

Measuring Nurses' Workload

Introduction

Cost-cutting measures in health care can hit nurses hard. When an organization looks at operating dollars, the large proportion devoted to nursing services stands out! These services are often cut when nurse leaders cannot produce evidence that defends their nursing resource needs.

Likewise, we know that heavy workloads for nurses contribute to job strain and lead to long-term health costs (Baumann et al., 2001). How do human resources managers determine what a heavy workload is?

In order to ensure wise decisions are made related to staffing needs, nurses must be able to measure the nursing resources required to care for their clients. Although never a replacement for the day-to-day sound clinical judgment of an experienced nurse (Canadian Nurses Association, 2001), a valid and reliable system for measuring nursing resource intensity can be key to predicting overall nursing staff requirements.

This article will review basic concepts and issues related to measuring nursing resource intensity and highlight issues related to nursing workload measurement systems. It is the fourth article in a series of *Nursing NOW* articles on topics relating to nursing informatics.

What Exactly Do We Mean by Nursing Resource Intensity?

O'Brien-Pallas, Irvine, Peereboom, and Murray (1997) describe "nursing resource intensity as the intensity of the nursing response to the conditions in patients that create the demand for nursing care" (p. 171). It is a measure of the nursing resources used, in terms of both amount of time spent and level of nursing staff involved, to deliver care to different types of clients, under different conditions.

The gold standard in measuring nursing resource intensity would be a valid and reliable process/model/system that measured nursing work by taking into account many factors that influence nursing workload and affect client outcomes (O'Brien-Pallas et al., 1997). These factors include the nursing condition of the client, the medical condition of the client, the characteristics of the care provider, the nursing interventions used and the work environment.

A gold standard process would also include having nurses who are providing the care interpret objective workload data based on their actual experience. As every nurse knows, it is not possible to quantify all aspects of nursing care. There are many factors, such as unfamiliarity with the work and setting; weight of

responsibility; simultaneous demands; unanticipated events; interruptions and even noise level, that may increase the nursing resource intensity during an episode of care (Gaudine, 2000).

What Are Nursing Workload Measurement Systems?

A nursing workload measurement system (WMS) is a key component of any process to measure nursing resource intensity. The intent of most nursing WMSs in use today is to provide a mechanism to track the amount of time it takes nurses to deliver various activities related to the mandate of their department or program.

Unfortunately, current WMSs take into account only part of the actual work done. They measure only two dimensions of nursing work: direct and indirect care. They focus on basic nursing tasks, ignoring the medical and nursing complexity of clients, the characteristics of nurses providing care and the work environment (Baumann et al., 2001).

Using such systems as the sole basis for determining nursing costs or for comparing information between units or organizations pushes them far beyond their limitations (Giovanetti, 1994). If the data are accurate and consistent, however, even a nursing WMS with these limitations can provide a tool to support nursing resource utilization decisions when used with quality data, other trending data and the qualitative reports of direct care nurses.

Progress is being made on second-generation systems, which examine several dimensions of nursing work. These are in the developmental stage, however. O'Brien-Pallas et al. (1997) developed and researched a model for studying

nursing work that examines four dimensions: nursing and medical conditions of the client, characteristics of the care provider and elements of the work environment. Their research showed that a significant amount of the variation in nursing resource intensity could be explained by factors such as age, severity of medical or nursing condition and the type of environment in which the care is delivered.

Although it is not known exactly how many health organizations in Canada use WMSs, WMSs are widely used in nursing, especially in the institutional acute care sector. There are currently a number of different approaches to measuring nursing workload, and as a result, there are a variety of systems being marketed by software vendors. Some are based on prospective or retrospective approaches to the collection of workload data, while others use standardized or actual time recording methodologies.

Nursing WMSs Issues

Whatever the approach, nurses have identified legitimate issues! In a national survey, senior nurse managers identified the three major objections of direct care nurses to WMSs shown in the box below.

