of quality care.

Nurse case management has also been identified as a system to provide coordination of care across the health continuum.45 Case management has been defined as "a systematic approach to identify high risk, high cost patients, assess opportunities to coordinate care, assess and choose treatment options, develop treatment plans to improve quality and efficiency, control costs and manage a patient's total care to ensure optimum outcomes".46 Based on the literature, it is recommended that items be included in the Hospital Report to examine nurses’ participation in programming and the coordination of feedback, and the prevalence of nurses in case management roles.

Hospital-Community Integration

6) Hospital-Community Relationships

Individuals, particularly those with chronic conditions, often receive care from multiple providers and from multiple sites and services.47 However, few organizations have developed a method to assess healthcare needs and improve services and hospital-community integration to meet the needs of individuals, families and communities across the healthcare continuum. Inter-organizational relationships can be defined as the level of coordination, integration and partnership among nurses and healthcare personnel in hospitals, CCACs, and the community in meeting the needs of the individual, as well as assessing and responding to the health needs of the community.48
One of the challenges to coordinating care across the healthcare continuum is that the focus of care is very different. In acute care institutions, the care is high tech, episodic, short term and focuses on illness and cure, while in the community and long-term care sectors, the emphasis is on such factors as promoting health, functional status and well-being. The nurse should be an active participant in joint initiatives with organizations in the hospital and the community to ensure coordination and continuity of patient care and community needs.

One of the key healthcare reforms has been the shift from institutions to community-based care. With shorter hospital stays and the aging population, many patients require assistance from home care programs following discharge. The nursing role in implementing community-based care supports ability, preserves function and meets the needs of the patient, family and the community. In order to achieve this, it is important for nurses to participate in activities such as developing clinical pathways and initiatives that span patient care in the hospital and the community, and improving the transfer of information across organizations.

7) Continuity of Care

Continuity of care across the healthcare continuum can be defined as a series of connected patient care events within a healthcare institution and among a number of organizations. This process occurs over time, requires coordination, involves a variety of people and settings and includes a transfer of information. Sparbel and Anderson performed a qualitative integrated literature review of 38 continuity of care nursing articles and identified that continuity of care is a multi-factorial concept affected by environmental influences.

System issues were identified as impacting on continuity of care. These issues, such as lack of coordination or networking processes; lack of organizational commitment toward continuity; financial considerations such as length of stay, staff availability, and support of staff to promote continuity; professional role differentiation; and assessment of patient needs all influenced the continuity of care.

Patient factors such as physical status, psychosocial situations, and preferences of patients and family also influenced how continuity of care was perceived and implemented. Imperative for satisfactory patient outcomes are the involvement of the patient and their families in the different phases of hospitalization, as well as communication of timely and accurate information and the availability and coordination of community services. More patients are recuperating at home after early discharges from hospital. Families require support as estimations have been made that up to 80% of care is provided by informal caregivers.

Communication between organizations, providers and family/patients, and system issues were identified as key factors that influence continuity of care. The written transfer of information was explored, and while substantial demographic information was provided, there was limited nursing and psychosocial data included. The information provided to patients when being discharged home was found to be characterized by information overload about medications, and inadequacies in relation to the written discharge instructions and orders, reaching agreement on a discharge plan, and physician communication with the patient and family in relation to issues of care.

A limited number of established instruments has been used to examine the
continuity of care. Sparbel and Anderson indicate that the measurement of continuity of care is usually achieved through measuring a related concept such as hospital length of stay, reimbursement, client satisfaction, and patient, family and provider perceptions of discharge planning. The review of the literature suggests that the measurement of continuity of care, and hospital and community integration is complex and ambiguous. Presently, patients are surveyed with eight questions asking for their assessment of the coordination of care while in hospital and during their preparation and discharge from hospital. Based on the literature and the fact that nurses primarily perform the discharge teaching and the care at home, it is recommended that items be included to examine patients’ perceptions of the type of communication transferred and the support they received prior to and after discharge from hospital.

8) Strategies for Managing Alternate Level of Care Patients

The needs of patients designated as “Alternate Level of Care (ALC)” are a challenge for the system and for hospital-community integration. The ALC patient is one who is medically ready to be discharged from hospital, but remains in hospital as she/he is in need of complex continuing care, home care, nursing home care or rehabilitative care but none is available.

One strategy for managing ALC patients is to have a clinical nurse specialist who acts as a liaison between the acute care organization and the community. Patients are identified on admission for their potential need for ALC and the appropriate measures are implemented to minimize their length of stay in acute care institutions. The nurse can assist the patient and family in coping with the illness, assist them in identifying ways to deal with their illness, provide linkage between systems and settings, and decrease the development of negative outcomes as a result of lack of continuity of care.

Health Human Resources

9) Nurse Integration and Management

The generic definition of integration is the extent to which functions and activities are appropriately coordinated across operating units. Three types of integration were identified in the Integration Delivery System Theory developed by Shortell and colleagues. They are clinical integration, provider or physician-system integration, and administrative or functional integration. Clinical integration is defined as the extent to which patient care services are coordinated across the various functions, activities and operating units of a system. Physician-system integration is defined as the physician’s identification with the system; and how they use the facilities and services and actively participate in its planning, management and governance. Functional integration is the extent to which key support functions and activities such as financial management, human resources, and information management are coordinated across the operating units.

Gillies et al argue that the extent to which physicians and functional activities are integrated into the system will facilitate clinical integration. While there is recognized importance for the integration of physicians within the organization, nurse integration and involvement in planning, management and governance are equally important for clinical integration. Nurses make up two-thirds of all health professionals in Canada and are a key resource for meeting
the increased and evolving demands of the changing healthcare system while maintaining quality care and decreasing costs.44,60

In the past decade, the healthcare systems in Ontario and Canada have undergone dramatic changes with technological advances, restructuring and economic demands.61 Research indicates that Canada is entering into a severe nursing shortage. By the year 2011, it has been predicted there will be a shortage ranging from approximately 59,000 to 113,000 nurses.62 In Ontario, researchers from the Nursing Effectiveness, Utilization and Outcomes Research Unit (NEUORU), in examining the impact of losses due to retirements and deaths, estimate, that by the year 2004, there will be a total loss of 9,114 RNs from the approximately 82,000 nurses currently in the workforce (based on College of Nurses of Ontario 2000 supply data). Since hospitals are still the major employers of nurses, the loss for this sector alone is estimated at 4,096 RNs.63

Nursing associations and unions across Canada are also reporting a deterioration in the quality of work life for nurses.60 A recent policy synthesis examining the health of the workplace for nurses identified that key issues for nurses include work pressures, job insecurity, violence and safety in the workplace, lack of support from managers and colleagues, no control over practice and scheduling, and lack of leadership roles for nurses within organizations.64 Quality of work life has been identified as one of the most important components in recruitment and retention strategies.65 Continuity and quality of care are highly dependent on the retention of experienced nurses as well as the recruitment of new nurses.46 The magnet hospital literature identified that organizations that promoted and sustained professional nursing, provided satisfying work environments, recognized clinical expertise, and had accessibility and visibility for nursing leaders were able to attract and retain nurses, and provide exceptional patient care.22,66

The nursing health human resources indicator explores the components of an organization focused on promoting nursing involvement in planning, management and governance. Pinkerton67 identifies that while Shortell’s work was based on physicians, the principles could be applied to other healthcare practitioners in the system. The items in this indicator are based on the attributes identified in the magnet hospital and recruitment and retention literature. Nurse integration within an organization is dependent on a number of factors such as the supply of nurses, their competency and ability to provide quality care, and a supportive work environment. Other factors that influence nursing integration include nursing leadership, professional autonomy, participation in decision-making, entry-to practice standards, support for new graduates, continuing education opportunities, and meaningful careers.60,62,64,65,68-70 Nursing research within organizations is also important as valid and reliable data are needed to track changes and guide the development of workforce policies.71 Job satisfaction is a key component of nursing integration. Nurses’ job satisfaction is important as it has been identified as an important correlate of nurse performance, quality patient care, turnover, and cost savings.72,73

Interviews/Consultation Process

During the Consultation Sessions, several participants indicated that outcomes from many studies lack meaningful results from a quality improvement perspective. Participants agreed that the collection of data on nursing information use is a necessity, but identified concern that the nurse's
The perspective of what this actually means is important and has not been captured in the past. The need for standardized collection of clinical data was stressed as well.

Concerns with current methods for internal coordination of care were also identified in the Consultation Sessions. It was suggested that nurses play the largest role in the development of clinical pathways, although it is difficult to find evidence of nursing involvement in the care process when reviewing the completed documents. Since the development of clinical pathways is time consuming and may require the involvement of advanced practice nurses, some hospital nursing representatives admitted that they do not have the resources to create or update these tools. The value of clinical pathways in the acute care system was questioned, noting that some are not sufficiently flexible or specific. In one session, it was noted that “the process of developing clinical pathways is probably the most important part of the whole thing.”

Participants agreed that capturing the role of nurse integration and management was important for the Hospital Report Series. The group acknowledged a need for measurement of the following items: (a) the presence of supports for nursing (infrastructure, access to managers); (b) nursing research; (c) nursing educators; (d) nursing councils; (e) shared governance; (f) recruitment and retention of nurses; (g) the availability of technology; and (h) training issues.

Indicator Definition and Selection

Clinical Information Technology: The extent to which nurses have access to clinical information (patient admission history, discharge and transfer information, imaging results, lab results, drug profiles, care maps, progress notes) electronically at the bedside and nursing unit.

Collection of Clinical Data: The collection of primary and secondary outcome data that reflect the impact of nursing practice on the quality of patient care and on the system.

Benchmarking of Outcomes: The extent to which organizations are comparing nursing performance on specific variables within the organization and setting realistic goals for improvement by comparing results from hospitals considered to be good performers.

Intensity of Information Use: The extent to which nursing information, based on data obtained through a variety of sources such as patient and nursing surveys, clinical outcome data, and financial data, is shared and utilized internally and externally to allocate resources, create new programs and policies, and identify improvement strategies.

Nursing Databases: The extent to which the nursing history, notes, and flow sheets, as well as nurses’ activities in clinical pathway documentation, are available electronically to healthcare providers within the organization and outside the organization.

Development and Use of Clinical Pathways: The level of nurses’ participation in the development, implementation and evaluation of clinical pathways to promote optimal patient outcomes while controlling and reducing care costs.

Coordination of Care: The nurse’s role within the organization as the coordinator of care to promote positive patient outcomes across the healthcare continuum.

Hospital-Community Integration: The level of coordination, integration and partnership between nurses and healthcare personnel in hospitals, CCACs and the community in meeting the needs of the individual across the healthcare continuum as well as assessing and responding to the health needs of the community.

Continuity of Care: The extent to which internal and external system issues and nurses’ communication with the patient/family and allied health professionals impact on continuity of care.

Strategies for Managing Alternate Level of Care (ALC) Patients: The role of advanced practice nurses and staff nurses in implementing strategies to manage the care of ALC patients and minimize the length of stay in hospitals.

Health Human Resources: Nurse Integration and Management: Nurses’ identification with the organization and how they actively participate in its planning, management and governance.
Considerable discussion throughout the meetings focused on the topics of workload, nurse satisfaction, and nurses’ quality of work life. Some discussion focused on the number of hours that nurses spend doing ‘non-nursing’ related duties. The importance of capturing nurses’ job satisfaction was evident throughout the consultation process, specifically the notion that nurse satisfaction is likely to influence patient satisfaction.

The participants acknowledged that continuity of care can play an important role in patient satisfaction. Shorter patient lengths of stay and the lack of consistency in care providers during a patient’s stay were identified as potential problems to the quality of care made available to patients. It was also noted that filtering ALC patients for research purposes is a challenge. However, it was felt that the reportedly large number of ALC patients in Ontario hospitals merits the segregation. The Consultation Sessions also provided an opportunity for the researchers to prioritize and synthesize the information from the literature review into two key areas for future work.

Clinical Utilization and Outcomes

Indicator Identification

A critical review and analysis of the literature on clinical indicators of nursing care effectiveness was undertaken under contract for the Expert Panel on Nursing and Health Outcomes, Ontario Ministry of Health and Long-Term Care. The report formed the basis for the identification of nursing-sensitive clinical indicators. The primary clinical outcomes included in the review were functional status, self-care, symptom control, pain, and secondary complications. What follows is a synopsis of the evidence for each outcome.

