Christine Duffield
Michael Roche
Linda O'Brien-Pallas
Christine Catling-Paull

The Implications of Staff 'Churn' for Nurse Managers, Staff, And Patients

EXECUTIVE SUMMARY

- In this article, the term "churn" is used not only because of the degree of change to staffing, but also because some of the reasons for staff movement are not classified as voluntary turnover.
- The difficulties for the nurse managing a unit with the degree of "churn" should not be under-estimated.
- Changes to skill mix and the proportions of full-time, agency, and temporary staff present challenges in providing clinical leadership, scheduling staff, performance management, and supervision.
- Perhaps more importantly, it is likely that there is an impact on the continuity of care provided in the absence of continuity of staffing.
- A greater understanding of the human and financial costs and consequences, and a willingness to change established practices at the institutional and ward level, are needed.

GROWING AWARENESS OF THE link between nurse staffing and patient outcomes has focused greater attention on the importance of staffing decisions. However, with prolonged workforce shortages, staffing hospitals with an appropriate mix and number of nurses to provide safe patient care is now more difficult. This factor, together with others such as an aging workforce and a greater demand for work-life balance, has influenced the availability of staff. As a consequence, many facilities are forced to staff their units or wards regularly with non-permanent employees such as agency (labor hire) staff, hospital pool staff, part-time employees (staff who are permanently employed but work less than 38 hours/week), and travelers on working visas. This potentially leads to a lack of continuity or stability in staffing. Differences in shift length and commencing and finishing times further exacerbate the situation.

Consistency in the staff providing care is important to ensure patient safety and continuity in care delivery (Jones, 2004). When staffing is stable, the work on the ward or unit is known and can be undertaken efficiently and with a minimum of explanation required. Nurses are more likely to be aware of the skills, expertise, strengths, and weaknesses of fellow staff members when they work with them regularly, while nurse man-

CHRISTINE DUFFIELD, PhD, MHP, RN, is Professor of Nursing, and Director, Centre of Health Services Research, University of Technology, Sydney, Australia.

MICHAEL ROCHE, MHSc, CertMHN, RN, is a Lecturer, University of Technology, Sydney, Australia.

LINDA O'BRIEN-PALLAS, PhD, MSc, RN, is Professor, and Director, CHSRF/CIHR National Chair - Nursing Human Resources, University of Toronto, Canada.

CHRISTINE CATLING-PAULL, MSc, RM, RN, is Research Officer, University of Technology, Sydney, Australia.

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agers are required to provide less supervision. In the longer term, consequences may include increased staff turnover, use of greater numbers of temporary nursing staff, and decreased morale (Duffield & O'Brien-Pallas, 2003).

Turnover is usually defined as staff that leave or transfer within the hospital voluntarily (O'Brien-Pallas et al., 2006). However, this definition does not take into account some of the staffing factors mentioned previously which could contribute to a greater turnover in a unit than would usually be recorded. In this article, changes in staffing numbers and mix in a sample of 40 wards from a larger study which examined the relationship between skill mix and patient outcomes, will be discussed (Duffield et al., 2007). In this article, the term "churn" is used not only because of the degree of change to staffing, but also because some reasons for staff movement may not be classified as voluntary turnover. The 40 wards were surveyed on two occasions from 4 to 17 months apart. All staff were surveyed on round one of the study and only those who were new to the unit were surveyed on round two. In addition, three wards will be used as exemplars as they are at the extreme end of how significantly a ward's staffing profile can change. Potential outcomes of churn for patients and staff, and strategies to manage units faced with this degree of staffing instability, will be discussed.

Nurses included in the survey were:

- *Clinical nurse specialists (CNS).* A personal grade awarded to individual nurses on the basis of expertise in a specialty demonstrated by qualifications and/or experience (NSW Health, 2005).
- *Registered nurses (RN).* Responsibility for preparing RNs resides in the university sector, leading to registration at bachelor degree level.
- *Trainee enrolled nurses (TEN) and enrolled nurses (EN).* Requires 1 year paid vocational training incorporating 15 weeks at a technical college for theoretical training and the balance in clinical units, and is equivalent to LVN/LPN.
- *Assistants in nursing (AIN).* Equivalent to patient care assistants.

