

Nursing Staff Mix: A Key Link to Patient Safety

The statistics are startling. Of patients¹ admitted to Canadian acute care hospitals in 2000, an estimated 7.5 per cent experienced one or more adverse events² during their hospital stay. Slightly over a third of these patients were judged to have had events that could have been prevented (Baker, et al., 2004). These findings are not limited to Canada. Studies in several other countries have shown that health care systems are prone to error and that the risk of adverse events is significant.

We now know that most harm to patients doesn't stem from a single cause. As well, harm doesn't usually result from factors such as incompetence or negligence associated with an individual health care provider. More commonly, adverse events are caused by complex problems in the health care system

itself. As a result, the approach to investigating errors is changing. Rather than blaming individuals as was traditionally done, the current approach is to look for root causes and prevent future errors by changing the way we work in the health care system.

Nurses³ are very familiar with health care system changes that have the potential to affect patient safety. Over the last decade, health care restructuring, budget cuts and the shortage of health professionals have prompted health care organizations to try to use their human resources more efficiently. One strategy has been to change the mix of registered nurses (RNs) and licensed/registered practical nurses (LPNs)⁴ working in a facility or agency and/or to introduce unregulated health care workers into the setting.

Nursing staff mix in Canada refers to the combination and number of RNs, LPNs and registered psychiatric nurses (RPNs) providing direct and indirect nursing care to patients. Changes in staff mix can occur when more of one category of nurse is hired or when one category is replaced by another. Nurses are concerned that changes are often made without evaluating how the decisions will affect patient safety. The consequences of uninformed and cost-driven decision-making can be serious: the nursing staff mix itself may create the conditions that could lead to clinical errors and result in adverse outcomes for patients, nurses and organizations.

The Canadian Nurses Association (CNA) has prepared this resource to highlight some of the important issues concerning nursing staff mix decision-making and patient safety. The focus of this article is on the mix of RNs and LPNs; however, the issues discussed are also relevant to registered psychiatric nurses and unregulated health care workers. You will find sources for obtaining further information at the end of this article.

¹ The Canadian Nurses Association (CNA) normally uses the word *client* to refer to individuals, families, groups, populations or entire communities who are the recipients of nursing care. However, in the context of patient safety, the word *patient* is more often used. Therefore, *patient* will be used in this document, except when citing a specific reference that uses *client*.

² Adverse events are "unintended injuries or complications that are caused by health care management, rather than by the patient's underlying disease, and that lead to death, disability at the time of discharge or prolonged hospital stays" (Baker, et al., 2004, p. 1678).

³ In this document, unless specified otherwise, *nurse* refers to registered nurses (RNs) and practical nurses. The title for a practical nurse in Canada, with the exception of Ontario, is licensed practical nurse (LPN). In Ontario, the title for a licensed practical nurse is registered practical nurse (RPN).

⁴ To avoid confusion between the abbreviations of registered practical nurse and registered psychiatric nurse, which are both RPN, wherever possible in this document all practical nurses are referred to as licensed practical nurses (LPNs).

Nurses and Patient Safety

Patient safety is basic to nursing care and is of concern in every setting where nurses work. Patient safety is not just part of what we do; we are committed through the *Code of Ethics for Registered Nurses* to provide safe, competent and ethical care.

In a survey of Canadian nurses' perceptions of patient safety in hospitals, nurses overwhelmingly responded that their work environment is presenting increasing risk to their patients (Nicklin & McVeety, 2002).

The Connection to Scope of Practice

Before decisions can be made about the appropriate mix of staff required on a unit or in an agency, it's necessary to understand scope of practice and how it relates to staff mix.

Scope of practice refers to the range of roles, functions, responsibilities and activities nurses are educated and authorized to perform (Association of Registered Nurses of Newfoundland and Labrador, 2000). The scope of practice of regulated health care providers like RNs and LPNs is determined by several factors, including:

- provincial or territorial legislation;
- standards of nursing practice established by provincial or territorial nursing regulatory bodies;
- employer policy; and
- knowledge, skills, judgment and personal attributes (competencies) of individual nurses.

The *Nursing Strategy for Canada* report and other documents emphasize that allowing all nurses to work to their full potential promotes the efficient use of human resources and encourages the retention of nurses (Advisory

Committee on Health Human Resources, 2000). Individual nurses need to work fully within their legislated scope of practice based on their education, experience and the availability of support systems such as orientation programs and professional development. For example, an RN or LPN may have been educated to perform a certain activity but may not have had the opportunity to carry it out in a number of years. In the absence of adequate support and supervision, that nurse's scope of practice should not include the activity.

Although the scopes of practice of RNs and LPNs vary because of differences in education, there are areas in which they share some competencies and their scopes of practice overlap. This overlap contributes to the difficulty of making affordable staff mix decisions that will benefit patients. In calculating the cost to the system, we need to be aware that poor patient outcomes usually cost more because of complications and increased lengths of stay.