Literature Review

Functional Status

Functional status has been suggested as an outcome of care for staff nurses and advanced practice nurses. Several studies have documented the effect of nursing interventions on functional status outcomes. These findings are supported by a meta-analysis of the literature.
In the early literature, discussion of functional status focused on an individual’s ability to engage in activities of daily living (ADL), such as bathing, dressing, feeding, and motor performance. In the middle to late 1980s, as providers became more focused on shorter hospital stays and outcomes which reflected an individual’s ability to be at home, measures began to emerge addressing instrumental activities of daily living.

**Sensitivity to Nursing Care**

Thirty empirical studies were reviewed that included functional status as an outcome variable, of which there were seven randomized controlled trials. The weight of the evidence from the clinical trials did not support functional status as an outcome of nursing care; however, there are several reasons for not dismissing it as a possible quality indicator at this time. First, the nursing interventions in these trials varied considerably in design, dose, setting, and patient populations. It is possible that the nursing intervention was not sufficiently strong or properly designed and implemented, to test the impact of nursing on patients’ functional health status. Second, there is evidence from non-experimental studies to suggest a relationship between nursing variables and functional health outcomes that warrants consideration. Six studies employing quasi-experimental designs reported significant relationships between a nursing intervention and functional health outcomes. Three of these demonstrated an improvement in functional health outcomes following training for unit nursing staff directed to improving their practice or supporting nursing practice through the introduction of an advanced practice nurse. Two studies demonstrated a relationship between improved functional health outcomes for patients on units where there was evidence of quality nursing practice and where there was a dedicated geriatric unit. Another set of studies examined the relationship between patients’ functional status and nursing inputs, such as nursing diagnoses/nursing intensity, the amount of care received from registered nurses and nurse staffing.

**Approaches to Measurement**

The majority of studies reviewed utilized a standardized instrument, based on patients’ self-report, to measure functional status outcomes. The most frequently used instruments in order of magnitude were the Katz Activities of Daily Living Scale, the Medical Outcome Study Short Form (SF-36), the Older Americans Resource and Services Questionnaire, the Barthel Index, and the Functional Independence Measure (FIM instrument). Of the studies employing the SF-36, only one found a significant relationship between the SF-36 and nursing variables. All five studies that used the Katz Activities of Daily Living scale found sensitivity to nursing practice variables. None of the studies using the Older Americans Resource and Services Questionnaire demonstrated sensitivity to nursing variables, and only one of the studies using the Barthel Index demonstrated sensitivity to nursing care. The two studies that used the FIM instrument found a significant relationship between FIM instrument scores and nurse staffing variables.

Two interesting measures have recently been developed that are specifically designed to assess patients’ functional status outcomes following nursing care within a hospital setting. Both measures are based on data collection by observation and/or chart extraction. These are the Quality Audit Marker (QAM) and the Health Status Outcomes Dimensions (HSOD). The development of the HSOD was based on the QAM.
Based on this empirical evidence, it would appear that the studies that used the Katz Activities of Daily Living scale found stronger relationships with nursing care variables than the studies that used measures that assessed broader dimensions of functioning. The Katz Activities of Daily Living scale and the FIM instrument assess patients’ engagement in activities of daily living, such as self-care. These types of functional activities have been found to be associated with nursing interventions, nursing care effectiveness, and coordination of care in acute care hospital settings. Several important issues concerning the assessment of functional status emerged from the literature review. These are summarized below based on the report by Irvine Doran et al.

- Nurses’ and patients’ perspectives on the patients’ levels of functioning are incongruent; nurses tend to underestimate the functional status of patients.
- While for many patient populations, improvements in functional status constitute a good outcome, this is not the case for all patient populations. It may be more appropriate to focus on the prevention of decline for some patient populations for whom restoration of complete independence is not possible.
- Kaufert noted that when assessing functional status, it is important to account for the fact that someone may successfully use an assistive device or helper.
- It is important to account for the possibility that ‘subjects being assessed by clinicians who are directly involved in their treatment may attempt to maximize secondary gains by over- or under-representing their level of disability’.
- It is important to consider cultural expectations about the roles of men and women when assessing functional status.
- Instruments measuring instrumental activities of daily living may be less sensitive to change than instruments measuring activities of daily living, when assessing functional status in institutional settings.
- Burns, Moskowitz, Ash, Kane, Finch, and Bak evaluated the congruence between self-report and medical record functional status and found the amount of missing medical record functional status data varied by function, from 20% for bathing to 50% for dressing.

Based on the analysis of the empirical and theoretical literature, Irvine Doran recommended that functional status be explored as a patient outcome indicator for nursing practice but that research is needed to evaluate the most reliable, valid, and practical approach for assessing functional status outcomes for hospitalized patient populations.

**Self-Care**

Sidani reviewed the literature on self-care for the Expert Panel on Nursing and Health Outcomes. Self-care is viewed as a philosophical orientation underlying nursing that distinguishes it from other disciplines. Self-care has been conceptualized as a process variable. Simultaneously, self-care has been conceptualized as an outcome of nursing care. This dual conceptualization of self-care as a process and an outcome variable has led to some confusion in research studies that examined the contribution of nursing care to self-care.
A total of 23 studies were reviewed that investigated engagement in self-care practices as an outcome of nursing care. Almost all studies aimed at evaluating the effectiveness of educational/psychoeducational interventions provided by nurses. The specific actions measured varied across the studies, depending on the focus of the intervention and on the target population.

When reviewing only methodologically sound studies (i.e. no or limited threats to validity), the results indicated that educational/psychoeducational interventions are effective in improving the individual’s performance of self-care activities. This conclusion was supported by the results of meta-analyses.

The instruments used to measure self-care in the literature differed. Most were developed for the particular study, addressing the specific self-care behaviours of concern. The literature and clinical experience suggest that the expected self-care behaviours vary across client/patient populations, and across healthcare settings. This variability in the expected self-care behaviours accounts for the large number of instruments found.

The following recommendations were proposed by Sidani for the measurement of self-care:

- It is important to assess self-care behaviours comprehensively but differently, based on the target population.
- To be consistent with the conceptualization of self-care behaviours presented in the theoretical literature, the following domains of self-care behaviours should be addressed: health promotion/maintenance, recognition and monitoring of changes in functioning, selection and application of appropriate strategies for managing these changes, and coping with/adjusting to long-term changes. All these domains could be assessed in patients presenting with an illness, whether chronic or acute.
- The assessment of self-care behaviours could be confined to those reflective of health promotion/maintenance for healthy persons. While none of the reviewed instruments adequately reflects all these domains, there were some that seemed to fit closely.

Sidani concluded the literature review with recommendations for continued measurement work to evaluate how self-care might be assessed for hospitalized patients and its potential usefulness as an indicator of quality nursing care.

Symptom Control

The literature on symptom control as an outcome of nursing care was reviewed by Sidani. The following findings were summarized from the report prepared for the Expert Panel on Nursing and Health Outcomes. Symptoms represent the reason most frequently cited by persons to seek healthcare. They are experienced by patients with various acute and chronic medical and surgical conditions. Effective symptom management is viewed as an essential role of nurses in different clinical settings, but has taken precedence in oncology and palliative care nursing practice.

Several researchers have used individual items to assess symptoms of interest in a particular study. Most often, the participants were asked to report on the presence of the symptoms and to rate the severity or intensity of the symptoms experienced. Different rating scales were used, such as the Visual Analogue Scale or numeric rating scales. Fatigue, nausea, vomiting, and...
dyspnea were often measured with single-items incorporated in multi-item scales. The psychometric properties of single items are very difficult to establish; however, using one item reduces the response burden for patients. Therefore, single items are clinically useful if the terms used to describe the subjective sensation are accurate and relevant to different patient populations. The effectiveness of various nursing interventions in relieving the symptoms of fatigue, nausea and vomiting, and dyspnea, was examined. Educational or psychoeducational interventions have been designed to provide patients with the knowledge and skills for recognizing and managing symptoms they may experience. Relaxation and guided imagery have been investigated, primarily in patients with cancer receiving chemotherapy. Systematic reviews of the effectiveness of these interventions were also conducted, offering evidence that nursing interventions can affect patients’ symptom control.

The studies used different designs ranging from experimental to pre-experimental. They included rather small sample sizes. The symptoms were measured with reliable and valid instruments. In general, the results supported the favourable effects of these specific interventions in relieving the severity of symptoms. The symptoms experienced differ across patient populations, based on the nature of the pathophysiological mechanisms underlying the illness condition and on the type of treatment given. Consequently, the measurement of symptoms presents some challenges. These are associated with:

- Identifying the subjective sensation characterizing the symptom to be measured, and stating it in terms that accurately describe it.
- Finding a criterion for determining the validity of the symptom measure, because of the subjective, unique, and private nature of symptoms. Objective indicators of some symptoms did not correlate or converge with the subjective indicators.
- Holzemer et al report that nurses’ ratings of symptoms were consistently shown to underestimate the frequency and intensity of symptoms experienced by patients with HIV disease. They recommended that “the patient is the gold standard for understanding the symptom experience”, as “the meaning of the symptoms experience can only be captured from the patient’s perspective”.

### Pain as a Symptom

Watt-Watson reviewed the literature on pain as an outcome of nursing care for the Expert Panel on Nursing and Health Outcomes. She noted that pain is a symptom that has been documented as an indicator of inadequate pain management for almost 30 years, particularly since Marks and Sachar’s seminal work in 1973. More recently, the question of whether nursing initiatives actually change pain management practices stimulated an examination of patients’ pain as a critical outcome measure. Studies have begun to measure pain as a symptom outcome to determine the effect of interventions, such as education for both nurses and patients and non-pharmacological strategies.
The following measurement issues arose from the review of the literature:

**Issues in Measurement**

- Pain assessment has not been a routine component of nursing practice, and patients have not perceived nurses as resources in assessing and managing their pain. Nurses have underestimated the pain experienced by their patients although they believed that mild pain or less was ideal.
- Nurses’ experience and personal beliefs influence their pain assessment.
- Pain is multi-dimensional and not directly proportional to tissue damage. While sensation is important, other dimensions such as the quality and impact of pain also need to be assessed. Only two trials reviewed used measures to determine the impact of pain on everyday relationships and activities along with pain intensity.

The measures reviewed had well-established reliability and validity in nursing studies that examine pain and/or its impact with patients in a variety of clinical settings. As well, many of these measures have been translated into several languages and are useful for nurses working with multicultural patients. The shorter versions of the McGill Pain Questionnaire (MPQ) and Brief Pain Inventory (BPI) have greater clinical utility than the other forms. However, the Numerical Rating Scale (NRS) has demonstrated the most clinical utility of all measures, particularly with people having less education. The BPI is unique in that it examines broader issues of the impact of pain that would be important to assess, particularly for people with persistent pain. As well, the BPI can be used as a long, short, or interference subscale version, all with established reliability and validity.

Only recently have nurses begun to examine systematically the influence of interventions on patient outcomes related to pain management using randomized controlled trials. In most of the studies included in the review, the primary outcome was operationalized as pain intensity and measured by a Visual Analogue Scale (VAS) or NRS. Fewer researchers used the MPQ or the BPI. While change in some studies was reported, responses to these pain measures are equivocal, which may relate more to issues such as the individuality of pain, complexity of the pain management context, and/or methodological issues such as uncontrolled designs, rather than the measures themselves.

Watt-Watson concluded that the literature provides considerable evidence that pain assessment and related management are problematic, but that pain management is an important component of nursing practice and the assessment of pain outcomes within the clinical setting might be accomplished with a simple linear or visual analogue scale.

**Secondary Complications/Adverse Occurrences**

White reviewed the literature on secondary complications and adverse occurrences for the Expert Panel on Nursing and Health Outcomes. What follows is a summary of the review and recommendations.

Thomas and Brennan defined an adverse event as “any injury caused by medical management (rather than disease process) that results in either a prolonged hospital stay or disability at discharge”. Adverse events can include the following: falls, decubitus ulcers, medication errors, nosocomial infections,
treatment errors and mortality. There is mounting evidence that certain types of adverse events can be linked to nurse staffing, particularly certain types of nosocomial infections. The evidence is less conclusive in relation to medication errors and patient falls.