Background

There are many factors which contribute to nursing turnover including heavy workloads and a poor work environment (Duffield, O'Brien-Pallas, & Aiken, 2004), bullying and harassment (Simons, 2008), low job satisfaction (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004), work stress (Ramrup & Pacis, 2008), poor or inflexible work schedules (Simons, 2008; Trinkoff, Geiger-Brown, Brady, Lipscomb, & Muntaner, 2006), and patients with challenging care requirements (Best & Thurston, 2004).

However, there are other factors which contribute to the churn of staff through a ward. These include the use of paid rotational training positions; short-term employment contracts for travelers, a policy to staff to a minimum level of occupancy which relies on "topping up" with agency personnel or floating staff from another unit, and increased casualization (non-permanent and part-time nurses) found in many countries now (Creegan, Duffield, & Forrester, 2003). The last decade has seen increased rates of casualization in the United Kingdom (Maggs, 2004), Canada (Canadian Institute for Health Information, 2007), New Zealand (Richardson & Allen, 2001), the United States (Bureau of Labor Statistics, 2008), and Australia (Batch, Barnard, & Windsor, 2006). In Australia, part-time employment rates have been as high as 54% (Eley, Buikstra, Plank, Hegney, & Parker, 2007). The International Council of Nurses (2005) recently reported that 32.8% of RNs in Canada worked part-time, 53% of RNs in Denmark, 40% in the United Kingdom, and 28.4% in the United States. Part-time and flexible work arrangements can be a mutually beneficial way to retain existing nurses in the workforce (Cohen, 2006), particularly in light of perceived heavy workloads (Ramrup & Pacis, 2008). However, there are potential consequences of having such a high rate of part-time or non-permanent employees.

The Consequences

The often unseen victims of significant changes to staff on a unit are the patients. They may experience a lack of continuity in care (Cabana & Jee, 2004). Patients frequently comment that they have received care from a different nurse every day of their stay in hospital (Cabana & Jee, 2004).This has been called a *nurse du jour,* described as the phenomenon of different nurses attending patients throughout the course of their stay in hospital (Editorial, 2003). Van Servellen, Fongwa, Mockus D'Errico, (2006, p. 185) define continuity as "coherent patient care over time and setting." This can mean patients seeing the same health care professional regularly (personal continuity), or it can mean a consistency of care provided by different health care professionals (care continuity) (Gulliford, Naithani, & Morgan, 2006). Haggerty et al. (2003, p. 1220) refer to "relational continuity," "an ongoing therapeutic relationship between a patient and one or more providers." Despite differences in definition, the central theme is that a patient sees a familiar person regularly throughout her/his care journey. Continuity of care has been linked with increased patient satisfaction (Beattie, Dowda, Turner, Michener, & Nelson, 2005; Hodnett, 2008), decreased hospitalizations (Beattie et al., 2005) and emergency department visits (Cree, Bell, Johnson, & Carriere, 2006), a

lower mortality rate (Estabrooks, Midodzi, Cummings, Ricker, & Giovannetti, 2005), improved quality of care (Solberg et al., 2006), and enhanced cost effectiveness (Raddish, Horn, & Sharkey, 1999; Sander, Elliot-Gibson, Beaton, Bogoch, & Maetzel, 2008). High rates of staff turnover minimize the possibility of continuity of care and its benefits to patients, and may increase readmission rates and costs (Beattie et al., 2005; Menec, Sirski, Attawar, & Katz, 2006).

For the nursing unit manager, an increase in part-time employees increases their workload because of the increased span of control. For example, the number of full-time equivalents (FTE) for a ward might be 50 but the headcount could be 70-80. Providing leadership and guidance, performance management, and coordinating work and learning activities become more difficult, particularly if there is regular reliance on use of other short-term staffing strategies such as agency and hospital pool staff or travelers. Scheduling this workforce to deliver a 24-hour service is more complex and difficult (de Jong, Heiligers, Groenewegen, & Hingstman, 2006). In addition, working relationships can be eroded (Jasper, 2007); nurses perceive that the standard of nursing care is low (Adams & Bond, 2003); staff turnover increases (Coomber & Barriball, 2007); and full-time nurses often have less desirable shift patterns and a reduced quality of work-life (Creegan et al., 2003).

