

# Turnover amongst Nurses in New Zealand's District Health Boards: A National Survey of Nursing Turnover and Turnover Costs

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## Abstract

Turnover amongst nurses is a critical issue as nurse shortages throughout the Western world are putting a strain on health systems. New Zealand's nursing shortage is exacerbated by international recruitment efforts targeting New Zealand nurses. Our study of turnover and turnover costs is part of a wider international study, using an agreed study design and instruments, to determine the direct and indirect costs of nursing turnover. These costs also include the systemic costs, estimated by determining the impacts of turnover on patient and nurse outcomes.

The paper reports on two components of the study. First, a pilot study was conducted in six countries, including New Zealand, to identify availability of costs and suitability of the instrument. The pilot study found it difficult to establish the costs of turnover since information about many costs was not available. Second, as part of a national survey of nursing turnover and turnover costs, Directors of Nursing in the 21 District Health Boards (DHBs) throughout New Zealand were contacted to complete a survey on turnover and workplace practices; 20 participated. The survey did not establish how turnover rates were determined in the individual DHBs. Instead the study indicated the nursing turnover was a problem in 13 DHBs, with 5 DHBs reporting turnover rates over 20%. However, turnover did *not* appear to be an issue across the country as 5 DHBs reported low turnover in the 5-10% range. Notwithstanding the importance of attracting and retaining nurses, there were tight controls over recruitment of new staff in the majority

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This article is part of an international project to examine the cost of nurse turnover and the impact of turnover on patient safety and nurse health and safety outcomes. Co-principal investigators are Dr. Linda O'Brien-Pallas (University of Toronto, Canada) and Dr. Judith Shamian (Office of Nursing Policy, Health Canada). Team members represent five countries and include the following: Dr. James Buchan (Queen Margaret University College, Edinburgh, UK); Dr. Christine Duffield (University of Technology, Sydney, Australia); Ms. Frances Hughes (Ministry of Health, Wellington, New Zealand); Dr. Heather Laschinger (University of Western Ontario, London, Ontario, Canada); Dr. Patricia Stone (Columbia University, New York, NY, USA); and Dr. Pat Griffin (Health Canada, Ottawa, Canada).

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of DHBs, and several DHBs reported a freeze on recruiting Registered Nurses (except for 'specialist' nurse roles).

## Introduction

Turnover amongst nurses is an issue of growing concern for health services and policy makers as many countries in the Western world are experiencing endemic shortages of nurses. The nursing profession is experiencing declining numbers of new nurses, an older average age of new graduates and high rates of younger nurses leaving the profession due to an unwillingness to accept the relatively poor pay, high stress, and limited opportunities for advancement. Contributing to nurse shortages, therefore, are an exodus of Registered Nurses (RN's) from the profession, a decline in the number of graduates entering the profession, and an ageing nursing workforce as the 'baby boomer' generation of nurses approaches its retirement (Cowin, 2002; Shader et. al., 2001; Stone et al., 2003). For example, the UK is now facing a situation where 1 in 5 nurses is aged 50 or older (Buchan, 1999). At the same time demand for a skilled, experienced nursing workforce is growing as skill shortages also affect other medical and health professions, and there is an increasing demand for health services with an aging population, complex morbidities and high expectations of excellent health care.

Like other Western countries, New Zealand is facing nurse shortages and an aging nursing workforce: 45% of active registered nurses were aged 45 and over in 2002 (NZHIS, 2002). The nursing shortage is exacerbated by international recruitment efforts targeting New Zealand nurses (including new graduates). Furthermore, New Zealand research into the career plans of nurses has consistently found that around 30-40% of all active RNs intend to leave their jobs in the next 12 months, and over 50% of New Zealand nurses cease active employment as a RN within eleven years of initial registration (Cobden-Grainge & Walker, 2002; Gower & Finlayson, 2002; Nursing Council of New Zealand, 2000; NZ Herald, 2002; and Quinnell, 2001). While the problem of nursing turnover is acknowledged (see Rasmussen et. al., 2005), the levels, costs and consequences both in economic and quality terms have not been empirically established in New Zealand, hampering policy and organisational efforts to address the issue.