Flood and Diers found that inadequate staffing was associated with the occurrence of adverse events such as nosocomial infections. Taunton, Kleinbeck, Stafford, Woods, and Bott found a relationship between nurse absenteeism and unit rates of nosocomial infections. Aiken et al. found that mortality rates were lower in hospitals with higher ratios of registered nurses relative to licensed practical nurses or unlicensed personnel. Kovner and Gergen found a strong inverse relationship between full-time equivalent Registered Nurses (RNs) per adjusted inpatient day and urinary tract infections after major surgery as well as pneumonia after major surgery. A significant but less robust inverse relationship was found between full-time equivalent RNs per adjusted inpatient day and thrombosis after major surgery. Blegen, Goode and Reed found the proportion of hours of care delivered by registered nurses was associated with unit rates of medication errors, decubiti, and patient complaints. A recent study by the American Nurses Association, involving 12.9 million patients in approximately 2,500 hospitals, found that secondary bacterial pneumonia, post-operative infections, pressure ulcers, and urinary tract infections were lower in hospitals with higher nurse skill mix, and in some instances, nurse staffing. The ANA's study demonstrated the importance of controlling for patient acuity through nursing intensity weights (NIWs) when examining the impact of nursing practice on adverse occurrences. Most recently, Needleman, Buerhaus, Mattke, Stewart, and Zelevinsky found strong and consistent relationships between nurse staffing variables and five patient outcomes: (a) urinary tract infections; (b) pneumonia; (c) length of stay; (d) upper gastrointestinal bleeding; and (e) shock in medical patients. In major surgical patients, they found a strong relationship between nurse staffing and failure to rescue.

Failure to rescue is a new outcome variable first conceptualized by Silber, Williams, Krakauer, & Schwartz. It is defined as mortality of patients who experience a hospital-acquired complication.

Needham and Buerhaus noted the difficulties in obtaining reliable data on medication errors, with the vast majority of medication errors not being recorded on the patient chart. These challenges, coupled with the equivocal evidence concerning the relationship between nurse staffing variables and medication errors' suggest that medication errors are not a good measure of nursing care quality at this time.

There is evidence to suggest a relationship between patient falls and organizational factors; however, not all patient falls are predictable or preventable. The reporting structure within the hospital impacts on the type and number of falls that get reported. The most reliable data are for falls that result in a patient injury.

White concluded that the evidence linking adverse outcomes to nursing care is stronger for certain types of nosocomial infections than the evidence for medication errors and patients falls and that there are more problems associated with collecting data on falls and medication errors because of differences in reporting formats than for nosocomial infections.
Interviews/Consultation Process

During the Consultation Sessions, nurse stakeholders agreed that it would be useful to measure the functional status of patients at discharge but identified some concerns and recommendations related to its measurement. It is difficult to gauge functional status in the acute care setting as it may only be reported for patients who have long lengths of stay. They suggested that for the purpose of a scorecard, measurement of functional status should: (a) be directly related to nursing care; (b) include the patient’s perception of his/her functional status; and (c) provide a focused rather than a broad approach.

With regard to symptom control, participants highlighted the need for a consistent method of data collection, noting that the assessment of symptoms by a patient would most likely differ from an assessment by a caregiver.

Pain management was acknowledged by participants as an important symptom that nursing can impact. Since hospitals across Ontario are presently using a variety of pain assessment tools, nurse stakeholders recognized the need for standardized measurement tools and practices to be implemented. It was acknowledged that since not all pain can be improved by nursing interventions, an indicator selected to measure pain must be sensitive to nursing care.

The obstacles associated with obtaining data on medication errors were referred to repeatedly throughout the consultation process. The concerns included inconsistency in the reporting of medication errors and difficulty associated with segregating errors solely attributable to nursing.

A number of issues with the measurement of fall rates were identified by Consultation Session participants. The identified concerns included: challenges with comparing fall rates across different hospitals, diagnoses and age groups; and an inconsistency in the frequency and quality of reporting. It was suggested that an important factor to consider when measuring patient fall rates is the degree of injury incurred as a result of the incident.

There were numerous comments made by the participants pertaining to

Indicator Definition and Selection

The outcome indicators selected for inclusion in the Nursing Report were determined based on empirical evidence of their sensitivity to nursing care from the literature and based on confirmation of their importance to decision makers.

**Functional Status:** The level at which a person is functioning in a variety of different areas, such as physical health, quality of self-maintenance, quality of role activities, intellectual status, social activity, attitude toward the world and toward self, and emotional status.

**Self-Care Status:** The practice of activities that maturing and mature persons initiate and perform, within timeframes, on their own behalf, in the interests of maintaining life, healthful functioning, continuing personal development, and well-being.

**Symptom Control:** The subjective experience of an individual, in reference to: (a) sensations or experiences reflecting changes in a person’s biopsychosocial functions; (b) a patient’s perception of an abnormal physical, emotional, or cognitive state; or (c) the perceived indicators of change in normal functioning as experienced by patients.

**Patient Falls:** An event which results in a person coming to rest inadvertently on the ground/floor or the lower level which results in a fracture, subdural hematoma, head injury, or death.

**Urinary Tract Infections:** Bacterial infections of the bladder, urethra and/or kidneys acquired after major surgery. A hospital-acquired urinary tract infection is defined as one that is noted to have occurred when there was no documentation of the existence of a urinary tract infection within the first 24 hours following the patient’s admission.

**Pneumonia:** The rate at which patients develop inflammation of the lungs with exudation and consolidation during the course of their hospitalization. Hospital-acquired pneumonia is defined as pneumonia that is noted to have occurred when there was no documentation of the existence of pneumonia within the first 24 hours following the patient’s admission.

**Pressure Ulcers:** Any lesion that results in damage to underlying tissue. A hospital-acquired pressure ulcer is defined as one that is noted to have occurred when there was no documentation of the existence of a pressure ulcer within the first 24 hours following the patient’s admission.

**Failure to Rescue:** Mortality of patients who experience a hospital-acquired complication.
secondary complications. Overall, they agreed that the analysis of these indicators would provide valuable information but identified concerns with: (a) the need for specific definitions, especially for pneumonia, urinary tract infections and falls; (b) the relatively low frequency of occurrence of some of the indicators as hospital-acquired complications in the acute care setting; and (c) linking adverse occurrences with nursing as they are not solely accountable for many of these, and more specifically, that interventions within the scope of nursing are not necessarily the most effective in improving the outcomes. On the contrary, it was also recognized that many adverse occurrences are related to the amount of attention given to patients by nursing staff.

**Patient Satisfaction**

**Indicator Identification**

A critical review and analysis of the literature on patient satisfaction with nursing care was undertaken to identify indicators of patient satisfaction with nursing care for use in the nursing component of the Hospital Report Series. The proposed indicators are included in a reliable and valid instrument that measures patient satisfaction with nursing care. The indicators include: caring style, respectful manner, attention to patient concerns, participation in care, availability/timeliness of care, information sharing/interpretation of symptoms, competence/skill, pain control, physical care, communication with other providers, education/preparation for discharge, pleasant physical environment, and overall satisfaction. An overview of the evidence to support these indicators and the relevant instruments follows.

**Literature Review**

Patient satisfaction with nursing care has been shown to be the most crucial determinant of overall satisfaction with hospital care. Indeed, Mahon claims that this strong relationship is due to the fact that ‘most healthcare is nursing care’ since nursing care is the major service provided to hospitalized patients. Several factors have led to an intensified interest in the measurement of patient satisfaction with nursing and healthcare. These include: (a) the demand for public accountability for healthcare outcomes and the need to provide evidence of quality; (b) incentives to tie government funding to standards of quality in healthcare delivery; (c) the managed competition approach to healthcare delivery in the US with its associated market share implications; (d) the total quality management movement to monitor efforts to reduce costs and maintain quality; (e) a shift from the notion of patients as passive recipients of care to that of informed consumers of healthcare and their willingness and ability to choose healthcare services based on their perceptions of quality provided; and (f) the changing mix of healthcare workers in acute care settings. As a result of these changes, patient

**Recommendations**

The literature review provides evidence for a relationship between a number of patient outcomes and nurse staffing in acute care inpatient units. A three-staged approach is recommended for the development of clinical utilization and outcomes indicators that are sensitive to nursing care. This includes:

- For data that are currently available from the Canadian Institute for Health Information (CIHI), we recommend collecting data on the following secondary complications found to be sensitive to nurse staffing variables: bacterial pneumonia, urinary tract infections, pressure ulcers, and falls that result in a codable injury (e.g. fracture or subdural hematoma).
- For secondary complications where the evidence does not strongly support a relationship to nursing, we recommend collecting data for the purpose of evaluating the sensitivity to nurse staffing variables, specifically for upper gastrointestinal bleeding and failure to rescue.
- We recommend further research to establish the feasibility of collecting data on primary patient outcomes found sensitive to nursing care, specifically for functional status, symptom control, and self-care.
satisfaction has emerged as an important indicator of healthcare quality that has implications for the survival of healthcare organizations and the well-being of patients under their care.

The concept of patient satisfaction, although widely used, is poorly understood with no consistent definition found in numerous sources in the literature. Consequently, research on patient satisfaction has been hampered by a lack of consistent conceptualization, resulting in variability in the way it is operationalized and until recently, a lack of well-established, reliable, and valid instruments to measure the phenomenon accurately and comprehensively. Many instruments have been developed for local use in specific institutions that vary in scope and quality, many with little documented psychometric properties.

The most consistent definition of patient satisfaction found in the literature is the extent to which patients’ expectations of care matched the actual care received. Eriksen defined patient satisfaction with nursing care as ‘the patient’s subjective evaluation of the cognitive-emotional response that results from the interaction of the patient’s expectations of nursing care and their perception of actual nurse behaviours/characteristics’. This is consistent with the definition proposed by Cleary and McNeil in the health services research literature. However, Williams notes that few studies have actually found empirical support for this conception of satisfaction. Several researchers have shown that when both expectations and perceptions of actual care received are included in the analysis, the latter is consistently the stronger predictor of intent to reuse the service or recommend it to family and friends.

Many argue that patient satisfaction is a general affective response to the overall healthcare experience rather than a focused assessment of distinct aspects of the care episode. In the health services marketing literature, researchers distinguish between the concepts of patient satisfaction and patient perceptions of care quality. Taylor claims that perception of quality is a long-term attitude developed over time, whereas, patient satisfaction is a short-term response to a specific experience. Patient satisfaction is viewed as a mediator between patient perception of quality and future intentions to reuse the service or recommend the service to others.

Consistent differences in importance ratings of aspects of care by nurses and patients have been found by several researchers, suggesting that nurses’ and patients’ definitions of satisfaction with patient care quality differ. In several studies, nurses consistently overestimated the importance of emotional care for patients. On the other hand, patients gave higher ratings to the importance of technical care, such as monitoring and following through and the provision of explanations regarding their condition and care. These findings are consistent with those of Larson and Kovner. Kovner’s results are important since she found that the less patients and nurses disagreed on desirability of outcomes, the more satisfied patients were with their care. These results led to a concern that what was being measured in these surveys reflected provider perspectives and spawned a variety of qualitative studies to ascertain patients’ perspectives of high quality care. Researchers have begun to determine patient expectations of care and incorporate these perspectives into measures of patient satisfaction. Given the popularity of using patient satisfaction as a patient care quality outcome and the pre-eminent role of nursing in the patient care experience, it is extremely important to ensure that patients are asked to evaluate aspects of their care that are amenable to nursing intervention.
Determinants of Patient Satisfaction

A variety of factors has been found to influence patient satisfaction in a variety of studies. Individual patient factors, such as cultural background, degree of social support and demographic variables, such as age, sex, and education have been found to influence patient satisfaction ratings in some studies\(^{207}\) but not others.\(^ {208}\) The nature of the nurse-patient interaction or relationship has been identified as important in numerous studies. Patient involvement in care decisions and being able to express their opinions\(^ {189,194,202,209-211,}\) information sharing and interpretation of symptoms\(^ {178,186,212-214}\) a caring, humane style\(^ {188,211,213-215}\) and sense of being treated fairly\(^ {186}\) are among the many interpersonal factors identified. Promptness and timeliness of care are other important factors.\(^ {213,216,217}\)

Structural variables, such as patients’ perceptions of the competence of nurses\(^ {209,213,218}\) and type of nursing care delivery system, including primary nursing, use of critical paths, case managers, professional/non-professional partner models of care, have also been associated with higher levels of patient satisfaction.\(^ {173,179,219-221}\) Nurse job satisfaction has been shown to be related to patient satisfaction in a few studies\(^ {222-225}\) but these studies have limited generalizability. Nied\(^ {277}\) however, in a well-designed study, was not able to establish a significant relationship. According to Kangas, Kee, and McKee-Waddle\(^ {226}\), the empirical evidence linking nurse job satisfaction to patient satisfaction remains elusive due to methodological challenges and the multi-dimensional nature of patient care quality.