There are significant costs associated with turnover resulting from losses in staff productivity for an organization (Jones, 2005). Jones (2005) defines the productivity costs for newly hired RNs as an estimate of the length of time it takes on average for a new employee to reach 90% productivity of an experienced RN. She estimated this took 6 weeks, while O'Brien-Pallas et al. (2006) estimated 6.7 weeks. There are two other calculations used by Jones (2005). One is for a productivity loss for existing members of staff working with new RN staff and the second, pre-turnover productivity, which is conceptualized as changes to productivity during the 3-month period prior to turnover (Jones, 2005).

Figure 1.
Equation 1: New/Additional Nurses, Second Round

$$\frac{\text{New Nurses Second Round}}{\text{Nurses First Round}} \times 100 = \%\ \text{New/Additional Nurses}$$

Purpose and Overview

This research arises from a larger study whose purpose was to determine the impact of nursing workload and skill mix on patient outcomes. Staffing and patient data were collected on 80 medical and surgical units during 2004/5 and nurses were asked to complete a survey. The overall response rate for completion of this tool was 80.9%.

All regulated and unregulated nurses (CNS, RN, EN, and AIN) including TENs were asked to complete the survey. Undergraduate nursing students on supernumerary clinical placement were not included. Trained data collectors distributed surveys to staff on 80 medical and surgical units on round one. They also collected patient and staffing data daily on the unit for 7 days. Forty wards were then resurveyed for another 7 days with an interval of 4 to 17 months between data collection periods. A unique identifier was given to each nurse by the data collector to ensure they only completed the survey once, even if their unit was resurveyed. Ethics approval was gained from the university, participating health services, and the health department (15 in total). Data cleaning was undertaken and units with incomplete staffing data were excluded from the analysis. Complete data were available for 37 wards for both rounds.

Data collected included a wide range of individual nurse data from the Nurse Survey including the Nursing Work Index-Revised (Aiken & Patrician, 2000), shift by shift data regarding the complexity of the work environment (Environmental Complexity Scale [ECS]) (O'Brien-Pallas et al., 2004), detailed and comprehensive staffing data including skill mix variables and self-reported involuntary unpaid overtime, patient characteristics, and adverse event data obtained from uncoded medical records (falls, medication errors, and adverse outcomes – urinary tract infection, thrombosis, wound infection, pneumonia, and decubitus ulcer).

As indicated, during the second round of data collection researchers only asked staff who had not completed the Nurse Survey in round one to do so. The number of new staff present on wards sampled for a second time was calculated using the unique code assigned to each nurse by researchers (see Figure 1). The study team developed this equation to express the amount of change in staffing on a unit regardless of size or staffing numbers overall. This figure is not dependent on response rates as it was captured from the number of individual staff working on the ward during each round. A change in bed numbers between the first and second rounds was captured and the length of time in days between samples was calculated.

Staff 'Churn'

As seen in Figure 2, there were considerable staff changes over the 40 wards. Higher levels of staffing change did not show a statistically significant correlation with the length of time between