This paper describes a national study on *nursing turnover and the cost of nursing turnover in New Zealand's public hospitals*. The study is part of an international collaborative study involving Canada, Australia, the United States, the United Kingdom, and Scotland, all of which participated in a pilot study to test the survey instrument. Other countries may join subsequently. To date, the study has been commenced in Canada and New Zealand only. In New Zealand, only the first stage, a national survey of Directors of Nursing to contextualise the study, has been completed so far. Some results of this survey are presented in this paper. However, the paper will first briefly review the literature on the cost of nursing turnover and then it will discuss the findings from the pilot study in New Zealand.

## Determining the cost of nursing turnover: the literature

There is a considerable body of research on the *reasons* for turnover: the predominant reasons nurses resign from a job include issues related to salary, work schedules, job satisfaction, professional autonomy and job-related stress (Blegen, 1993; Cangelosi, Markham & Bounds, 1999; Cowin, 2002; Irvine & Evans, 1995; and Shader et. al., 2001). There are obviously strong 'push' factors which encourage nursing turnover, though 'pull' factors in form of private sector and overseas job opportunities have featured frequently in media reports (Rasmussen et. al., 2005). As such, nursing turnover fits the so-called 'push-pull model' (see Tava, 2005) where a combination of factors conspire to generate a high level of turnover.

There is also a small body of international and New Zealand literature on the *consequences* of nursing turnover: regular turnover of nursing staff has a negative impact on the care patients receive as health care teams become destabilised, staff morale declines, communication lines become disrupted and strain is placed on resources as temporary cover is arranged (Blegen, Goode & Reed, 1998; Buchan & Seccombe, 1991; Finlayson, 2002; Mueller & Price, 1989; O'Conner, 1996). In addition, efficiency is reduced and staff safety is compromised by staff shortages, increasing the likelihood of such incidents as needlestick injuries (Clarke, Rockett, Sloane & Aiken, 2002). However, turnover may also have positive impacts on employees and employers. Dalton and Todor (1979) assert that turnover can increase organisational effectiveness through enhanced innovation and mobility, and turnover is seen as an opportunity to replace dissatisfied workers who may have been unproductive for some time. In spite of these research findings, few policy and health service decision-makers have addressed the link between staff numbers, characteristics of work environment and the impact on patients, nurses and the hospital system as a whole. (O'Brien-Pallas, 2001).

Nursing turnover can have negative social impacts on an organisation, by disrupting cohesiveness, increasing internal mobility and often triggering additional turnover. In addition to impacting on the social dynamics of an organisation, turnover takes up a significant proportion of the healthcare dollar. Nursing turnover affects hospital efficiency through the costs of recruiting and orienting replacement nurses, the costs incurred in using temporary agency nurses to fill vacancies, reduced efficiency of team-based care on patient units, and the administrative costs of supervising new nurses (Alexander, Bloom & Nuchols, 1994). However, studies into the cost of nursing turnover are limited in number and are predominantly a decade out of date, therefore failing to reflect current nursing shortages (Johnston, 1991; Jones, 1990).

The identification of turnover costs per RN varies significantly due to both environmental factors and a lack of consistency between studies. Definitions of turnover, in particular, have been inconsistent amongst previous turnover research, and the costs included have varied, limiting comparability between studies. For example, American research has

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estimated turnover to cost as little as US \$1,528, or in excess of US \$25,000 per nurse, largely due to indirect costs (Hoffman, 1985; Jones, 1990). Loveridge (1998) found turnover costs ranged from US \$2,000 to \$5,000 per RN, and Wise (1990) estimated turnover costs to be \$5,435 per experienced RN. Similarly, a British study within the National Health Service (NHS) found that nursing turnover cost between £1,250 and £7,760 per nurse (Buchan & Seccombe, 1991). Waldman, Kelly, Aora and Smith (2004) found that turnover of all health professionals, not only nurses, in a medical centre represented a minimum of over 5% of the total operating budget. Turnover of nurses was the greatest contributor to costs, through loss of productivity, followed by training costs, with costs related to hiring the smallest driver.