Consequences of Patient Satisfaction with Nursing Care

There have been a few studies of the consequences of patient satisfaction with nursing care, particularly in health services research. Numerous studies have shown patient satisfaction with nursing care to be strongly related to overall satisfaction with the healthcare encounter.\(^ {169,170,172,227}\) Swan and Carroll\(^ {228}\) and Weisman and Nathanson\(^ {229}\) found satisfaction with nursing care to be a strong predictor of adherence to medically prescribed regimens. Davidow and Uttal\(^ {230}\) suggest that more satisfied patients are more cooperative with their caregivers although no data are provided to support this contention. Finally, patient satisfaction with nursing care has been linked to intention to use the service at a later date and to recommend the service to others.\(^ {169,230}\)

Methodological Issues in Patient Satisfaction Research

There are several issues associated with the assessment of patient satisfaction. Despite the fact that patient satisfaction with nursing care has been shown to be the most critical determinant of patients’ overall satisfaction with hospital care, Chang\(^ {231}\) maintains that many instruments commonly used in large patient satisfaction surveys do not adequately capture important nursing activities, limiting their utility as valid nurse-sensitive outcome measures. This is a problem when researchers attempt to link nursing activities and other factors, such as redesign of nursing care delivery systems (e.g. changes in staff mix and staffing ratios) to patient satisfaction. The wide range of healthcare personnel in hospital settings also makes it difficult for patients to differentiate nurses from non-nurses and thus threatens the reliability and validity of measurements of satisfaction with nursing care.\(^ {232}\) Another issue relates to the positive skewness and lack of variability of most patient satisfaction ratings. This creates problems in determining the true effects of the phenomenon and can have a negative impact on statistical comparisons and relationships being studied. As a result, policy changes are
difficult to justify based on empirical evidence. Finally, there is no standardization of measures of satisfaction with nursing care, making it impossible to compare across settings.

Increased interest in patient satisfaction as a quality indicator in the managed care environments in the U.S. has stimulated greater attention to developing standardized measures of the concept with adequate psychometric properties. Healthcare marketers and consulting firms have become involved in the development and administration of patient satisfaction measures. These tools have been exported to Canada and other countries, such as the United Kingdom and other European countries. Many of these measures have been developed without the input of healthcare professionals and have been criticized, in particular, for not capturing the essence of nursing activities related to patient care.

Indicators of Patient Satisfaction with Nursing Care: Existing Patient Satisfaction Tools

For this Report, 29 instruments available in the nursing and health services literature were evaluated. These instruments have varying degrees of data reported on their psychometric characteristics.

Although none of the instruments met all of the criteria found in the literature, several appeared to be adequate. Since these tools were examined in relation to the existing patient satisfaction measure used in the acute care scorecard for Ontario hospitals (Quality of Care Monitor, developed by Parkside Associates), the other instruments are described following a discussion of the Parkside tool.

The Parkside Quality of Care Monitor was used to measure patient satisfaction in Hospital Report '99 and Hospital Report 2001: Acute Care. This tool taps eight dimensions of patient care and contains nine items specifically related to nursing care quality. Some of these items
have been identified by nurse researchers in previous research (e.g. competence, interpersonal relationships and information sharing). The nursing sub-scale has shown high internal consistency (0.88) and to be correlated with overall patient care ratings. However, when the scorecard results were published in 1999, there were concerns expressed by the nursing community about the validity of the Parkside measure.

Initially, four of the 29 instruments reviewed were determined to have potential for use in the Hospital Report Series, based on their inclusion of factors demonstrated to be associated with patient satisfaction and the criteria described above. They were then compared to the nine items in the Parkside instrument related to nursing care quality. As can be seen in the following tables, these instruments were more comprehensive than the Parkside instrument. The Patient Judgments of Hospital Quality (PJHQ) and the Picker Satisfaction Survey were the most comprehensive. However, the Picker questionnaire was considerably longer than the PJHQ.

Comparison of Patient Satisfaction Instruments with Quality Indicators Identified in the Literature

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Met expectations</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Caring style</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Friendliness/courtesy</td>
<td>✓✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Attention to patient concerns</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Information sharing</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Communication and interpersonal skills</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Competence/skill</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Goal achievement</td>
<td>✓✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Professional practice/care delivery models</td>
<td>✓✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Organizational factors</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Overall healthcare experience</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: Each check mark represents an item on the questionnaire.

Based on recommendations in the literature that measures of patient satisfaction should reflect both nurse and patient perspectives, these tools were further evaluated to determine the extent to which quality indicators identified by patients in the literature were included. Again, the PJHQ and the Picker questionnaire were superior to the others.
Following this analysis, two instruments were selected based on the criteria outlined in the literature and feedback from nurse stakeholders – the Patient Judgments of Hospital Quality questionnaire (PJHQ) by Meterko et al.\(^\text{235}\) and the Patient Perception of Care Quality (PPCQ) - developed in 1999 by Cronenwett and Batalden.\(^\text{236}\) With some modification, the PJHQ was deemed potentially useful. However, the PPCQ, in particular, seemed to address salient aspects of nursing care quality from both the provider and patient perspectives. The following table provides a comparison of items in these two measures. Items in the table columns are aligned according to item similarity.

### Comparison of Patient Satisfaction Instruments Using Patient Identified Quality Indicators

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring style</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Respectful manner</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Attention to patient concerns</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Participation in care</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Availability/timeliness of care</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Information sharing/interpretation of symptoms</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Competence/skill</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pain control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Physical care</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Communication with other providers</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Education/preparation for discharge</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pleasant physical environment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Overall</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: Each check mark represents an item on the questionnaire.
<table>
<thead>
<tr>
<th>PATIENT JUDGMENTS OF HOSPITAL QUALITY (PJHQ)</th>
<th>PATIENT PERCEPTION OF CARE QUALITY (PPCQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INFORMATION YOU WERE GIVEN: How clear and complete were the nurses’ explanations about tests, treatments, and, what to expect.</td>
<td>1. Helpfulness of information that you and your family receive from the nurses about your illness, surgery, or care.</td>
</tr>
<tr>
<td>2. INSTRUCTIONS: How well nurses explained how to prepare for tests and operations.</td>
<td>2. Extent to which the nurses clearly explain to you the purposes of your care and activities.</td>
</tr>
<tr>
<td>3. EASE OF GETTING INFORMATION: Willingness of nurses to answer your questions.</td>
<td>3. Nurses’ collaboration with physicians.</td>
</tr>
<tr>
<td>4. INFORMATION GIVEN BY NURSES: How well nurses communicated with patients, families, and doctors.</td>
<td>4. Consistency with which the nurses approach you and your visitors with warmth, courtesy, and personal attention.</td>
</tr>
<tr>
<td>5. INFORMING FAMILY OR FRIENDS: How well the nurses kept them informed about your condition and needs.</td>
<td>5. Degree to which the nurses communicate a sense of caring for you and your family.</td>
</tr>
<tr>
<td>6. INVOLVING FAMILY OR FRIENDS IN YOUR CARE: How much they were allowed to help in your care.</td>
<td>6. Extent to which the nurses who care for you know about your condition and what needs to be done for you.</td>
</tr>
<tr>
<td>7. CONCERN AND CARING BY NURSES: Courtesy and respect you were given; friendliness and kindness.</td>
<td>7. Extent to which nurses let you participate in deciding how to accomplish things.</td>
</tr>
<tr>
<td>8. ATTENTION OF NURSES TO YOUR CONDITION: How often nurses checked on you and how well they kept track of how you were doing.</td>
<td>8. Consistency with which the nurses met your basic needs, such as cleanliness and hygiene.</td>
</tr>
<tr>
<td>9. RECOGNITION OF YOUR OPINIONS: How much nurses ask you what you think is important and give you choices.</td>
<td>9. Attentiveness of the nurses to helping you relieve any discomfort, such as pain, nausea, trouble breathing or trouble sleeping.</td>
</tr>
<tr>
<td>10. CONSIDERATION OF YOUR NEEDS: Willingness of the nurses to be flexible in meeting your needs.</td>
<td>10. Accessibility of the nurses for prompt attention when you request help.</td>
</tr>
<tr>
<td>11. THE DAILY ROUTINE OF THE NURSES: How well they adjusted the schedules to your needs.</td>
<td></td>
</tr>
<tr>
<td>12. HELPFULNESS: Ability of the nurses to make you comfortable and reassure you.</td>
<td></td>
</tr>
<tr>
<td>13. NURSING STAFF RESPONSE TO YOUR CALLS: How quick they were to help.</td>
<td></td>
</tr>
</tbody>
</table>
### PATIENT JUDGMENTS OF HOSPITAL QUALITY

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>SKILL AND COMPETENCE OF NURSES: How well things were done, like giving medicine and handling IV’s.</td>
</tr>
<tr>
<td>15.</td>
<td>COORDINATION OF CARE: The teamwork between nurses and other hospital staff who took care of you.</td>
</tr>
<tr>
<td>16.</td>
<td>RESTFUL ATMOSPHERE PROVIDED BY NURSES: Amount of peace and quiet.</td>
</tr>
<tr>
<td>17.</td>
<td>PRIVACY: Provisions for your privacy by nurses.</td>
</tr>
<tr>
<td>18.</td>
<td>DISCHARGE INSTRUCTIONS: How clearly and completely you were told by the nurses what to do and what to expect when you left the hospital.</td>
</tr>
<tr>
<td>19.</td>
<td>COORDINATION OF CARE AFTER DISCHARGE: Nurses’ efforts to provide for your needs after you left the hospital.</td>
</tr>
<tr>
<td>20.</td>
<td>Overall quality of care and services you received.</td>
</tr>
</tbody>
</table>

### PATIENT PERCEPTION OF CARE QUALITY

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>Ability of the nurses to observe changes in your condition and deal with problems as they arise.</td>
</tr>
<tr>
<td>12.</td>
<td>Ability of the nurses to manage unpredictable events and times when the unit is busy.</td>
</tr>
<tr>
<td>13.</td>
<td>Teamwork, respect, and trust among unit staff.</td>
</tr>
<tr>
<td>14.</td>
<td>Consistency with which your caregivers and their roles were clearly identified.</td>
</tr>
<tr>
<td>15.</td>
<td>Sensitivity of the nurses to managing visitors, noise, and other disturbances so that you and other patients have an environment that supports rest and healing.</td>
</tr>
<tr>
<td>16.</td>
<td>Consistency with which the nurses respect and protect your confidentiality.</td>
</tr>
<tr>
<td>17.</td>
<td>Helpfulness during preparation for your discharge.</td>
</tr>
<tr>
<td>18.</td>
<td>Considering all the factors that influence your perceptions of quality of care, how would you rate the quality of care on this unit?</td>
</tr>
</tbody>
</table>

The Patient Judgments of Hospital Quality questionnaire (PJHQ) has been used in a variety of studies in tertiary hospital settings. The PJHQ was developed by a multidisciplinary research team at the Hospital Corporation of America. Items for the instrument were derived from an extensive literature review, focus groups, and content analysis of patients’ verbatim answers to questions about hospital quality. The goal was to develop a questionnaire that would represent patients. The original tool contained nine scales: nursing and daily care, ancillary staff and hospital environment, medical care, information, admissions, discharge and billing, overall quality of care and services, recommendations and intentions, and overall health outcomes. Each item consists of a “sign-post” label followed by a “descriptor” phrase. The inclusion of this “sign-post” label was praised many times throughout the Consultation Sessions with nurses across Ontario. Questions are presented on a five-point Likert-type scale ranging from ‘excellent’ to ‘poor’. Cronbach’s alpha coefficients for the subscales have ranged from 0.66 to 0.94. Completion
usually takes about 30 minutes when administered by telephone and 20 minutes when self-administered. Several short forms are available: 10, 14, 20, and 24-item versions. The modified version suggested for inclusion with the acute care scorecard contains 21 items, including two overall questions regarding quality of care in general and nursing care in particular.