Figure 2.
Change in Staffing

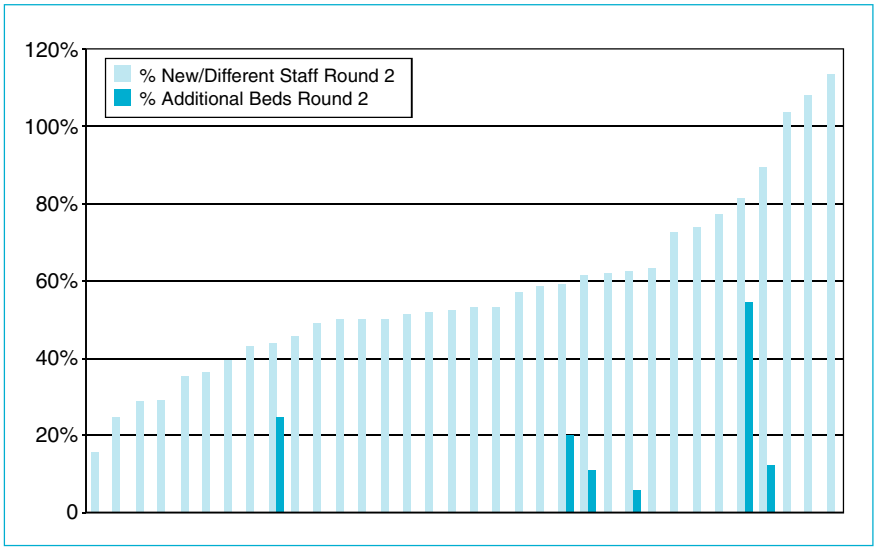

Table 1.
Ward 1 Staff Profile

	Data Collection Period 1	Data Collection Period 2
Staff Category[1]		
RN	64.6%	55.5%
RN 1-4	10.0%	5.1%
RN 5-8	54.6%	50.4%
CNS	0	0
EN	18.7%	35.2%
TEN	12.5%	3.4%
AIN	4.2%	5.9%
Employment Status[1]		
Full time	90.5%	32.1%
Part time	0	47.9%
Agency/temporary	9.5%	20.0%
Hours Involuntary and Unpaid Overtime[2]	0.4	1.7
Proportion of Nurses Indicating Less Time than Usual Available to Deliver Care[3]	24.3%	17.9%
Average Number of Years Worked as a Nurse[2]	10.6	12.5
Sick Leave[4]	2.4%	2.5%

[1] Hours worked from roster data, as a proportion of total nursing hours worked on the ward (excluding all leave and floating to other wards)
[2] Self-report for Nurse Survey
[3] Percentage shift responses to Environmental Complexity Scale
[4] Hours worked from roster data, as a proportion of total nursing hours on the ward (including leave and floating to other wards)

samples. Twenty percent of the units had 50% or more different or additional staff in the second round. Some of this staff churn may relate to voluntary turnover but also, as indicated earlier, the use of agency staff, temporary staff on short-term contracts, paid rotational training positions (TENs), or new graduate RNs who in some hospitals are rotated every 3 to 4 months in their first year of employment. Six wards increased their bed numbers, which provides some explanation for the number of new staff. One ward had a 54% increase in bed numbers and 81.6% change of staff. Seven wards had 40% or less new staff on the second round.

Three wards had a change in personnel of 100% or more. These wards will be examined in more detail as examples of the extreme end of how significantly a unit's staff and staffing profile can change. The discussion is purely descriptive and therefore, does not include any statistical analysis or statistical comparisons. The following tables provide information on the skill mix and staffing profile for these three wards. Information provided includes hours worked by employment status (full time, part time, and agency); hours worked by staffing grade and year (RN 1-4, RN 5-8, and CNS); hours worked by classification (RN, CNS, EN, TEN, AIN), all as a proportion of total hours worked on the ward; sick leave; self-reported data on mean hours of involuntary unpaid overtime; and self-reported responses to the percentage of "less time available than usual to deliver care."

Ward 1 (see Table 1) presents probably the greatest challenge to its manager given the staffing profile on round one. The length of time between data collection periods was 142 days (4.7 months). This ward went from 90.5% full-time hours on round one to only 32.1% on round two. The gap in hours seem to have been filled by part-time and agency staff. In

Table 2.
Ward 2 Staff Profile

	Data Collection Period 1	Data Collection Period 2
Staff Category[1]		
RN	71.2%	52.4%
RN 1-4	28.3%	23.9%
RN 5-8	42.9%	28.5%
CNS	10.2%	9.2%
EN	17.5%	31%
TEN	0	6.7%
AIN	1.1%	0.7%
Employment Status[1]		
Full time	67.7%	74.2%
Part time	29.1%	24.3%
Agency/temporary	3.2%	1.5%
Hours Involuntary and Unpaid Overtime[2]	2.3	0.9
Proportion of Nurses Indicating Less Time than Usual Available to Deliver Care[3]	24%	12.3%
Average Number of Years Worked as a Nurse[2]	9.7	7.1
Sick Leave[4]	3.2%	8.1%