The inclusion of both direct and indirect costs is a primary cause for disparities in results amongst studies calculating turnover costs. Costs may also vary according to the level of experience and specialisation required for the position. Those on a higher wage may receive larger holiday leave payouts, and positions requiring a greater degree of specialisation may be more difficult to fill, causing longer periods of temporary cover. Due to the difficulty of accessing and measuring indirect costs many studies under-represent the cost of turnover by studying only the direct costs. The term 'turnover' can also be used differently; for example, it can be used narrowly regarding nurses leaving the organisation, or it can be used more broadly to include internal transfer. Whether nurses leave voluntarily or not may also vary among studies. Even the term 'nurse' can be defined differently, depending on qualifications and organisational levels of the nurses Covered.

### ***The Pilot Study: testing cost measures***

The methodological deficiencies and variation of costs of nursing turnover studies, and inconsistent use of cost measures combined with the lack of data, must be overcome if the true costs are to be determined. In 2002 a group of influential researchers and policy makers in nursing initiated an International Consortium with the aim of conducting international comparative studies using the same definitions and methodologies to establish the true cost of nursing turnover to inform and drive policy to address nursing shortages and turnover.

The aim of the international pilot study was to test an instrument developed to determine costs of turnover, not primarily to describe the costs themselves. The investigators were asked to document the availability of data, whether costs were accurate or estimated, how costs were calculated, and if possible wider systemic costs attributed to nursing turnover (including patient care errors and adverse nurse outcomes incurring costs). For the purposes of the pilot study, the term 'nurse' referred to registered nurses working as staff nurses only, excluding enrolled nurses, nurse specialists and nurses in management roles, such as charge nurses. 'Turnover' was defined as voluntarily leaving the primary place of employment, including both internal transfer and leaving the organisation; thus,

an agreed formula for determining turnover rates was used.

Costs were conceptualised as direct and indirect costs. Direct costs were those costs that were easily identified and were a direct result of recruitment, temporary replacement and leaving. In contrast, indirect costs were costs which were normally incurred as a result of the nurse leaving, but which primarily related to the time spent by other employees in administering the turnover process e.g. orienting and precepting, new hires and employment termination costs. The instrument employed in the pilot was based on Buchan and Seccombe's (1991) disaggregation of turnover costs into 40 items under the following headings:

- Separation: The costs associated with processing a nurse leaver's separation from the employment of the organisation.
- Temporary Replacement: The costs associated with the method, or methods, which the employing organisation adopts in the interim period until a permanent replacement is recruited.
- Recruitment and Selection: The costs incurred by the organisation in searching for, and appointing, an appropriate permanent replacement.
- Induction and Training: The costs associated with induction and training of the replacement nurse, and costs incurred during the time elapsed until the replacement is determined to be providing an equal contribution to that provided by the leaver.

A largely 'bottom up' approach was used, focussing on the hospital unit level. Analysis at the unit level avoids intra-organizational variation in turnover by work unit (Mueller & Price, 1989). The bottom up approach evaluates the costs and benefits of turnover through a checklist method which 'allows the development of a detailed picture of the costs of turnover within individual employing units and can assist operational management to identify major sources of costs, and potential cost saving policies.' (Buchan and Seccombe, 1992: 23). For the purposes of the pilot study, the units used in all the participating countries were general medical and general surgical units, thereby minimising variation across the pilot studies. General surgical units were those where 80% or more of the patients admitted were usually treated for surgical conditions by a general surgeon, while general medical units were those with 80% or more of the hospital inpatients admitted and treated for non-surgical conditions; specified specialties were excluded for each category, e.g. psychiatry from medical, paediatric from general surgical.

The cost of turnover was evaluated retrospectively within one medical and one surgical unit of one of New Zealand's major metropolitan hospitals over a six months period, from 1<sup>st</sup> July to 31<sup>st</sup> December 2001. The hospital involved in the study was known to have high rates of turnover, with figures released by the hospital's District Health Board (DHB) indicating a turnover rate of 18.2% for health professional staff in 2001. It must be noted that throughout this period the hospital made major reductions to its budget and

had carried out managerial restructuring in previous months. Faced with huge budget deficits, the DHB was undertaking restructuring in the hospital's nursing management, removing a layer of leadership, and freezing the employment of new staff.

### ***The Results of the Pilot***

The general surgical unit investigated was comprised of 27 beds, with an average occupancy rate of 92.16%, and the general medical unit was also comprised of 27 beds with an average occupancy rate of 93.8%. While actual turnover rates and related costs were calculated using the protocol and checklist developed for the pilot study, it must be emphasised that reporting these results is not the main purpose of this paper. Neither the turnover rates and costs reported reflected the hospital's reported turnover rates and, in the absence of data regarding costs, are almost certain to grossly under represent costs. Rather, this discussion focuses on the process of locating data, interpreting data and reflecting on both reliability of data and implications of data management.