The PJHQ nursing subscale has been shown to be related to important aspects of hospital service delivery. Atkins, Marshall, and Javalgi found that scores on the PJHQ nursing subscale (skill and competence of nurses, attention of nurses to patient’s condition, nursing staff response to calls, nurses demonstrating a concerned and caring attitude, and information provided by nursing) were related to overall perceptions of hospital quality \( r=0.75, p<0.005 \). Two items, “concern and caring attitude” and “information provided by nurses” were strongly related to overall quality \( r=0.69 \) and \( r=0.71, p<0.005 \), respectively. Leiter, Harvie, and Frizzell found that patients’ perceptions of the overall quality of care were significantly related to the degree of emotional exhaustion experienced by nurses. Patients on units where nurses found their work meaningful were more satisfied with all aspects of their hospital stay \( r=0.79, p<0.01 \). Likewise, patients were less satisfied with their care on units where nursing staff more frequently expressed the intention to quit \( r=-0.53, p<0.05 \) or tended to be more cynical \( r=-0.53, p<0.05 \). McNeese-Smith found a positive relationship between the PJHQ nursing subscale and patient perception that one nurse was in charge of his/her care \( r=0.15, p=0.03 \) and the patient’s acquaintance with the nurse manager \( r=0.17, p=0.01 \). Larrabee, Engle, and Tolley found that achievement of patient-identified goals was a strong predictor of patient satisfaction with nursing care.

A newly developed tool, the Patient Perception of Care Quality (PPCQ) was examined for its comprehensiveness and potential as an instrument for satisfaction with nursing care quality. The tool was developed by the Quality Improvement Department at the Dartmouth-Hitchcock Medical Center based on focus groups comprised of both providers and patient representatives. There is a commensurate measure of provider evaluation of patient care quality. These tools are intended to be used at the unit level to monitor quality across time and to serve as a basis for quality improvement initiatives. This instrument has 17 items that are rated on a Likert scale ranging from poor to outstanding quality. A global quality item which asks respondents to rate overall quality of care on the unit on a 10-point scale, where 10 is the highest quality of care they can imagine, is included at the end of the questionnaire. The content validity was assessed by a panel of four experts (patients) and determined to be adequate (CVI= 0.96). Although there is no supporting psychometrics for this scale at this time, it looks particularly promising as a potential instrument for assessing nursing care quality. It contains all of the factors identified by patients as important to their satisfaction with nursing care and includes many of the items included in other tools. The wording of the items is particularly appealing in comparison to others. Items seem to be ‘actionable’, a desirable characteristic for quality improvement purposes. Several hospitals have expressed interest in piloting this questionnaire in the near future, which would provide valuable information on its psychometric properties.
Interviews/Consultation Process

A two-staged approach was utilized to obtain input related to patient satisfaction with nursing care. This included gaining feedback from select nurse executives across the Province regarding the Parkside patient satisfaction instrument to frame the context for the literature review. As well, input on the proposed measures was also obtained during the Consultation Sessions.

Several senior nursing administrators provided key informant feedback regarding the adequacy of the Parkside Quality of Care Monitor as a measure of satisfaction with nursing care. Their feedback was predominantly negative as they saw the tool as:

- not providing information that can be used to make meaningful change;
- being very service-oriented, focusing on ‘hotel’ aspects of the patient experience;
- creating the image of nurses as hostesses, with an orientation towards service hospitality;
- trivializing nursing’s contribution to meeting patient needs;
- containing items that are vague and unclear; and
- measuring patients’ ‘happiness index’, rather than satisfaction with care.

The same nursing administrators were asked to offer suggestions for items that would provide a more meaningful measure of patient satisfaction with nursing care. Their suggestions included items that would ask about the extent to which:

- nurses provide patients with timely, clear, and accurate information;
- families are involved in care;
- nurses assess and understand the patients’ conditions;
- nurses respond to and meet the patients’ needs;
- nurses demonstrate knowledge and skill;
- comfort measures are provided by nurses;
- nurses help patients prepare for discharge; and
- nurses demonstrate a caring attitude, respect and approachability.

In the Consultation Sessions, participants from across the Province were also asked to share their views of the Parkside instrument. The results revealed somewhat contradictory responses. Many participants felt that the Parkside instrument does not accurately reflect the nurse’s role in the hospital environment, while others felt that the instrument is very specific to nursing. A consistent comment was that the Parkside tool does not produce results that can be acted upon for quality improvement purposes. Some were concerned that since the Parkside tool has been used throughout Ontario hospitals for the past two years, comparative data will be lost if a new tool is introduced. They felt that vast resources would be required to create a psychometrically sound measure that is relevant to Canadian healthcare settings.

Participants in the Consultation Sessions identified some general concerns related to the measurement of patient satisfaction with nursing care. Specifically, they verified the findings from the literature indicating that differences exist between nurses’ and patients’ expectations of patient care.
quality. As well, they agreed that individual patient factors, such as demographics and cultural background, may influence patient satisfaction, as well as specific salient negative events that may occur during the patient’s hospital stay. Finally, some participants suggested that most patients have difficulty distinguishing the registered nurse from other hospital personnel who perform similar duties. They felt that this problem is intensified if measures of patient satisfaction with nursing care do not reflect what nurses actually do, or do not relate to variables that nurses can control. This feedback was considered in our analysis of existing tools.

When asked to compare these two instruments (PJHQ and PPCQ), the Consultation Session participants indicated that both instruments captured the realm of what nurses do. Although many were enthusiastic about Cronenwett and Batalden’s choice of items in the PPCQ, several were concerned with the language and wording of the instrument. They felt that patients would have difficulty understanding the context of the questions and that several items were unnecessarily verbose. In contrast, the language used in the PJHQ instrument was repeatedly commended for its clarity. In the interest of time and resources, many felt that the PJHQ had an advantage over the PPCQ because it has been tested for reliability and validity and has been used on a smaller scale in several Ontario hospitals.

Indicator Definition and Selection

Patient Judgments of Hospital Quality Questionnaire (PJHQ)

Information You Were Given: How clear and complete were the nurses’ explanations about tests, treatments, and what to expect.

Instructions: How well nurses explained how to prepare for tests and operations.

Ease of Getting Information: Willingness of nurses to answer your questions.

Information Given by Nurses: How well nurses communicated with patients, families, and doctors.

Informing Family or Friends: How well the nurses kept them informed about your condition and needs.

Involving Family or Friends in Your Care: How much they were allowed to help in your care.

Concern and Caring by Nurses: Courtesy and respect you were given; friendliness and kindness.

Attention of Nurses to Your Condition: How often nurses checked on you and how well they kept track of how you were doing.

Recognition of Your Opinions: How much nurses ask you what you think is important and give you choices.

Consideration of Your Needs: Willingness of the nurses to be flexible in meeting your needs.

The Daily Routine of the Nurses: How well they adjusted the schedules to your needs.

Helpfulness: Ability of the nurses to make you comfortable and reassure you.

Nursing Staff Response to Your Calls: How quick they were to help.

Skill and Competence of Nurses: How well things were done, like giving medicine and handling IV’s.

Coordination of Care: The teamwork between nurses and other hospital staff who took care of you.

Restful Atmosphere Provided by Nurses: Amount of peace and quiet.

Privacy: Provisions for your privacy by nurses.

Discharge Instructions: How clearly and completely you were told by the nurses what to do and what to expect when you left the hospital.

Coordination of Care After Discharge: Nurses’ efforts to provide for your needs after you left the hospital.

Overall quality of care and services you received.

Overall quality of nursing care.
Financial Performance and Condition

Indicator Identification

A critical review and analysis of the literature on financial indicators of nursing care was undertaken for this Report. As well, financial data sources such as the Ontario Hospital Reporting System (OHRS) and the Ontario Case Costing Project database (OCCP) were examined for indicators relevant to nursing care. The indicators identified in this process formed the basis for the identification of nursing-sensitive financial indicators for this Report. The financial indicators included in the review were: total nursing hours per inpatient weighted case, individual staff mix hours per inpatient weighted case, Registered Nurse (RN) hours as a percentage of inpatient weighted cases, percent of total inpatient nursing hours utilized for direct nursing care, percent of professional nursing staff hours utilized for RNs, percent of direct nursing care hours utilized for non-professional staff, percent of nursing care hours utilized for full time, part-time and casual nursing staff, percent of staff hours used for orientation, absenteeism, ongoing education, overtime, and for agency staff. A synopsis of evidence from the literature follows for each indicator.

Literature Review

Within the nursing literature, the primary financial variables of interest relate to nursing staff-mix models and the hours and costs associated with these models. This is true both for nursing report card projects, as well as individual empirical nursing research studies that link outcomes to nursing staffing models.

Traditional Financial Nurse Staffing Indicators

Among the indicators proposed by the American Nurses Association (ANA), the nursing financial indicators included: (a) the ratio of RNs to total nursing staff; (b) the mix of RNs, licensed practical nurses (LPNs) and unlicensed workers; (c) RN experience; (d) RN education; (e) the ratio of nursing staff to patients; (f) total nursing care hours provided to patients for each category of...
staff mix; (g) use of agency nurses; (h) use of float nurses; (i) unsafe assignment rates; (j) nurse staff turnover rates; (k) full-time to part-time staff ratio; (l) overtime rates; and (m) nurse staff injury rates. In the pilot work completed for the ANA Nursing Report Card, two nurse staffing variables were explored. These were: (a) total nursing hours per Nursing Intensity Weight (NIW); and (b) RN hours as a percentage of all nursing hours. Thus, the researchers were interested in overall nursing costs in relation to patient acuity. As well, they were interested in examining the unique costs associated with RN staffing, within overall nursing hours and costs.

The report generated from the pilot work by the ANA provides both system-level comparative hospital data within and among three states as well as individual-level comparisons between all of the participating hospitals. For example, NIW acuity, total nurse staffing per patient day, and RN mix as a percentage of total nursing hours were compared. Not surprisingly, the skill mix was greater in hospitals with the highest degree of teaching and those that were the least urbanized.

In their follow-up report, nurse staffing data were obtained from the Healthcare Financing Association (HCFA) Provider of Services (POS) file. The researchers measured two indicators for nurse staffing: (a) staffing level (the amount of nursing time provided to patients) using NIW adjusted patient days; and (b) the skill mix of the nurses (RN hours as a percentage of total licensed hours). Findings indicated that shorter lengths of stay were related to higher levels of overall staffing per NIW adjusted day. As well, lower complication rates were associated with a higher mix of RNs for each of the four patient complications examined.

In ongoing work underway by the ANA to develop the National Database for Nursing Quality Indicators (NDNQI), the two nurse staffing variables that continue to be included are: (a) mix of RNs, LPNs, and unlicensed staff caring for patients in acute care settings; and (b) total nursing care hours provided per patient day. The purpose of the Costing of Quality Indicators project is to develop and demonstrate a methodology for costing which can be used to assess the contributions of nurses to patient care and clinical costs. The focus of this project is on relationships between nurse structure of care indicators and patient adverse outcomes, length of stay and total charges.

A similar project has been undertaken by the California Nursing Outcomes Coalition that aims to create a statewide nursing outcomes database that links patient outcomes to hospital nursing care. In a preliminary descriptive report released in January 2000, data from 257 units within 38 acute care hospitals were presented. The aim of future reports is to examine the association among nursing skill mix, intensity of nursing hours and outcomes of care.

Several independent research teams have also explored financial indicators of nurse staffing in relation to patient and nurse outcomes. In the majority of these studies, staff mix and nursing care hours per patient day are the financial nursing variables examined. In a program of research led by Blegen, nurse staffing variables included: (a) all hours of care per patient day; and (b) the proportion of those hours of care delivered by RNs. Mark, Salyer & Wan explored nurse staffing as the ratio of filled RN positions to total filled positions on the unit. Lichtig, Knauf & Milholland examined: (a) RN hours as a percentage of total nursing hours; and (b) total nursing hours per NIW adjusted patient day. Whitman et al examined worked hours per patient day/case mix index for their nurse staffing variable.
Additional Financial Indicators of Nurse Staffing

A number of researchers have moved beyond these traditional financial variables for nurse staffing to develop additional indicators that capture a broader perspective of the financial impact of nurse staffing on patient care. Along with nursing report cards, the need for a nurse executive database to provide information that may be more synonymous with the balanced scorecard approach has also been identified. The Nursing Management Minimum Data Set (NMMDS), developed in the U.S., was initiated to identify, define, and measure a set of valid management data elements. The NMMDS evolved using a participative approach with stakeholders, starting with a list of indicators developed by a focus group that comprised management and administrative experts. The indicators were initially pilot-tested and then validated by a random sample of nurse executives surveyed from across the U.S. Seventeen indicators were categorized according to three dimensions: (a) nursing resources; (b) financial resources; and (c) the environment of nursing practice. The nursing resources category describes the nursing human resources required for care delivery and includes a description of the management demographic profile, support personnel, nursing staff and their satisfaction. The financial resources category describes the monetary resources of the organization and includes nursing unit/service budget, expenses, payer types and reimbursement. Finally, the environment category describes the context of the nursing care delivery environment including type of nursing unit/service, patient/client population(s) served, volume of nursing delivery, accreditation, complexity of the environment, geographical accessibility of patients/clients, centralization of the environment of care delivery, method of care delivery employed, and the complexity of clinical decision-making. The pilot test of the NMMDS supported collection of information for the 17 indicators, although much of the data retrieval was manual.