[1] Hours worked from roster data, as a proportion of total nursing hours worked on the ward (excluding all leave and floating to other wards)
[2] Self-report for Nurse Survey
[3] Percentage shift responses to Environmental Complexity Scale
[4] Hours worked from roster data, as a proportion of total nursing hours on the ward (including leave and floating to other wards)

other words, the loss of permanent full-time members probably resulted in greater numbers of different staff to be managed each and every day. Mean involuntary unpaid overtime hours (self-reported) also increased. In addition, the experience level of staff changed. While there were fewer hours worked by junior registered nurses (RN 1-4 years), there were also slightly fewer hours worked by more experienced RN staff (5-8 years). However, this ward still had the largest percentage of senior nursing hours (RN 5-8/CNS) out of the three wards, and the years of experience as a nurse increased slightly. The EN workforce doubled. There were no CNSs in either round to assist the nurse manager in providing clinical leadership for staff, particularly those new to the unit. However, there was no change to sick leave. Fewer commented that they needed more time to deliver care per shift. This ward recorded a higher rate of adverse outcomes overall (13%) than the majority of wards in the study (5.7%). As described previously, these adverse outcomes were taken from the uncoded medical record and included falls, medication errors, and adverse outcomes (urinary tract infection, thrombosis, wound infection, pneumonia, and decubitus ulcer).

On the other hand, Ward 2 is moving to a more stable position in terms of full-time staff but with a change to its skill mix (see Table 2). The length of time between data collection periods was 471 days or 15.5 months. Full-time hours increased while part-time and agency hours worked dropped slightly. Unpaid overtime hours reported decreased as did the years worked as a nurse. There was a slight reduction in the proportion of RN 1-4 but a greater reduction in RN 5-8/CNS. The proportion of EN staff doubled and there was also an increase in TEN positions. In terms of expertise, this ward has clinical nurse specialists and there was only a slight reduction in this proportion over the two rounds. However, in terms of potential nursing outcomes, sick leave rose considerably, and there was a decrease in the proportion of staff reporting they had less time to deliver care each shift. In terms of patient outcomes, this unit recorded a higher rate for falls (4%) and medication errors (48.7%) in comparison to the average rates for all wards (2.7% falls and 16.9% medication errors).

Staffing on Ward 3 also gives the appearance of greater permanence and a richer skill mix between the two periods, 293 days or 4.7 months (see Table 3). This ward increased both its full-time and part-time hours and did not use agency staff or involuntary unpaid overtime. The proportion of RN 1-4 hours was relatively unchanged and the number of senior RN (5-8 years/CNS) hours increased on the second round. Years of experience as a nurse also increased slightly. The proportion of TEN staff increased in balance with a large decrease in EN hours. The proportion of CNS staff also increased, which might offset the increased number of TEN positions. No sick leave was reported on either round and less staff reported they had less time than usual to deliver care. This ward recorded a higher rate of falls (6.3%) than the average for all wards (2.7%).

Table 3.
Ward 3 Staff Profile

	Data Collection Period 1	Data Collection Period 2
Staff Category[1]		
RN	68.6%	77.5%
RN 1-4	40.6%	37.2%
RN 5-8	28%	40.3%
CNS	1.6%	2.4%
EN	21.8%	4.7%
TEN	8%	15.4%
AIN	0	0
Employment Status[1]		
Full time	53.7%	62.4%
Part time	26.1%	37.6%
Agency/temporary	20.2%	0
Hours Involuntary and Unpaid Overtime[2]	0.6	0
Proportion of Nurses Indicating Less Time than Usual Available to Deliver Care[3]	14.6%	11.8%
Average Number of Years Worked as a Nurse[2]	10.6	13
Sick Leave[4]	0	0

[1] Hours worked from roster data, as a proportion of total nursing hours worked on the ward (excluding all leave and floating to other wards)
[2] Self-report for Nurse Survey
[3] Percentage shift responses to Environmental Complexity Scale
[4] Hours worked from roster data, as a proportion of total nursing hours on the ward (including leave and floating to other wards)

Discussion

These three wards provide some insight into the complexities faced by nursing unit managers when there is a churning of staff over what may be relatively short periods of time. As mentioned earlier, not all of the reasons for staff changes are under the control of first-line nurse managers. For example, they have no influence over government policies which provide only 3-month working visas, and educational policies which provide programs with paid and frequently short, rotations. Their influence is limited over increases to unit bed numbers and hospital decisions to rotate new graduates (Beauregard, Davis, & Kutash, 2007). Nevertheless, the impact on their unit could be significant. Unfortunately, little attention has been paid to the consequences of these policies for the unit, its patients, and staff.