Nursing turnover rates were based on the number of RN FTE (Registered Nurse Full Time Equivalents) terminations per fiscal year calculated as a percentage of the average annual budgeted RN FTEs. The first problem encountered concerned how to determine the budgeted RN FTEs. Curiously, three differing levels of budgeted FTE per fiscal year were provided by the hospital: the units' own reported figures, those of the Human Resource department, and the Payroll database. The FTE figures provided by the nurse managers were based on the actual number of persons working in the units, whereas budgeted FTEs, reported by the Human Resource department, were between 2-3 FTEs lower than those reported by the nurse managers. It was explained that the reasons for the discrepancies were due to the software system used by the payroll department, where annual leave and sick leave dollar amounts were deducted from the budgeted FTEs, and that Human Resources estimates reflected a forecasting based reporting system. For the purposes of the pilot, the FTE-based nursing turnover rates were extracted from actual FTEs who work in and are paid from the budget of the units analysed.

During the 6-month study period, there were 2 terminations and 2 RN FTEs were hired in the surgical unit. In the general medical unit, 1 termination occurred and 3.8 RN FTEs were hired. Annual turnover rates for Registered Nurse were 7.4% in the medical unit and 12.5% in the surgical unit. These numbers are lower than the DHB's total turnover rate for health professionals of 18.2% for 2001, and anecdotal evidence from nurse managers as well as low turnover rates (compared to the DHB's average annual turnover rate) indicate that the study took place during a period of low turnover. As the pilot study focussed on just one six-month period, it probably does not reflect true turnover levels due to the nature of taking a cross-section in time.

The second difficulty concerned the identification of costs related to nursing turnover. It clearly exacerbated problems that the pilot was a retrospective study. The main difficulties

related to loss of institutional memory due to turnover of clerical and senior nursing staff, the fact many human resource and payroll information were aggregated, and simply tracking down who exactly had the required information, and then these staff had to find time to identify the costs requested. Using the instrument provided, Figure 1 shows the costs that were determined, some of which were estimated costs and others documented costs. The figure also shows costs that the investigators were unable to determine.

**Figure 1: Analysis of Data Availability and Total Turnover Costs for Surgical and Acute Units at a New Zealand Hospital**

<b>Direct Costs</b>	<i>Recruitment</i>	Advertising costs	\$1,211.22
		Recruiters pay and costs	Unavailable <sup>1</sup>
	<i>Temporary Replacement</i>	Costs associated with temporary replacement mechanisms	\$25,200.00
		Costs of clerical and admin time arranging and paying temporary cover	Unavailable <sup>2</sup>
		Time of experienced staff to provide on the job instruction to temp staff	Unavailable <sup>2</sup>
	<i>Hiring</i>	Management time	Unavailable <sup>1</sup>
		Processing costs and supplies	\$550.70
		Pre-employment physical exam	\$1,809.90
		Applicants expenses	Not Applicable
	<b>Indirect Costs</b>	<i>Termination/ Separation</i>	Holiday pay
Manager's time writing reference			\$318.00
Clinical administrative time			\$25.00
Exit interview time			Not Applicable
Unused sick time			Not Applicable
Leaving rituals			\$798.00
<i>Orientation/ Training</i>		Formal off-job training	Unavailable <sup>1</sup>
		On-job training	\$10,583.00
		Salaries and benefits	Incorporated
		Training equipment	Not Applicable
		Reduced efficiency of preceptors	Unavailable <sup>1</sup>
<i>Decreased Productivity of New Employee</i>		Number of hours orientation/induction to achieve 50% of full contribution of nurse	Unavailable <sup>2</sup>
		Number of hours orientation/induction to achieve 100% contribution of nurse	Unavailable <sup>2</sup>

<sup>1</sup> These figures were not collected by the hospital administration.

<sup>2</sup> These figures were not available as the numbers were too variable to calculate costs with accuracy, or the costs related to the units in the defined time period could not be disaggregated from general figures.