Nursing Workload Measurement Systems Issues Identified by Nurses

1. WMSs do not reflect true workload.

Too often, little attention has been paid to designing and monitoring the WMS to ensure it accurately reflects the practice environment. Different nurses may not derive consistently similar results, in part because nurses using it do not see the value of the system.

2. Staffing is not adjusted to workload.

Workload data are not shared with those who produced it and nothing is done with the data.

3. WMSs take too much time to complete.

When nurses do not see the value in a procedure, they resent spending precious client care time filling out forms.

Source: Validity and reliability of nursing workload measurement systems: Review of validity and reliability theory by C.A. Hernandez and L. L. O'Brien-Pallas, 1996, *Canadian Journal of Nursing Leadership*, 9(3), p. 32-50.

In addition, nurses may feel that WMSs undermine control over their practice by replacing the nurse as the expert (Forchuk, 1996).

Moving Toward Quality Nursing WMS Data

If workload measurement systems are to provide the basis for determining nursing resource intensity, it is critical that the data collected through the application of these systems is of high quality. The following box suggests how the quality of the data collected through the application of current WMSs can be vastly improved at the organizational level.

If workload measurement systems are to be truly useful, they must be inte-

Moving Toward Quality Nursing WMS Data

Managers & Administrators

- Use the data to support decision-making in nursing.
- Let data collectors know how the data will be used.
- Implement user-friendly electronic systems.
- Integrate the WMS with the overall client-oriented health information system.
- Share reports with direct care nurses and listen to their feedback.
- Educate system users and provide support.
- Understand and respect the limitations of the data.
- Monitor reliability and validity on an ongoing basis.
- Participate in research to create better systems.

grated with other systems designed to capture data representing nursing practice within a larger system of client-oriented health information.

Key to moving toward quality data is the involvement of nurses in the design, implementation and monitoring of the WMS and in using the information gained from workload data to improve nurses' practice.

In Ontario, for example, four Community Care Access Centres (CCACs) created their own client classification and workload measurement system in order to predict potential workloads based on client needs and to measure the actual activity. Nurses needed tools to classify clients as a way to distribute caseloads fairly and to

define the actual cost of case management processes. The working group went through an iterative process drafting tools that measured several dimensions of nursing work. At the end of the pilot testing phase, analysis of the workload measurement data revealed that the case manager; encounter, i.e. the way activities were performed – home visit, case conference, phone, etc.; workload rating, based on clinical judgment; stage of case management (e.g.

assessment); and client type (e.g. palliative) explain approximately 32 per cent of the variation in case management time (Bornstein, 2001).

The MIS Guidelines: Building Blocks to Determining Nursing Resource Intensity

Most nurses are familiar with the *Guidelines for Management Information Systems in Canadian Health Service Organizations* (MIS Guidelines). They include a national framework for the collection and reporting of data required for determining nursing resource intensity.

Information based on the MIS Guidelines is used for a variety of purposes by a variety of users. Managers use MIS information to support decisions related to monitoring, evaluating and budgeting functions; provincial governments use the information for funding and benchmarking purposes; and finally, the federal government uses the information to determine Canada's Gross Domestic Product and, in part, the provincial/territorial transfer payments.

Information based on the MIS Guidelines can assist nurses by:

- Integrating financial, nursing activity and patient clinical data; and
- Improving the timelines and comparability of information being collected within their unit, program or department for management purposes.

Workload measurement systems are key components of the MIS Guidelines for determining nursing resource intensity. Because of the variety of approaches to measuring nursing workload, the MIS Guidelines provide a standardized framework for the collection and reporting of nursing workload data to enable nurse managers and others to compare information.

In order to effectively capture the intensity of nursing resources consumed by different types of patients, the MIS Guidelines require that workload measurement systems:

- Measure the amount of nursing time used to deliver care – both direct and indirect – to clients;
- Track the amount of nursing time used to deliver care to specific service recipients;¹ and
- Enable the collection of data over the entire episode of care.