The costs of a loss in staff productivity are incurred irrespective of the cause: voluntary turnover or churn resulting from institutional or governmental policies. The average number of staff (FTE) per unit in the study was 33 and the average turnover was 19 (Duffield et al., 2007). Using 6.7 weeks (O'Brien-Pallas et al., 2006) for a new staff member to reach 90% productivity and an average annual salary for all staff categories of $AUS41,132 (excluding shift and penalty rates), then the average costs in lost productivity per ward would be $AUS100,515. This does not include productivity costs for existing members of staff working with new RN staff or preturnover costs (Jones, 2005). Those wards with 100% turnover would incur even greater costs in lost staff productivity ($AUS175,419). Twenty percent of the units in this study had a 50% or greater change of staff; a substantial cost in lost productivity for any organization.

The costs to patients of a loss in continuity of care are more difficult to quantify. When nurses work well as a team, they are less likely to leave or be absent from work and are generally more supportive of each other (Kalisch & Begeny, 2005). These factors impact positively on the continuity of a patient's care. When this is unlikely to occur because of significant changes to staffing, as this study has indicated, the potential for adverse, costly events increases. For example, Cho, Ketefian, Barkauskas, and Smith (2003, p. 76) estimated that a patient suffering from pneumonia as an adverse event "was associated with an increase of 5.1-5.4 days in LOS, 4.67-5.55% in the probability of death, and $22,390-28,505 in costs." There is some assessment of the relationship between continuity of care and health outcomes for persons with mental illness. For example, Mitton, Adair, McDougall, and Marcoux (2005) found, not unexpectedly, that poorer continuity of care resulted in higher hospital costs but lower community costs. They concluded that better continuity is associated with better patient outcomes.

Some staffing changes identified in this study would fit within the definition of voluntary turnover, which potentially could be minimized by nursing unit managers. In the commercial world, having a stable workforce provides a significant competitive advantage (Kreisman, 2002) as there are less costs incurred with recruitment, orientation, training,

overtime and supervision. The same is true in health care where the costs of RN turnover and replacement can range from $82,000 to $88,000 (Jones, 2008). The leadership role of the nursing unit manager is critical in influencing a variety of factors in the work environment which, in turn, can influence job satisfaction, satisfaction with nursing, and retention (Acree, 2006; Force, 2005). A skilled manager should be aware of weekly and annual patient flow through the ward and ensure that staffing levels match this flow. Due consideration must be given to nurses' workloads due to increased patient acuity and the aging workforce (Duffield et al., 2007). Nurses are more satisfied with their job in a patient-focused work allocation model (Makinen, Kivimaki, Elovainio, Virtanen, & Bond, 2003) rather than task-focused work, but this is hard to achieve with unstable staffing. A critical aspect of the work environment is staff morale, critical to job satisfaction (DiMeglio et al., 2005). There is little doubt this is hard to maintain with significant staff churn.

However, leadership is also required from more senior colleagues, both nursing and non-nursing, to ensure there are appropriate and sufficient human and financial resources available to the nurse managing a ward or unit. An organization's culture must ensure that nurse autonomy is encouraged as it impacts positively on job satisfaction and hence retention (Erenstein & McCaffrey, 2007; Wilson, 2006). Nurse executives must empower managers to respond to local staff concerns and support improved nurse-physician relationships. Hospitals need to invest in educating and appointing skilled nurse managers, particularly but not exclusively, at the ward/unit level. This investment will be easily offset by the estimated savings from decreased staff turnover and lost staff productivity.

Conclusion

In this article, a snapshot of how ward staffing may change over time was provided, relating these to some potential staff outcomes such as sick leave and additional time required to deliver care. In addition, some insights to the potential adverse outcomes for patients are evident. The difficulties for the nurse managing a unit with the degree of churn described here should not be under-estimated. Nursing leadership at the ward level is important in job satisfaction and retention. However, changes to skill mix and the proportions of full-time, agency, and temporary staff present challenges in providing clinical leadership, scheduling staff, performance management, and supervision. Perhaps more importantly, it is likely that there is an impact on the continuity of care provided in the absence of continuity of staffing. A greater understanding of the human and financial costs and consequences, and a willingness to change established practices at the institutional and ward level, are needed. **$**

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