Figure 2 shows the distribution of costs. Between 65% and 75% of turnover costs were a result of temporary replacement costs: those costs incurred in covering for staff that had left, and the administrative aspects of arranging cover. The bulk of these costs were due to the higher wages associated with employing nurses from internal banks and external agencies, and the expense incurred in paying regular staff to work overtime to cover for the staff members who had left. The total costs for temporary replacement of unfilled positions came to \$8,400 per nurse. The clerical and administrative time utilised in arranging temporary coverage is also significant, with up to one hour spent by charge nurses ringing their own staff to cover vacancies; however, no data was available on these costs as the charge nurses were unable to retrospectively report how often this occurred. Following temporary replacement costs, the most significant cost to arise, as a proportion of total turnover costs, was in orientation and training of staff. Orientation and training costs varied from 13% of the surgical unit's total turnover costs to 22% of the medical unit's. At the time of the study, all staff employed by the DHB were supernumerary for the first two weeks of their employment, although in practice this was variable based on the nurses' level of experience. The cost of orientation/training was similar across the surgical and medical units varying from \$3,467.50 to \$3,648.00. This cost was estimated based on the median hourly staff nurse rate covering the hours in which they were in orientation and supernumerary in the unit. It does not include the fixed cost of delivering orientation programmes and job training. Data was not available on the reduced efficiency of the preceptor while training new employees.

**Figure 2: Distribution of Measurable Turnover Costs for Surgical and Acute Units**

	General Medical Unit		General Surgical Unit		Total	
	Cost (NZ\$)	%	Cost (NZ\$)	%	Cost (NZ\$)	%
Recruitment Costs	1923.47	6.21	1211.22	4.50	3134.70	5.41
Temporary Replacement Costs	20248.00	65.40	20426.00	75.84	40674.00	70.26
Hiring	1525.20	4.93	835.30	3.10	2360.50	4.08
Termination/Separation	327.50	1.06	813.50	3.02	1141.00	1.97
Orientation/Training	6935.00	22.40	3648.00	13.54	10583.00	18.28
Total	30959.17	100.00	26934.02	100.00	57893.20	100.00

In summary, total costs were very similar for the two units, the medical unit incurring \$30,959.17 over the six-month study period, and the surgical unit \$26,934.02 in turnover costs. However, it must be emphasised that these costs are likely to significantly under-represent actual costs due to costs for some variables, particularly productivity costs, (shown in other research as a significant contributor to turnover costs (Waldman et al, 2004)), not being available (shown in Fig. 1), and due to the process of desegregation from other costs incurred by a given service or department.

Despite significant gaps in the data collected, the cost of nursing turnover was nearly \$60,000 for just three RN terminations in the two hospital units; \$20,000 per nurse. Although this study under-represents actual turnover costs, the pilot reflects the significant impact which nursing turnover is having on healthcare budgets of New Zealand's health service organisations. The pilot study confirms that nursing turnover is consuming a large proportion of the health care dollar and this represents a net loss to direct patient care. These findings are consistent with previous research into the cost of turnover and, like previous studies, they are indicative of the *minimum* cost of turnover.

The outcome of the pilot is two-fold. First, in view of the indicative high real costs of nursing turnover, a decision was made to proceed with a national study. This decision was made both at the International Consortium level and locally. In New Zealand, funding has been secured and the full study is now underway. The study will control for differences in particular databases and administrative systems by taking a randomised sample of nursing units in New Zealand's public health service organisations. This will allow results to be generalised with confidence. Furthermore, seasonal variations in turnover will be countered by collecting data over a full calendar year. The results of a prospective, national study will provide hospital management with the evidence needed to support strategies to retain valued nursing workforces, thereby positively affecting patient outcomes.

Second, based on the experiences of the pilot study, the International Consortium made a number of changes to the survey instrument. The limitations to the application of the checklist were predominantly a result of the hospital's data collection procedures. The data required for the pilot entailed additional effort by human resource and nurse management staff because available data was collected and stored in a form for other purposes. As shown in Figure 1, most of the data could not be identified or it was impossible to disaggregate nursing data from other human resource data. Further, the retrospective nature of the pilot meant that some important data was lost to recall. Prompted by the pilot study, several changes were made to the research design: the study is prospective, it collects data not only on the direct and indirect costs of turnover but also includes the impact of turnover on patient and nurse outcomes; and it incorporates considerable fine-tuning of the methods used to calculate actual costs.