Although the MIS Guidelines are national standards, only one

province, Ontario, has mandated the provincial reporting of nursing workload data. The Canadian Institute for Health Information (CIHI) has recently implemented enhancements to the MIS Guidelines, effective for implementation 1 April 2003, that would enable users to identify the mix of nursing staff involved (RN, LPN and RPN) in the delivery of care on each nursing unit. This is one important step towards determining nursing resource intensity.

Why Is It so Important for Nurses to Measure Nursing Resource Intensity?

In Canada's health system today, there are several factors, including those listed below, that explain why the need for measuring nursing resource intensity accurately has never been greater.

- Nurses have cited workload as the number one factor in job dissatisfaction. Research indicates that short-term increases in productivity lead to increased long-term health costs (Baumann et al., 2001).
- Because we cannot measure nursing work accurately, nursing effort and expertise are not recognized adequately (Baumann et al., 2001).
- Emphasis on accountability for the performance of the system is increasing.
- Competition for scarce resources will only intensify in the future.
- A population health planning focus means a need to know nursing consumption by different types of clients.
- Resource allocation decisions are increasingly linked to patient outcomes.
- The MIS Guidelines provide a national framework and an opportunity to address gaps in

information on the contribution of nursing to Canada's health system.

In addition, some provincial governments use resource intensity weights (RIW) as part of their funding methodology and as a measure of performance. RIWs measure expected resource use among groupings of patients who are divided according to their diagnoses and procedures performed. These groupings are called Case Mix Groups (CMG). Each CMG is assigned an RIW value based on the relationship between the average cost of patients in that CMG and the average cost of all patients in the database. It is not a dollar value but rather a relative index of the overall average cost. For instance a CMG costing half the average cost in the database would have an RIW of 0.5. For 2002, CIHI used Alberta health service recipient case cost records to further analyze the costs that make up the RIW, including the cost of nursing resources based on nursing workload units.

Figure 1 depicts how nursing costs are distributed to service recipients that can then be grouped by a grouping methodology, a program, etc.

For each patient grouping, the per cent distribution of cost components is presented to provide some insights into the costs used to deliver care to different types of patients.

From the nursing perspective, it is imperative to work toward quality workload measurement data to ensure that the information generated from the RIW process is useful. Accurate data can help nurse managers to predict the impact of changes in patient volume and case mix on resource requirements.

Future Directions

The Canadian Nurses Association (CNA) believes staffing decisions should be made on the basis of the appropriate number of positions and

¹ In the MIS Guidelines, the term service recipients refer to patients and clients, the term patients refers to inpatients and clients refers to outpatients.