In Ontario, the Toronto teaching hospital initiative (TAHSC) to benchmark hospital performance included a separate Nursing Management Practice Atlas. The TAHSC Nursing Management Practice Atlas was a pilot study that used an approach similar to that outlined by Huber et al. The Atlas reported variations in nursing and financial resource utilization over a three-year period. Nurse executives from each of the hospital sites identified indicators of interest for inclusion in the Atlas. These indicators were refined over several months through an iterative process that included individual meetings with nursing leaders from each of the TAHSC hospitals involved in the study, as well as validation by hospital financial staff. Following this comprehensive data verification process, a total of 10 nursing management indicators, related to nursing paid hours and compensation in relation to weighted cases, were developed for examination in the pilot study. These indicators included: (a) inpatient nursing paid hours per inpatient weighted case; (b) RN paid hours per inpatient weighted case; (c) percent of professional nursing staff hours utilized for RNs; (d) percent of direct nursing care hours utilized for RNs; (e) percent of direct nursing care hours utilized for non-professional staff; (f) inpatient nursing paid dollars per inpatient weighted case; (g) RN paid dollars per inpatient weighted case; (h) percent of professional nursing staff dollars utilized for RNs; (i) percent of direct nursing care dollars utilized for RNs; and (j) percent of direct nursing care dollars utilized for non-professional staff. Little variation in nursing and financial resource utilization was found among the sites, although trends in downsizing of nursing resources were noted along with an increase in the utilization of non-professional nursing staff.
In a large national study recently released in the U.S., Needleman et al. examined public and private sources of nurse staffing data and concluded state hospital financial reports to be the best source of data for their study. These researchers encountered a number of challenges in developing variables for nurse staffing. These included: (a) data sources did not use a uniform set of categories in which nursing personnel were assigned resulting in the researchers assigning nursing personnel to the stated categories in the study; (b) variations existed in how hospitals define full-time equivalents making it necessary to standardize the data to produce comparable estimates of nurse staffing; and (c) data were reported for the total hospital, requiring allocation to either inpatient or outpatient areas by the research team. Once these adjustments were completed, the indicators developed for nurse staffing were: (a) total hours per day; (b) RN hours per day; (c) LPN hours per day; (d) aide hours per day; (e) RN share of total hours (RN hours/total hours); (f) LPN share of total hours (LPN hours/total hours); (g) aide share of total hours (aide hours/total hours); (h) licensed hours per patient day; (i) RN hours/licensed hours; (j) non-RN hours per day; and (k) aide hours/non-RN hours.

Several independent nursing report card initiatives also demonstrate the move beyond traditional indicators reflecting nursing financial resource use. Lowe and Baker describe the development of an institutional nursing report card that expands on nurse staffing financial indicators to examine broader nursing costs. They include: (a) total direct hours staffed excluding benefit, orientation, or education hours; (b) RN percentage of total staff; (c) LPN percentage of total staff; (d) unlicensed worker percentage of total staff; (e) total salary costs per unit including overtime and agency costs; (f) benefits as a percentage of salaries; (g) total agency fees; (h) average agency hourly rate; (i) absenteeism hours; (j) vacancy hours; and (k) turnover rate. Similarly, Lancaster and King identify the following fiscal indicators for nursing: (a) staff mix; (b) RN turnover rate; (c) overtime; and (d) agency use. These indicators may reflect the trend towards monitoring the efficiency of nursing care as well as the quality.

Interviews/Consultation Process

During the Consultation Sessions, participants agreed, for the most part, with the list of proposed financial indicators. Specifically, numerous stakeholders addressed the need to consider nursing hours in a number of ways including the separate and combined measurement of RN, RPN, and non-professional paid hours; and full-time, part-time and casual nurse paid hours. Some felt that the relationship between professional and non-professional staff, as well as regulated and unregulated staff, would provide useful information. The percentage of staff employed in temporary and floating positions was also suggested to be an important indicator to measure. Some representatives identified the importance of segregating the number of nursing care hours spent by nurses performing non-nursing related duties such as clerical work. Participants also indicated the importance of filtering out the number of paid hours allocated for sick time or absentee replacement.

Some unique features related to nurse staffing in rural areas of the Province were also noted to be of importance. For example, participants from Region One (encompassing northern Ontario) identified that small rural hospitals are required to maintain a baseline or “minimum staffing level” regardless of patient volume. Thus, these hospitals may appear inefficient when comparing nursing hours per patient day across hospitals or regions. Similar concerns
with measures of efficiency were acknowledged during the consultation process in other regions. Some participants were concerned that financial measures of efficiency would conflict with other quadrants in the balanced scorecard, especially where the issue of workload is involved. It was felt that to achieve what is considered to be financial efficiency, nursing workload will be compromised.

Many participants stressed that they would like to see the inclusion of indicators that capture orientation costs, absenteeism, vacancy, and turnover rates. Specifically, it was identified that “where you have high turnover, you tend to have the most absenteeism”. Absenteeism was also reportedly linked to overtime, although overtime was recognized as a complex issue as many centres have individual protocols regarding overtime utilization. As well, one participant argued that turnover is so frequent that orientation hours are often wasted. It was also suggested that vacancy and turnover rates may be related to patient satisfaction. Since it was reported that the accessibility of data on these indicators is presently insufficient, the need for their measurement was highlighted repeatedly.

The discussion on absenteeism led to suggestions that this Report should capture data on the number of nurses requiring compensation for injuries sustained while on duty. Participants identified the importance of tracking injuries associated with the delivery of patient care, the number of hours being compensated, and whether employees absent due to injury had been replaced.

There were numerous suggestions that data be collected on ongoing nursing education. Ongoing education was identified as an important yet complex issue; however, some participants reported that they have specific budgets for education making it easy to measure. Nonetheless, measuring the cost of replacing nurses absent while taking courses was felt to be more complicated.

In summary, feedback from the Consultation Sessions underscored the importance of collecting nursing cost performance and productivity measures.
### Indicator Definition and Selection

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Indicator Definition</th>
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<tbody>
<tr>
<td><strong>Nursing Cost Performance Measures</strong></td>
<td></td>
</tr>
<tr>
<td>1) Inpatient nursing earned hours per inpatient weighted case</td>
<td>All earned hours for inpatient functional centres (including administrative and clinical resources) &lt;br&gt; Inpatient weighted cases &lt;br&gt;Note: Earned hours = worked hours + benefit hours + purchased service hours. Earned hour statistics measure the use of labour in fulfilling the mandate of the service (of the functional centre).</td>
</tr>
<tr>
<td>2) UPP (RN, RPN, and non-professional staff) earned hours per inpatient weighted case</td>
<td>UPP (RN, RPN &amp; non-professional staff) earned hours in inpatient functional centres &lt;br&gt; Inpatient weighted cases</td>
</tr>
<tr>
<td>3) RN staff earned hours per inpatient weighted case</td>
<td>RN staff earned hours in inpatient functional centres &lt;br&gt; Inpatient weighted cases</td>
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<tr>
<td><strong>Utilization Measures</strong></td>
<td></td>
</tr>
<tr>
<td>4) Percent of total inpatient nursing earned hours utilized for direct nursing care</td>
<td>RN + RPN + non-professional patient care staff earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>5) Percent professional nursing staff hours utilized for RNs</td>
<td>RN staff earned hours &lt;br&gt;RN &amp; RPN earned hours</td>
</tr>
<tr>
<td>6) Percent of direct nursing care earned hours utilized for non-professional staff</td>
<td>Non-professional staff earned hours &lt;br&gt; RN + RPN + non-professional patient care staff earned hours</td>
</tr>
<tr>
<td>7) Percent of nursing care earned hours utilized for full time RNs</td>
<td>Full time RNs earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>8) Percent of nursing care earned hours utilized for full time RPNs</td>
<td>Full time RPNs earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>9) Percent of nursing care earned hours utilized for full time non-professional staff</td>
<td>Full time non-professional staff earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>10) Percent of nursing care earned hours utilized for part time RNs</td>
<td>Part time RNs earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>11) Percent of nursing care earned hours utilized for part time RPNs</td>
<td>Part time RPNs earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>12) Percent of nursing care earned hours utilized for part time non-professional staff</td>
<td>Part time non-professional staff earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>13) Percent of nursing care earned hours utilized for casual RNs</td>
<td>Casual RNs earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>14) Percent of nursing care earned hours utilized for casual time RPNs</td>
<td>Casual RPNs earned hours &lt;br&gt;Total inpatient nursing earned hours</td>
</tr>
</tbody>
</table>
### Efficiency Measures

<table>
<thead>
<tr>
<th>15) Percent of nursing care earned hours utilized for casual non-professional staff</th>
<th>Casual non-professional staff earned hours Total inpatient nursing earned hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>16) Percent nursing staff hours utilized for orientation</td>
<td>Orientation hours for RN + RPN + non-professional patient care staff Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>17) Percent nursing staff hours utilized for absenteeism</td>
<td>Sick time hours for RN + RPN + non-professional patient care staff Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>18) Percent nursing staff hours utilized for ongoing education</td>
<td>Ongoing education hours for RN + RPN + non-professional patient care staff Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>19) Percent nursing staff hours utilized for overtime</td>
<td>Overtime hours for RN + RPN + non-professional patient care staff Total inpatient nursing earned hours</td>
</tr>
<tr>
<td>20) Percent nursing staff hours utilized for agency staff</td>
<td>Agency staff hours for RN + RPN + non-professional patient care staff Total inpatient nursing earned hours</td>
</tr>
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</table>

### Recommendations

The literature review provides evidence that supports a relationship between financial nurse staffing indicators and patient outcomes in acute inpatient care. A two-staged approach is recommended for the development of indicators of financial performance and condition. This includes:

- For data that are currently available from the OHRS (indicators 1 – 15, 20), we recommend collecting data for these indicators and reporting values for each in the next acute care scorecard.
- For data that are not currently available from the OHRS (indicators 16 -19), we recommend that the OHRS MIS database be enhanced in the future to include relevant variables.

### Feasibility Issues

#### Data Availability

The availability and quality of patient outcomes data are perhaps the greatest concerns for the development of nursing indicators. For the most part, data sources are comprised of administrative or secondary databases. Mark & Burleson\(^\text{249}\) developed and tested an instrument to determine the availability and consistency of five patient outcome indicators for nursing: (a) medication administration errors; (b) patient falls; (c) occurrence of decubitus ulcers; (d) nosocomial infections; and (e) unplanned readmissions to the hospital in a random sample of 20 U.S. hospitals. Results indicated that data were collected consistently for medication errors and patient falls only.\(^\text{249}\) The authors suggest...
the need for a standardized minimum data set for nursing administration to ensure that comparisons such as these are possible for decision-making in the future. The importance of understanding administrative data, and its usefulness for practice and management within healthcare institutions has been underscored by other researchers.250,251

In light of this evidence, we conducted a telephone survey to determine the feasibility of collecting data on the proposed nursing indicators for the clinical utilization and outcomes quadrant. In total, we received 42 completed surveys from acute care hospitals representing each of the five geographic regions defined by the Ontario Hospital Association. The surveys revealed that many acute care hospitals in Ontario do not collect data on the primary outcomes of functional status, self-care status and symptom control. However, data are available on the secondary outcomes of patient falls and hospital-acquired pressure ulcers at the majority of the hospitals surveyed. Of the hospitals that do collect data on each of the recommended indicators, most would be able to provide the information in an electronic format, with the exception of data collected on symptom control. The results of the survey are summarized in the table below.

### Summary of Responses from Clinical Utilization and Outcomes Data Feasibility Survey

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Status</td>
<td>8</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Self-Care Status</td>
<td>7</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Symptom Control</td>
<td>17</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Patient Falls</td>
<td>42</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pressure Ulcers</td>
<td>25</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you provide information on the [indicator] of patients who have visited your hospital in the past year?</td>
<td>Yes - 8</td>
<td>No - 28</td>
<td>Unsure - 2</td>
</tr>
<tr>
<td>Can these data be provided in an electronic format?</td>
<td>Yes - 4</td>
<td>No - 4</td>
<td>Yes - 4</td>
</tr>
</tbody>
</table>

A few representatives indicated that it would be possible to provide information on the specified indicators for patients in complex continuing care or rehabilitation but these data are not collected in acute care at their hospitals.