## The New Zealand Cost of Nursing Turnover Study

Subsequent to the pilot study, the research team has already commenced on a longitudinal study of the direct and indirect costs of nursing turnover in New Zealand's public hospitals, including the impact of turnover on patient and nurse outcomes. Twenty-two general medical and surgical units in 11 District Health Boards have been randomly selected. As a first stage of the study, the Directors of Nursing in all twenty-one District Health Boards (DHBs) throughout New Zealand were contacted and invited to participate in a survey. Twenty DHBs and Directors of Nursing agreed to be involved and they either returned

completed questionnaires or participated in a telephone interview.

The aim of the survey of Directors of Nursing was to identify workplace practices affecting nursing turnover, in order to contextualise nursing turnover and its costs. The following data were requested: information related to nursing turnover currently collected; data, policy and initiatives on retention and recruitment; and relevant studies and reports conducted internally. Only results pertaining to turnover are reported here.

### ***Reported turnover***

The majority of Directors of Nursing (DONs) received regular reports from Human Resources or Payroll on resignations and new appointments, with fewer DHBs also producing reports on internal transfers, dismissals, leave of absence, parental leave and vacancies. These reports were received at weekly or monthly intervals. Three DHBs mentioned that a Balanced Scorecard reporting system – including turnover figures - was used. In other DHBs, turnover was specified in the Annual Report. In some DHBs, Nurses and Midwives are not separated from other staff so reliable turnover figures cannot be established for these DHBs. Only three DONs reported that analysis on nursing turnover data was carried out. On the other hand, *there were three DHBs that collected no data on nursing turnover*: in one of these DHBs, there appeared to be little turnover and in another DHB, the collection of turnover data had stopped because the responsible HR staff had left.

Thirteen DONs reported that nursing turnover was a problem, or that it was becoming an increasing priority. This referred to turnover that normally ranged between 12% and 25%. Five DHBs, primarily in the main cities of New Zealand, reported turnover rates that were at or over 20%. DHBs in regional areas were more likely to report that there was low turnover, or that they had not felt major turnover issues for some time. These DHBs reported turnover rates of 5% to 10%.

The survey did not establish how turnover rates were determined. When turnover data was not available, estimates were given instead or the numbers of nurses who had left (not turnover rates) were reported. Another approach is to report on unfilled vacancies (for example, one DHB reported 19.2 unfilled advertised vacancies). It proved extremely difficult to make comparisons, some DHBs routinely report turnover data on a monthly or quarterly basis, and turnover data can also be reported separately for wards and/or services. When turnover rates were available they were reported differently. The following illustrates the different reporting format based on information from 9 DHBs

- 5 regional DHBs reported rates at 12%, 12.9%, 15.84%, 16.38% and 16.9%.
- In contrast, 2 metropolitan DHBs reported annual turnover rates as 19.2% and 22-24%, and they also provided quarterly turnover data which ranged from

3.2%-37.5% per ward in one of those DHBs and 23.7-35.7% per service in the other.

- Another DHB reported monthly turnover rates per ward of between 1.47% and 7.49% and still claimed to have a problem with high turnover.
- Two DHBs gave a very detailed breakdown of turnover data which indicated the age and length of service distributions: unsurprisingly, the highest level of resignations occurs in the age ranges 22-39 and the lowest level of resignation in the 40-55 year range. One of these DHBs reported that 75% of resigning nurses have served less than 3 years.

Although turnover figures are detailed in a few DHBs, the variability in reported rates, where these are available, and the methods of reporting makes it difficult to compare turnover. Thus, it cannot be established exactly what the nursing turnover rate is in New Zealand.

Some DONs specified that turnover was an issue in certain areas only, for example in emergency or mental health services. Turnover is not evenly distributed: there is clearly a difference between DHBs in metropolitan and non-metropolitan areas, with limited turnover in areas with stable populations and offering attractive lifestyles. For example, a DON of a DHB in a large metropolitan centre commented on competition among multiple employers, DHBs as well as private hospitals and rest homes. In contrast, respondents from 'popular areas' described their DHBs as currently being privileged, with neither turnover nor recruitment problems. However, they added that turnover was likely to become a concern in the future as many in their nursing workforce approach retirement.