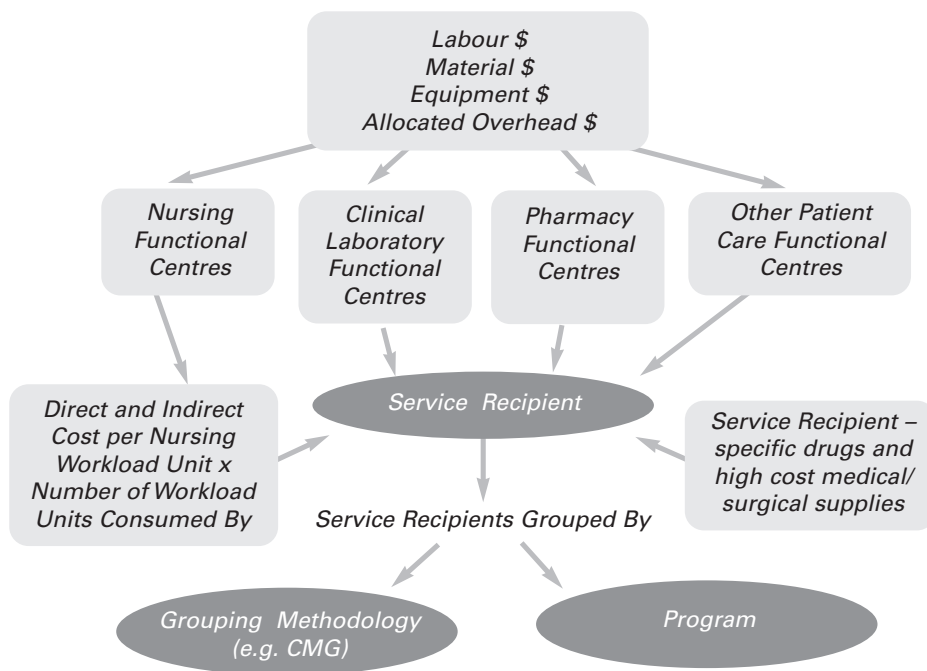


FIGURE 1 – TRACKING NURSING COSTS TO SERVICE RECIPIENTS AND PROGRAMS

skill mix required to achieve good client outcomes (CNA, 2001). Measuring nursing resource intensity accurately can provide nurses with the evidence they need to support wise staffing decisions. Moving forward, however, requires the commitment of many stake-

holders and the support of nurses. Nurses must play an active role in interpreting data available now and improving things for the future. Research efforts to create better systems for measuring nursing resource intensity must be supported and intensified.

² In the early 1990s, work began to develop a standardized data set that would be relevant to nursing. This work culminated with a national consensus on what has since been referred to as *health information: nursing components* (HI:NC) – client status, nursing intervention and client outcomes.

Baumann, A., O'Brien-Pallas, L., Armstrong-Stasser, 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*. Ottawa: Canadian Health Services Research Foundation. Available at www.chsrf.ca

Bornstein, J. (2001). The development of case management standards of practice and workload measurement systems. *Best Practices Project Newsletter*, 10(1), 5. Available at www.bpp.oaccac.on.ca

Canadian Nurses Association. (2001). *Position statement: Quality professional practice environments*. Ottawa: Author.

Forchuk, C. (1996). Workload measurement and psychiatric mental health nursing: Mathematical and philosophical difficulties. *Canadian Journal of Nursing Leadership*, 9(3), 67-81.

Gaudine, A. P. (2000). What do nurses mean by workload and work overload? *Canadian Journal of Nursing Leadership*, 13(2), 22-27.

Giovanetti, P. (1994). Measuring nursing workload. In J. M. Hibbard and M. E. Kylie (Eds.), *Nursing management in Canada* (pp. 331-349). Toronto: WB Saunders.

Hernandez, C. A. & O'Brien-Pallas, L. L. (1996). Validity and reliability of nursing workload measurement systems: Review of validity and reliability theory. *Canadian Journal of Nursing Leadership*, 9(3), 32-50.

O'Brien-Pallas, L., Irvine, D., Peereboom, E., Murray, M. (1997). Measuring nursing workload: Understanding the variability. *Nursing Economics*, 15(4), 171-182.

CNA recognizes a leadership role in this area. Although no national consensus² has been reached, nursing resource intensity is generally regarded as a critical element in measuring the contribution of nursing to the health of Canadians. Raising awareness among nurses concerning both the issues and opportunities related to nursing resource intensity and workload measurement systems is a first step to fostering national dialogue.

CNA collaborates with provincial/territorial nursing bodies and national organizations, such as CIHI, to develop and improve systems so they accurately reflect nursing work. CNA will continue to advocate for accurate reflection of nursing work and further research in workload measurement.

Where Can I Get More Information?

- ✔ Watch CNA's web site! Articles on nursing informatics, the electronic health record, and nursing classification systems are published on the web site (www.cna-aiic.ca). Also listed are several other resources on the topics of nursing informatics.
- ✔ Provincial/territorial nursing associations and the Canadian Nursing Informatics Association, listed on CNA's web site, are excellent sources for up-to-date information on nursing informatics. Many provinces/territories have active nursing informatics groups.
- ✔ There is a wealth of information on CIHI's web site (www.cihi.ca) including the Health Care in Canada 2002 Report, MIS Guidelines and several nursing-specific items and reports.
- ✔ The Nursing Effectiveness Utilization and Outcomes Research Unit (www.fhs.mcmaster.ca) researchers are leaders in advancing and improving the measurement of nursing workload.

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

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