The integration of nursing indicators into the existing *Hospital Report Series* provides the opportunity for testing the reliability and validity of the nursing indicators, using an established methodology. The results of the literature review and Consultation Sessions have provided confirmation that data on the following nursing indicators should be collected:

**System Integration and Change:**

1. Clinical information technology
2. Clinical data
3. Intensity of information use
4. Nursing databases
5. Development and use of clinical pathways
6. Coordination of care
7. Nursing-community integration
8. Continuity of care
9. Strategies for managing ALC patients
10. Nursing health human resources

Collection of data on each of these indicators is currently feasible for measurement.
Clinical Utilization and Outcomes:

1. Functional status
2. Self-care status
3. Symptom control
4. Patient falls
5. Urinary tract infections
6. Pneumonia
7. Pressure ulcers
8. Upper gastrointestinal bleeding
9. Failure to rescue

Collection of data on patient falls, urinary tract infections, pneumonia and pressure ulcers is currently feasible; however, data on functional status, self-care status and symptom control may not be readily available.

Patient Satisfaction:

1. Information you were given
2. Instructions
3. Ease of getting information
4. Information given by nurses
5. Informing family or friends
6. Involving family or friends in your care
7. Concern and caring by nurses
8. Attention of nurses to your condition
9. Recognition of your opinion
10. Consideration of your needs
11. The daily routine of nurses
12. Helpfulness
13. Nursing staff response to your calls
14. Skill and competence of nurses
15. Coordination of care
16. Restful atmosphere provided by nurses
17. Privacy
18. Discharge instructions
19. Coordination of care after discharge
20. Overall quality of care and services you received
21. Overall quality of nursing care

Collection of data on each of these indicators is feasible with the implementation of the Patient Judgment of Hospital Quality Survey.235

Financial Performance and Condition:

1. Inpatient nursing earned hours per inpatient weighted case
2. UPP (RN, RPN, and non-professional staff) earned hours per inpatient weighted case
3. RN staff earned hours per inpatient weighted case
4. Percent of total inpatient nursing earned hours utilized for direct nursing care
5. Percent professional nursing staff hours utilized for RNs
6. Percent of direct nursing care earned hours utilized for non-professional staff
7. Percent of nursing care earned hours utilized for full time RNs
8. Percent of nursing care earned hours utilized for full time RPNs
9. Percent of nursing care earned hours utilized for full time non-professional staff
10. Percent of nursing care earned hours utilized for part time RNs
11. Percent of nursing care earned hours utilized for part time RPNs
12. Percent of nursing care earned hours utilized for part time non-professional staff
13. Percent of nursing care earned hours utilized for casual RNs
14. Percent of nursing care earned hours utilized for casual RPNs
15. Percent of nursing care earned hours utilized for casual non-professional staff
16. Percent nursing staff hours utilized for agency staff
17. Percent nursing staff hours utilized for orientation
18. Percent nursing staff hours utilized for absenteeism
19. Percent nursing staff hours utilized for ongoing education
20. Percent nursing staff hours utilized for overtime

Collection of data on the first 16 indicators is currently feasible; however, data on the remaining indicators is not readily available.

A substantial amount of evidence has been presented in this Report to support the inclusion of these indicators as measures that capture the practice of nursing in each quadrant of the balanced scorecard. While all of the indicators are theoretically important to consider, the plausibility of measuring all of them must be examined. The availability of comparable data for some of the indicators is problematic. An overview of the availability of each of the nursing indicators and the data source for each is provided in Appendix D.

Recommendations and Future Directions

The nursing team has generated a list of indicators that fit within the balanced scorecard framework utilized for the Hospital Report Series. These indicators are supported by evidence in the literature and by nurse stakeholders from across the Province. The researchers recommend that these nursing indicators be integrated into the existing Hospital Report Series for validation and testing, and analysis. We acknowledge other important and complementary initiatives currently underway in the Province. Every effort has been made to avoid duplication of effort or overlap. For example, the MOHLTC Nursing and Health Outcomes Study is working towards the development of variables for inclusion in healthcare databases about nursing and nursing-sensitive outcomes. Attempts to measure several of the clinical outcomes acknowledged as important in this Report (e.g. functional status, self-care, symptom control) are not recommended for this year as we await progress on the Nursing and Health Outcomes Project. Similarly, the Best Practice Guidelines being developed by the RNAO support the indicators included in this Report, those identified in the Nursing and Health Outcomes Project and the Hospital Report Series. Thus, the potential to create a guideline or framework for the ongoing evaluation of these indicators is evident.

System Integration and Change Quadrant Recommendations

Based on relevant literature, key informants and previous work on the development of system integration and change indicators, we recommend:

• That a survey methodology be utilized to obtain information from organizations in relation to system integration and change indicators for nursing care. Items representing nursing should be included in the
sections on clinical information technology, nursing databases, clinical pathways, and alternate levels of care.

- We recommend that a new indicator – nurse integration and management – be included in the existing human resources indicator of the Hospital Report, to capture the nursing human resource challenges that exist within organizations. This indicator is based on the work of Shortell and colleagues\(^5\), integration and management theory, and literature on health human resources, magnet hospitals, retention and recruitment.

- In the future, when nursing data are routinely collected and examined, we recommend that items be developed to assess internal and external benchmarking of nursing practices.

- Continuity and coordination of care items should also be developed and included in the Hospital Report, to augment the patient's assessment of these indicators.

**Clinical Utilization and Outcomes Quadrant Recommendations**

A three-staged approach is recommended for the development of the clinical utilization and outcomes indicators. This includes:

- For data that are currently available from CIHI, we recommend collecting data on the following secondary complications found to be sensitive to nurse staffing variables: bacterial pneumonia, urinary tract infection, skin pressure ulcers, and falls that result in a codable injury (e.g. fracture or subdural hematoma).

- For secondary complications where the evidence is unclear in regard to support for a relationship with nursing interventions at this time, we recommend collecting data for the purpose of evaluating sensitivity to nurse staffing variables, specifically for upper gastrointestinal bleeding and failure to rescue.

- We recommend further research to establish the feasibility of collecting data on primary patient outcomes found sensitive to nursing care, specifically for functional status, symptom control, and self-care.

**Patient Satisfaction Quadrant Recommendations**

Our analysis of the literature and of feedback gathered from nursing stakeholders across the Province suggests that there is room for improvement in how patient satisfaction with nursing care is measured in Ontario hospitals. The current measure fails to capture many of the factors identified by nurses and patients in research on determinants of satisfaction with care. Based on our review, we feel comfortable in recommending that the modified 20-item version of the Patient Judgments of Hospital Quality (PJHQ)\(^2\) be considered as a measure of satisfaction with nursing care.

**Financial Performance and Condition Quadrant Recommendations**

A two-staged approach is recommended for the development of financial performance and condition indicators. This includes:

- For data that are currently available from the OHRS, we recommend collecting data and analyzing it for inclusion within the next series of Hospital Reports.
• For data that are not currently available from the OHRS, we recommend that the OHRS MIS database be enhanced in the future to include variables relevant to these indicators.
References


60. Advisory Committee on Health Human Resources. The nursing strategy for Canada. Ottawa, Canada: Authors; 2000.


# Appendix A: Nursing Report Consultation

## Session Participants

### HAMILTON CONSULTATION SESSION

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
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<tbody>
<tr>
<td>Eileen Bain</td>
<td>Program Manager</td>
<td>Cambridge Memorial Hospital</td>
</tr>
<tr>
<td>Gloria Cardoso</td>
<td>Corporate Project Specialist</td>
<td>Cambridge Memorial Hospital</td>
</tr>
<tr>
<td>Nancy Sinclair</td>
<td>Professional Practice Representative</td>
<td>Cambridge Memorial Hospital</td>
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<tr>
<td>Kathleen Heslin</td>
<td>Vice President, Clinical Programs</td>
<td>Grand River Hospital</td>
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<tr>
<td>Sylvia Scott</td>
<td>Director, Professional Practice</td>
<td>Grand River Hospital</td>
</tr>
<tr>
<td>Irene Pasel</td>
<td>Vice President, Patient Services &amp; Chief Nursing Officer</td>
<td>Guelph General Hospital</td>
</tr>
<tr>
<td>Myrna Cooper</td>
<td>Chief Nursing Officer</td>
<td>Haldimand War Memorial &amp; West Haldimand General Hospitals</td>
</tr>
<tr>
<td>Kim Alvarado</td>
<td>Profession Leader</td>
<td>Hamilton Health Sciences Corporation</td>
</tr>
<tr>
<td>Petra Cooke</td>
<td>Registered Nurse</td>
<td>Hamilton Health Sciences Corporation</td>
</tr>
<tr>
<td>Karen Eddy</td>
<td>Registered Nurse</td>
<td>Hamilton Health Sciences Corporation</td>
</tr>
<tr>
<td>Bernice King</td>
<td>Registered Nurse</td>
<td>Hamilton Health Sciences Corporation</td>
</tr>
<tr>
<td>Barbara MacKinnon</td>
<td>Manager, External Quality</td>
<td>Hamilton Wentworth Community Care Access Centre</td>
</tr>
<tr>
<td>Tricia Stiles</td>
<td>Clinical Nurse Specialist</td>
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<tr>
<td>Larry Stewart</td>
<td>Vice President, Patient Care Services</td>
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<tr>
<td>Michelle Butt</td>
<td>Senior Research Associate</td>
<td>McMaster University Medical Centre</td>
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<tr>
<td>Diane Cameron</td>
<td>Health Programs Director</td>
<td>Niagara Health System</td>
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<tr>
<td>Cindy Bates</td>
<td>Nurse Manager</td>
<td>St. Joseph’s Hospital &amp; Home</td>
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<tr>
<td>Marion Bramwell</td>
<td>Vice President, Patient Services &amp; Chief Nursing Officer</td>
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<tr>
<td>Wendy Cuthbert</td>
<td>Director, Clinical Services</td>
<td>Brockville General Hospital</td>
</tr>
<tr>
<td>Eleanor Plain</td>
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<tr>
<td>Trudy Freeman</td>
<td>Director of Nursing</td>
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<tr>
<td>Linda Hofman</td>
<td>Coordinator, Quality Management &amp; Nursing Practice</td>
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<tr>
<td>Eleanor Rivoire</td>
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</tr>
<tr>
<td>Joan Tranmer</td>
<td>Director, Nursing Research</td>
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</tr>
<tr>
<td>Sue Wilson</td>
<td>Program Director</td>
<td>Kingston General Hospital</td>
</tr>
<tr>
<td>Gail Beatty</td>
<td>Nurse Manager, Outpatients</td>
<td>Lennox and Addington County General Hospital</td>
</tr>
<tr>
<td>Velma Desjardins</td>
<td>Patient Care Unit Manager</td>
<td>Perth &amp; Smiths Falls District Hospital</td>
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<tr>
<td>Maureen McGinn</td>
<td>Director, Physiotherapy Services</td>
<td>Providence Centre</td>
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<tr>
<td>Marianne Lamb</td>
<td>Director, School of Nursing</td>
<td>Queen's University</td>
</tr>
<tr>
<td>Catherine Kirk</td>
<td>Director, Medicine &amp; Critical Care</td>
<td>Quinte Healthcare Corporation</td>
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<tr>
<td>June Nalon</td>
<td>Coordinator of Nursing Program</td>
<td>St. Lawrence College</td>
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### LONDON CONSULTATION SESSION