Simply put, the old adage that "a nurse is a nurse is a nurse" does not stand up when all the factors that determine an individual nurse's scope of practice are taken into account. If staff mix decisions are made solely on the basis of the legislated scope of practice of RNs or LPNs, several key factors can be overlooked and patient safety can be affected.

Supports for Staff Mix Decision-Making

CNA and the Canadian Practical Nurses Association (CPNA) believe that, while cost-efficiency is an important element of decision-making, the need to ensure positive patient outcomes and patient safety through an evidence-based approach is central to making

staffing decisions (CNA, 2003d; Gabrielle Bridle, president, CPNA, personal communication, February 11, 2005). Today there are more supports available to administrators and managers who have to make these challenging decisions.

Policy directions and documents

Policy documents at the national level have examined the problems facing nurses today and have identified factors that threaten patient safety. In *Commitment and Care*, Baumann, et al. (2001) encourage employers to clarify staff mix issues as one way to create high quality environments that provide positive outcomes for both patients and nurses.

Provincial and territorial nursing professional and regulatory bodies for both RNs and LPNs have developed position statements, practice expectations and guidelines to assist nurses, employers and others in making effective decisions regarding the appropriate nursing care provider. Common to these documents is a focus on patient outcomes, evidence-based solutions and collaborative approaches.

Staff mix research

International and national evidence linking nursing staff mix and patient safety outcomes (especially in acute care settings) is now available. Among the patient outcomes that have been studied are mortality rates, medication errors, wound infections, pressure ulcers, pneumonia and lengths of stay. Several studies have indicated that the higher the proportion of regulated nursing staff in the staff mix and, in some studies, the higher the proportion of RNs and the higher the number of hours of care provided by RNs, the better the patient outcomes. Examples of findings from some Canadian studies are provided as follows.

- The higher the proportion of RNs and RPNs⁵ on inpatient medical and surgical units, the better patients' functional independence and social functioning at hospital discharge (McGillis Hall, et al., 2003).
- The higher the proportion of RNs in the staff mix in acute care hospitals, the fewer patients who died within 30 days of admission (Tourangeau, Giovannetti, Tu, & Wood, 2002).
- Clients cared for in the community by baccalaureate-prepared RNs required fewer home visits and had better knowledge and behaviour scores related to their health condition than those cared for by an RN without a degree or by an RPN⁶ (O'Brien-Pallas, et al., 2001; 2002).

Decision-making frameworks and tools

Increasingly, we are seeing the introduction of frameworks to guide decision-making. One such example has three components for managers to consider when deciding on the most appropriate mix of RNs and LPNs (adapted from Alberta Association of Registered Nurses, College of Licensed Practical Nurses of Alberta, & Registered Psychiatric Nurses Association of Alberta, 2003; CNA, 2003d; College of Nurses of Ontario, 2002).

Specific tools to help with decision-making have been limited. The tool most commonly used for determining staffing needs is a workload measurement system (WMS). A WMS aims to match staffing requirements to the care required by patients on the unit. For more information on nursing WMSs, please consult "Measuring Nurses' Workload" in *Nursing Now* (CNA, 2003a) on CNA's website.

Legislated staffing ratios

Some jurisdictions, like the states of California (USA) and Victoria (Australia), have begun to legislate minimum ratios of RNs to patients for various types of patient care units in public health care facilities. Whether this approach to nurse staffing levels and mix is an effective and appropriate way to address issues of patient safety has not been settled. Some nursing organizations believe that more evidence is needed on the impact of nurse:patient ratios on patient outcomes from a variety of health care settings before recommendations can be made in this area of practice.

Challenges in Making Appropriate Staff Mix Decisions

RNs are concerned that focusing on tasks when determining staffing needs and planning care makes it difficult to capture the complexity of nursing practice. Consider this example submitted to CNA from an RN.

Taking the psychiatric patient for a walk allows the RN to complete a physical and mental assessment including ability to focus on a task, interpretation of the individual's environment and orientation in all spheres. This walk may look like something anyone could perform; however, it is only the vehicle through which the RN establishes the nurse-client therapeutic relationship and completes the nursing assessment.

When deciding how best to match the competencies of the care provider with the needs of the patient, it's not enough for managers to consider only the technical skill of the provider; the cognitive aspects of nursing practice such as critical thinking, decision-making and evaluating must also be taken into account. RNs use skills like these when they're assessing patients. When they detect a change in a patient's condition, they can quickly implement nursing measures and call in other members of the health care team. Preventing complications is an important outcome of good staffing practices.