Two DONs gave additional statistical information on the nursing workforce that, although it can't be generalised, indicates some important characteristics of the hospital nursing workforce which impacts on turnover. A largely female workforce was described, with women constituting 91.3-94% of the workforce (though with more males in mental health services); this compares with 90% of the total DHB workforce who are female. The average age is about 43; 61% of nurses are over 40 years. The average tenure for nursing at one DHB was 6.94 years; at the other DHB 63% left between in the first 5 years of service. Of the total nursing workforce, one DHB reported a distribution of: 45% working part-time, 15% were casual and only 35% were full-time employees. Overall, nurses made up 39-40% of the total DHB workforces. Embedded in these figures is a picture of a female, mid-aged, short-tenured and less than full-time workforce, with the associated costs and risks.

There were reported several negative impacts due to nurse shortages. These included: bed closures, restricted elective surgery, reduced inpatient admission and ED service restrictions. The costs of underutilising expensive plant are high, but a dollar figure was not provided. In these situations of shortage, there is likely to be a trade-off in costs between protecting and supporting nursing staff stressed by endemic shortages (thereby

potentially reducing further turnover) and full utilisation of plant.

In spite of current or anticipated high nursing turnover and nursing vacancies, many DHBs exercised tight control over recruitment. Only five DHBs stated that there were no freezes, reviews, restructuring or rationalising taking place. In almost every other DHB, there are tight controls over recruitment of new staff. Vacancies were reported as going through a review process before nurses were recruited, due to financial constraints. Several DHBs had a freeze on recruiting RNs, except for 'specialist' nurse roles. Five out of the 20 DHBs reported that they were currently or soon would implement a review of Senior Nursing roles. One DHB had just gone through a full restructure. There were also reported instances of redeployment and freezes on salary reviews.

## Conclusions

Nursing turnover is a growing problem shared by many Western countries, including New Zealand. Although there is a considerable body of overseas research on the reasons why nurses leave, there is scant research in New Zealand. Yet health workforce research is strongly endorsed by the Health Workforce Advisory Committee (2003). Furthermore, the costs of nursing turnover are poorly understood: there has been little research on costs, much of it is dated, and it is difficult to generalise research findings because of variations in operational definitions and in the way costs have been determined. This article has described a major new initiative into determining actual costs, in order to inform policy and practices relating to the nursing workforce. This initiative is currently underway, driven by an international consortium of researchers and policy-makers in nursing; New Zealand is a participating country and all the participating countries use a common research design.

A pilot study was undertaken to identify availability of costs and the suitability of the instrument. The pilot study highlighted methodological difficulties: some data were unavailable, there were problems of recall, figures and definitions varied (for example, for FTEs and turnover). As a result, the estimated costs grossly understate true costs. Nevertheless, indicative costs were sufficiently high to justify a national study on a much larger scale.

The first phase of the national study has shown that while nursing turnover is seen as a problem, it is not evenly distributed across public hospitals. DHBs in metropolitan areas, where there is high competition for nurses from private hospitals and non-hospital services, reported significantly higher turnover rates than non-metropolitan areas. Certain clinical areas also reported higher turnover than others (for example, in mental health and emergency services).

Despite concerns over turnover, there was little firm data provided, and the data was not

comparable across DHBs: estimates of turnover rates varied, and no information was collected on how rates were determined, making it difficult to state turnover rates with certainty or compare them across DHBs. Further, the majority of DHBs were undergoing tight controls on recruitment and a number of DHBs reported reviews of senior nursing positions and organisational restructuring. These are strategies that may add to nursing shortages and stress, possibly leading to a dependence on temporary cover and further increases in turnover (Lumley et al. 2004).

Finally, it is of some concern that this study is limited to medical and surgical units in publicly funded hospital services only; it is important that the study is extended to include other sectors: for example, aged care, community and primary care services, private hospitals and specialised nursing units such as intensive care, emergency and operating room services. Therefore, it is necessary to complement the current study on costs of nursing turnover with further New Zealand studies on nurses' reasons for leaving as well as on their reasons for staying. Determining the actual costs of nursing turnover and the reasons for turnover will provide DHBs with the information they need to make strategic decisions regarding their nursing workforce; these decisions are vital in improving retention and building a positive workplace and thereby providing better and more efficient health care.

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