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<tr>
<td>Connie Courtney</td>
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<td>Charlotte Eleanor Englehart Hospital</td>
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<td>Linda Goldsmith</td>
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<td>Chatham-Kent Health Alliance</td>
</tr>
<tr>
<td>Pat Kirkby</td>
<td>Chair of Health Sciences</td>
<td>Fanshawe College</td>
</tr>
<tr>
<td>Alfretta Vanderheyden</td>
<td>Integration Leader</td>
<td>Huron-Perth Hospitals Partnership</td>
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<tr>
<td>Roberta Ament</td>
<td>Assistant Executive Director, Patient Services</td>
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<tr>
<td>Glenda Hayward</td>
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<tr>
<td>Nancy Hilborn</td>
<td>Intensive Care Unit Nurse</td>
<td>London Health Sciences Centre</td>
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<tr>
<td>Kathleen Ledoux</td>
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<td>London Health Sciences Centre</td>
</tr>
<tr>
<td>Barb Willis</td>
<td>Vice President, Operational Performance</td>
<td>London Health Sciences Centre</td>
</tr>
<tr>
<td>Carol Wong</td>
<td>Professional Practice Leader</td>
<td>London Health Sciences Centre</td>
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</table>
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<td>Lois Kozak</td>
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<td>Englehart &amp; District Hospital</td>
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<td>Monique Berger</td>
<td>Director, Patient Care Services</td>
<td>Espanola General Hospital</td>
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<td>Manon Lemonde</td>
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<td>Ellen Rukholm</td>
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<tr>
<td>Debra Bennett</td>
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<td>Nancy Jacko</td>
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<tr>
<td>Andrea McLellan</td>
<td>Coordinator, Quality Improvement Education</td>
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<td>Tiziana Silveri</td>
<td>Program Director</td>
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<tr>
<td>Marilyn Travglini</td>
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<td>Sault Ste. Marie General Hospital</td>
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<td>Janice Hardy</td>
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<td>Lucille Perreault</td>
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<td>Margaret Catt</td>
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<td>Dot Allen</td>
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<tr>
<td>Lynda Dukacz</td>
<td>Director, Emergency, Critical Care &amp; Mental Health Programs</td>
<td>Timmins &amp; District Hospital</td>
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<tr>
<td>Carol Halt</td>
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<td>Timmins &amp; District Hospital</td>
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<tr>
<td>Michelle Remillard</td>
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<td>West Nipissing General Hospital</td>
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</table>
TORONTO CONSULTATION SESSION

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<tr>
<td>Shalimar Santos-Comia</td>
<td>Coordinator, Nursing Education &amp; Community Partnerships</td>
<td>Sunnybrook &amp; Women's College Health Sciences Centre</td>
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<tr>
<td>Janet Rush</td>
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<td>The Hospital for Sick Children</td>
</tr>
<tr>
<td>Marla Fryers</td>
<td>Chief Nursing Officer &amp; Lead, Professional Practice</td>
<td>Toronto East General &amp; Orthopaedic Hospital</td>
</tr>
<tr>
<td>Heather Blachford</td>
<td>Chief Nursing Officer</td>
<td>Trillium Health Centre</td>
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<tr>
<td>Jane Moser</td>
<td>Acting Chief Nursing Officer</td>
<td>University Health Network</td>
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<tr>
<td>Amy McCutcheon</td>
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<td>Stevenson Memorial Hospital</td>
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<td>Nancy Purdy</td>
<td>Chief Nursing Officer</td>
<td>William Osler Health Centre</td>
</tr>
<tr>
<td>Ainsley Lee</td>
<td>Chief Nursing Officer</td>
<td>York Central Hospital</td>
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</table>
# Appendix B: Key Informants and Related Initiative Participants

### Nursing Best Practices Project
- **Tazim Virani**  Project Director  Registered Nurses Association of Ontario

### Institute for Work & Health – St. Michael’s Hospital
- **Lynda Robson**  Research Associate  Institute for Work and Health

### Personal Consult for Patient Satisfaction Quadrant
- **Georgi Beal**  Chief, Nursing Practice and Professional Services  Centre for Addiction and Mental Health
- **Margrét Comack**  Vice President and Chief Nursing Officer  Huron-Perth Hospitals Partnership
- **Eric Doucette**  Manager, Practice Setting, Consultation Program and Employer Support  College of Nurses of Ontario
- **Mary Ferguson-Paré**  Vice President, Nursing Services  Baycrest Centre for Geriatric Care
- **Karen Perkin**  Professional Practice Leader  St. Joseph’s Health Care London
- **Patricia Petryshen**  Vice President and Chief Nursing Officer  St. Michael’s Hospital
- **Janet Rush**  Chief of Nursing  The Hospital for Sick Children
- **Carol Wong**  Professional Practice Leader  London Health Sciences Centre

### Personal Consult for Financial Performance and Condition Quadrant
- **Donna Thomson**  Doctoral Fellow  Faculty of Nursing, University of Toronto
Appendix C: Summary of Recommended Modifications to the System Integration and Change Survey

This appendix summarizes proposed changes to the system integration and change survey to integrate a nursing care perspective into the Hospital Report Series. Based on the literature review and the Consultation Sessions, it is recommended that items be included in the sections on clinical information technology, clinical pathways, continuity of care and alternate level of care (ALC) patients.

In the clinical information technology indicator, items are recommended to increase the visibility of nursing in clinical and administrative databases, as well as assess the nurses’ ability to access information within the organization. Items have been recommended examining the amount and type of nursing information accessed from patient records and included in databases. Nurses’ ability to access information electronically is also suggested. The Hospital Report Series explores the development and implementation of clinical pathways. Within this section of the survey, it is suggested that items be included that examine the nurse’s role in the clinical pathway process. Items have also been recommended to be included that assess the nurse’s role in managing patients designated as “ALC”.

To assess coordination of care, items were identified to be included in the Patient Satisfaction survey examining the type of communication transferred and the support patients and their families receive prior to and following discharge from the hospital.

One new indicator was recommended to be introduced within the existing health human resource indicator to reflect the challenges of maintaining quality patient care while meeting the evolving demands of the changing healthcare system, and specifically nursing shortages. The nurse integration and management indicator is based on the work of Shortell and colleagues and integration delivery system theory. This indicator examines nurses’ identification with the organization and how they actively participate in the planning, management and governance. The specific items recommended examine the areas of:

• Retention;
• Work Intensity and Environment;
• Leadership and Support;
• Professional Autonomy;
• Communication;
• Nursing Knowledge;
• Recruitment Strategies;
• Orientation;
• Nurse Satisfaction; and
• Nurse Integration within the Organization.
## Appendix D: Feasibility of Data Collection

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<td>Overall Quality of Nursing Care</td>
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**Financial Performance and Condition Indicators**

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<tr>
<td>RN Staff Earned Hours per Inpatient Weighted Case</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of total inpatient nursing earned hours utilized for direct nursing care</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent professional nursing staff hours utilized for RNs</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of direct nursing care earned hours utilized for non-professional staff</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of nursing care earned hours utilized for full time RNs</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of nursing care earned hours utilized for full time RPNs</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of nursing care earned hours utilized for full time non-professional staff</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of nursing care earned hours utilized for part time RNs</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
<tr>
<td>Percent of nursing care earned hours utilized for part time RPNs</td>
<td>Yes</td>
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</tr>
<tr>
<td>Percent of nursing care earned hours utilized for part time non-professional staff</td>
<td>Yes</td>
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<tr>
<td>Percent nursing staff hours utilized for orientation</td>
<td>No</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent nursing staff hours utilized for absenteeism</td>
<td>No</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent nursing staff hours utilized for ongoing education</td>
<td>No</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent nursing staff hours utilized for overtime</td>
<td>No</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent nursing staff hours utilized for agency staff</td>
<td>Yes</td>
<td>OHRS/Nursing MIS Database</td>
</tr>
</tbody>
</table>
Appendix E: Authors – Nursing Report, Hospital Report Research Collaborative

Linda McGillis Hall
Linda McGillis Hall, RN, MSc, PhD, is an Assistant Professor with the Faculty of Nursing, University of Toronto and is a co-investigator with the Nursing Effectiveness, Utilization, and Outcomes Research Unit operating out of the University of Toronto and McMaster University. Her research interests relate to determining the effectiveness of nursing practices within the healthcare system. She has developed a research program aimed at studying mechanisms for examining different staffing mixes in the nursing workforce in Canada and the skills and knowledge needed for nurses to work effectively in a productive and cost-efficient manner within the healthcare system.

Joan Almost
Joan Almost, RN, ACNP, MScN, is a Lecturer and 4th Year Coordinator in the University of Western Ontario, School of Nursing, Faculty of Health Sciences in London, Ontario. She teaches courses in the undergraduate program related to medical/surgical nursing. During the past three years, she has worked as a Research Assistant with Dr. Laschinger at The University of Western Ontario.

Diane Doran
Diane Doran, PhD, RN, is an Associate Professor in the Faculty of Nursing and Director of the Combined MN/MBA Program. She is a co-investigator with the Nursing Effectiveness, Utilization, and Outcomes Research Unit, Faculty of Nursing, University of Toronto. Diane is also a recipient of the Premiers Research Excellence Award. She is a co-theme leader (human resources) with the Home Care Evaluation Research Centre, University of Toronto. The foci of her research are healthcare teams; the evaluation of methods for improving quality in nursing practice; and the design and measurement of nursing sensitive patient outcomes. One group of studies has focused on the evaluation of an intervention designed to teach members of multidisciplinary teams methods for making improvements in clinical practice. A second group of studies is focusing on evaluating alternative healthcare provider roles. Within this group, current studies focus on evaluating the acute care nurse practitioner role and the primary care nurse practitioner role. A third group of studies is focusing on an evaluation of outcome indicators for assessing the quality of nursing care.

Claire Mallette
Claire Mallette, RN, MSc, PhD Candidate, has expertise in health human resources, quality of nursing worklife and environmental complexity. She is presently starting her third year of doctoral studies at the Faculty of Nursing,
Linda-Lee O’Brien-Pallas

Linda-Lee O’Brien-Pallas, RN, PhD is a Professor at the Faculty of Nursing, University of Toronto. She is cross-appointed to the Department of Health Policy, Management and Evaluation, Faculty of Medicine and is a member of the Hospital Management Research Unit. She is the Canadian Health Services Research Foundation/Canadian Institutes of Health Research National Chair in Nursing Human Resources. She is the Co-Principal Investigator (University of Toronto site) of the Nursing Effectiveness, Utilization and Outcomes Research Unit that is funded by the Ontario Ministry of Health and Long-Term Care. Her research interests include nursing health human resources, workload measurement and patient classification systems, factors influencing variability in nursing resource use and patient outcomes, and the quality of nursing worklife. Her research has crossed all sectors of the healthcare system and she has published widely in her areas of research. She has served on local, provincial, national, and international committees to examine approaches to health human resources prediction and modeling, to develop standards for practice, next generation workload measurement approaches, and the development of clinical and educational databases for planning and evaluating nursing resources. She is a member of the Boards of Directors of the Registered Nurses Association of Ontario and the Canadian Nurses Association. She recently served on Ontario’s Expert Panel on Physician Human Resource Planning Committee, co-chaired its modeling sub-committee, and completed a ten year career scientist award through the Ontario Ministry of Health.

Cheryl Pedersen

Cheryl Pedersen, MSc, is presently employed as a Research Officer in the Faculty of Nursing, University of Toronto. She entered the field of health sciences at the University of Western Ontario in London, Ontario where she earned an undergraduate degree from the School of Kinesiology, Faculty of Health Sciences with an area of concentration in Psychology. From there she went on to earn her Masters degree in the field of Sports Medicine at the University of Western Ontario where she developed an interest in research. As a Masters student she developed a survey tool that has been implemented in several study protocols. Cheryl has been a tutorial assistant and guest lecturer in undergraduate health sciences courses. She is also a recipient of the Honours Award for Teaching Excellence from the University of Western Ontario.
Heather K. Spence Laschinger

Heather K. Spence Laschinger, RN, PhD, is Professor and Associate Director Nursing Research in the University of Western Ontario, School of Nursing, Faculty of Health Sciences in London, Ontario. She teaches courses in the graduate program related to research methodology and organizational theory. Heather has published and presented papers in the areas of workplace empowerment, nursing and medical education, and health education theory. Her research interests include workplace empowerment in nursing work settings and the impact of work conditions on nurses’ work behaviours, attitudes, and mental and physical health. Since 1992, she has been Principal Investigator of a program of research designed to investigate nursing work environments using Kanter’s organizational empowerment theory. Heather has been involved in the International Study of Hospital Outcomes led by Dr. Judith Shamian and Dr. Linda Aiken, a 4-country study designed to link nursing work conditions to patient and nursing outcomes. She is Co-principal Investigator with Dr. Michael Kerr of the Institute of Work and Health on a CHSRF study to investigate the feasibility of establishing an ongoing system to monitor the health of nurses. For the past two years, she has served on the Ministry of Health Expert Panel on Nursing and Hospital Outcomes. Her work on patient satisfaction as a nurse sensitive outcome led to her involvement with the Ontario Nursing Report Project led by Dr. Linda McGillis Hall. She is also a member of the Advisory Group for the Ontario Hospital Association Nursing Strategy Project.