Component	Selected Criteria
Client factors	Complexity of care needs Predictability of outcomes Risk of negative outcomes
Care provider competencies	Education Experience Expertise
Practice environments	Availability of and access to resources including support for nurses, policies, procedures, care pathways and protocols to guide clinical decision-making

⁵ Since this citation refers to research done in Ontario, the title registered practical nurse (RPN) has been retained.

⁶ As above.

Uncertainty about roles and responsibilities creates another challenge. Employers usually set out what is expected of RNs and LPNs in job descriptions, policies and procedures. But, it can be confusing when nurses in some health care organizations and provinces or territories are able to undertake a wider range of nursing care activities than in others.

Changes in nursing staff mix have, in some situations, led to blurring of RN and LPN roles. The overlap has sometimes left governments, employers and both groups of nurses unclear about their responsibilities in specific work environments. Tension in working relationships threatens patient safety when roles, responsibilities and scopes of practice are unclear.

RNs have questions about liability and their responsibilities for delegation and supervision of LPNs when staff mix changes are made. Generally speaking, the RN is liable for the decision to assign patients or delegate care to another health care worker while the LPN is liable for the care she or he gives (Canadian Nurses Protective Society, 2000).

Using Evidence to Support Changes in Nursing Staff Mix

A recent initiative described by Elaine Warren, Program Director, Surgery, with the Health Care Corporation of St. John's, illustrates the increasing use of a more evidence-based approach to staff mix decision-making.

As the manager of an in-patient surgical unit, Ms. Warren recently decided that the current nursing staff mix of 80 per cent RNs and 20 per cent LPNs was not working. With the closure of beds and the

increase in out-patient surgery, the health status of patients on the unit had become less stable, and their needs were more complex than in the past. The knowledge and skills of RNs would be required to conduct more detailed patient assessments, monitor epidural analgesia and perform procedures such as complicated dressings. They would also be needed to undertake complex discharge teaching, instructing patients about drains, chest tubes, intravenous antibiotics and equipment.

Ms. Warren arrived at the decision that the unit required a higher complement of RNs by documenting what RNs and LPNs on the unit were doing, consulting the literature on nursing staff mix and patient safety, and reviewing nursing workload measurement data. She also studied financial records that confirmed the costs associated with having to regularly supplement unit staffing with additional RNs. She is looking forward to evaluating how this evidence-based approach will affect patient outcomes (personal communication, August 5, 2004).

The national associations of the three regulated nurses groups (Canadian Nurses Association, Canadian Practical Nurses Association and the Canadian Council of Practical Nurse Regulators, and the Registered Psychiatric Nurses of Canada) have formed a strong collaboration to advocate for the evaluation of nursing staff mix decisions. They recently released an evaluation framework that will assist employers to determine the impact of nursing staff mix decisions on patients, nurses and the health care organization. This collaborative framework is available on CNA's website.

Moving Forward

Health care providers, administrators, employers, researchers, educators, regulators and policy-makers have to work together to ensure that Canadians receive safe and effective care. Although nurses can't do it alone, there is much that they can do individually and collectively to ensure that nursing staff mix decisions are made in the best interests of patients. For example, as a nurse working on a unit in a hospital or in an agency in the community, you can participate in unit-based discussions and research on staff mix decisions.

- Nurse researchers can conduct studies to examine:
 - the relationship between nursing staff mix and patient outcomes in long-term care, mental health, home care and community settings;
 - the impact of LPN practice in settings where they are commonly employed; and
 - the impact of registered psychiatric nurse (RPN) practice in mental health settings.
- Research findings must reach administrators and managers in practice settings and decision-makers in provincial and territorial governments.
- Decision-making tools that assist in determining and monitoring the right staff mix must be more systematically used and refined.
- Strategies must be found to deal with broader issues that have an impact on nursing staff mix such as the shortage of nurses, the increase in the proportion of nurses working part-time, rising workload and interprofessional conflict.

Where Can I Get More Information?

☑ CNA has a number of documents related to patient safety and nursing staff mix on its website (www.cna-aiic.ca):

- Research summary series (2005)
- *Evaluation Framework to Determine the Impact of Nursing Staff Mix Decisions* (2005)
- *Nurses and Patient Safety: A Discussion Paper* (2004)
- Report of Think Tank – *Patient Safety: Developing the Right Staff Mix* (2003)
- Position statement – *Patient Safety* (2003)
- Position statement – *Staffing Decisions for the Delivery of Safe Nursing Care* (2003)
- *Code of Ethics for Registered Nurses* (2002)

☑ Also on CNA's website is the *Patient Safety Resource Guide*, a web-based, fully searchable database containing references related to all aspects of patient safety. For ease of use, the references have been classified into 11 categories, one of which is "Nurse Staffing and Skill Mix."

☑ Provincial/territorial nursing professional and regulatory bodies, whose websites are listed on CNA's website, have position statements, guidelines and other tools on nursing staff mix decision-making.

Advisory Committee on Health Human Resources. (2000). *The nursing strategy for Canada*. Ottawa: Author.

Alberta Association of Registered Nurses, College of Licensed Practical Nurses of Alberta, & Registered Psychiatric Nurses Association of Alberta. (2003). *Collaborative nursing practice in Alberta*. Edmonton: Authors.

Association of Registered Nurses of Newfoundland and Labrador. (2000). *Guidelines regarding shared scope of practice with licensed practical nurses*. St. John's: Author.

Baker, G. R., Norton, P. G., Flintoft, V., Blais, R., Brown, A., Cox, J., et al. (2004). The Canadian adverse events study: The incidence of adverse events among hospital patients in Canada. *Canadian Medical Association Journal*, 170(11), 1678-1686.

Baumann, A., O'Brien-Pallas, L., Armstrong-Stassen, M., Blythe, J., Bourbonnais, R., Cameron, S., et al. (2001). *Commitment and care: The benefits of a healthy workplace for nurses, their patients and the system – A policy synthesis*. Ottawa: Canadian Health Services Research Foundation and The Change Foundation.

Canadian Nurses Association. (2002). *Code of ethics for registered nurses*. Ottawa: Author.

Canadian Nurses Association (2003a). Measuring nurses' workload. *Nursing Now*, 15, 1-4. Available from: http://www.cna-aiic.ca/CNA/documents/pdf/publications/NursesWorkloadmarch2003_e.pdf

Canadian Nurses Association. (2003b). *Patient Safety* [Position statement]. Ottawa: Author.

Canadian Nurses Association. (2003c). *Patient safety: Developing the right staff mix*. Ottawa: Author.

Canadian Nurses Association. (2003d). *Staffing decisions for the delivery of safe nursing care* [Position statement]. Ottawa: Author.

Canadian Nurses Association. (2004). *Nurses and patient safety: A discussion paper*. Ottawa: Author.

Canadian Nurses Association. (2005). *Evaluation framework to determine the impact of nursing staff mix decisions*. Ottawa: Author.

Canadian Nurses Association. (2005). *A higher proportion of RNs and RPNs on inpatient units may result in more positive patient outcomes* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Baccalaureate or higher nurse education related to fewer surgical patient deaths* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Collecting baseline patient outcome data should precede nurse staffing changes* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Decreasing RN staffing levels may not result in expected cost savings* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Higher levels of RN staffing are related to better patient outcomes* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Higher RN staffing levels are related to fewer deaths of patients with acute myocardial infarction* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Inadequate nurse staffing and poor organizational support affect patient safety globally* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Long working hours of hospital RNs associated with increased errors* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Nurse staffing and patient death* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Nurse staffing model influences cost of nursing services* [Research summary]. Ottawa: Author.

Canadian Nurses Association. (2005). *Nurses' education level can influence patient and system outcomes in community home nursing* [Research summary]. Ottawa: Author.

Canadian Nurses Protective Society. (2000). *infoLAW: Delegation to other health care workers*. Ottawa: Author.

College of Nurses of Ontario (2002). *Practice expectations: A guide for the utilization of RNs and RPNs*. Toronto: Author.

McGillis Hall, L., Irvine Doran, D., Baker, G. R., Pink, G. H., Sidani, S., O'Brien-Pallas, L., & Donner, G. J. (2003). Nurse staffing models as predictors of patient outcomes. *Medical Care*, 41(9), 1096-1109.

Nicklin, W., & McVeety, J. E. (2002). Canadian nurses' perceptions of patient safety in hospitals. *Canadian Journal of Nursing Leadership*, 15(3), 11-21.

O'Brien-Pallas, L., Irvine Doran, D., Murray, M., Cockerill, R., Sidani, S., Laurie-Shaw, B., & Lochhaas-Gerlach, J. (2001). Evaluation of a client care delivery model, part 1: Variability in nursing utilization in community home nursing. *Nursing Economic*, 19(6), 267-276.

O'Brien-Pallas, L., Irvine Doran, D., Murray, M., Cockerill, R., Sidani, S., Laurie-Shaw, B., & Lochhaas-Gerlach, J. (2002). Evaluation of a client care delivery model, part 2: Variability in client outcomes in community home nursing. *Nursing Economic*, 20(1), 13-21, 36.

Tourangeau, A. E., Giovannetti, P., Tu, J. V., & Wood, M. (2002). Nursing-related determinants of 30-day mortality for hospitalized patients. *Canadian Journal of Nursing Research*, 33(4), 71-88.

Nursing Now is a series of short papers that explore issues and trends in Canadian nursing.

This series, published by CNA, is available online at www.cna-aiic.ca

ISSN 1206-3878