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ABSTRACT

Aims and objectives

The study aimed to explore whether nurse staffing, experience and skill mix influenced the model of nursing care in medical-surgical wards.

Background

Methods of allocating nurses to patients are typically divided into four types: primary nursing, patient allocation, task assignment and team nursing. Research findings are varied in regard to the relationship between these models of care and outcomes such as satisfaction and quality. Skill mix has been associated with various models, with implications for collegial support, teamwork and patient outcomes.

Design

Secondary analysis of data collected on 80 randomly selected medical-surgical wards in 19 public hospitals in New South Wales, Australia during 2004-2005.

Methods

Nurses (n=2278, 80.9% response rate) were surveyed using The Nursing Care Delivery System and the Nursing Work Index-Revised. Staffing and skill mix was obtained from the ward roster and other data from the patient record. Models of care were examined in relation to these practice environment and organisational variables.

Results

The models of nursing care most frequently reported by nurses in medical-surgical wards in this study were patient allocation (91%) and team nursing (80%). Primary nursing and task based models were unlikely to be practised. Skill mix, nurse experience, nursing workload and factors in the ward environment significantly influenced the model of care in use. Wards with a higher ratio of degree qualified, experienced registered nurses, working on their 'usual' ward were more likely to practice patient allocation while wards with greater variability in staffing levels and skill mix were more likely to practice team nursing.

Conclusions

Models of care are not prescriptive but are varied according to ward circumstances and staffing levels based on complex clinical decision making skills.

Relevance to clinical practice

Variability in the models of care reported by ward nurses indicates that nurses adapt the model of nursing care on a daily or shift basis, according to patients' needs, skill mix and individual ward environments.

Keywords

Models of care, nursing care delivery systems, skill mix, staffing levels, nursing workload, practice environment

INTRODUCTION

The term 'model of care' is often used in the health literature but not always with an agreed-on meaning. It can describe broadly how the delivery of care is provided in the context of the whole health system (Queensland Health 2000) or a care delivery model at a ward or unit level which is supported by the organisation, has clearly delineated standards and a foundation of evidence-based practice and principles (Davidson *et al.* 2006). Nursing models of care have traditionally been concerned with nursing care delivery systems – a method of allocating workload (patients) to staff (nurses).

In this paper, we present findings from a study which had as one of its key objectives, to examine the relationships between models of care (here defined as a nursing care delivery system), staffing, skill mix and the practice environment. The models included in the study were primary nursing, total patient care (patient allocation), team nursing and task-oriented or functional nursing.

BACKGROUND

Nursing Models of care

Historically in Australia, the method of allocating patients to staff has been determined by the nurse in charge of staffing and standards of care on the ward – the Nursing Unit Manager (NUM). Traditionally, four methods have been described and used here and overseas in countries such as the UK (Thomas & Bond 1990), USA (Hyams-Franklin *et al.* 1993), Canada (Shamian *et al.* 1988), Hong Kong (Chan *et al.* 2006) and Finland (Makinen *et al.* 2003) to name a few.

The first of the four 'classic' models of delivering nursing care is 'patient allocation' or 'total patient care' which has one nurse taking responsibility for the complete care of a group of patients. It is the oldest model (Marquis & Huston 1992), believed to be based on one used by Irish nurses in the Crimean war and adapted by Nightingale (Meehan 2003). Total patient care remains popular with patients due to the

high quality and consistency of care that is provided by qualified staff and more importantly, by the same nurse (Wagner & Bear 2009, Wolf *et al.* 2008). It is also popular with nurses because of the degree of autonomy and control they have over their work and responsibility for a particular patient's care is easily identified (Gullick *et al.* 2004, Tiedeman & Lookinland 2004). It does, however, require an almost all registered nurse (RN) staff (Gullick *et al.* 2004).

Functional or task-oriented nursing emerged in the 1940s due to a war-related shortage of registered nurses resulting in the employment of more support staff in hospitals (Marquis & Huston 1992). The model divides work into tasks assigned to nursing and ancillary personnel based on the complexity of the task. The RN addresses more complex tasks, whereas lesser skilled staff undertake more routine tasks. It has fallen out of favour recently due to its regimentation, lack of recognition of patients as individuals and little time devoted to patients' psychosocial and spiritual needs (Tiedeman & Lookinland 2004). Patient satisfaction is low in this model as patients cannot establish who is 'their nurse' (Ringl 1994).

Team nursing emerged following World War II (Tiedeman & Lookinland 2004) in response to the impersonal nature of task-oriented nursing and in an effort to improve both patient and staff satisfaction (Marquis & Huston 1992). It is a model whereby a 'team' of nurses provides all the care to a specified group of patients, often allocated by geography. This model allows for supervision of aides, orderlies and licensed practical or enrolled nurses by a smaller number of RNs. In this model, the RN team leader supervises lesser-trained patient care providers and performs direct patient care that lesser-skilled staff are not qualified or licensed to provide. Other team members provide direct patient care to assigned patients (Tiedeman & Lookinland 2004). In the team nursing model, task-oriented or even primary nursing elements of care may exist.

Primary nursing, developed in 1968 (Manthey 1980), focuses on providing care in a one patient to one nurse relationship that promotes continuity of care. Patients are assigned a specific nurse on admission who assumes 24-hour responsibility for their care for the duration of their stay and their care is therefore not shift dependent. The primary nurse has the authority to assess, plan, organise, implement, coordinate and evaluate care for his/her patients and delegates other nurses to follow through when off duty (Lyon 1993, Manthey 1980, Tiedeman & Lookinland 2004). Should this patient be readmitted, the same nurse (assuming s/he is still employed) would again undertake responsibility for their care. This model has been shown to be used widely in Magnet-designated hospitals and linked to positive patient outcomes (Aiken *et al.* 1999, Mondino 2005) and staff satisfaction (Allen & Vitale-Nolen 2005, Garon *et al.* 2009). Primary nursing, recently renamed Relationship-Based Care, is based on the philosophy that the development of a nurse-patient-family relationship is paramount to continuity of care. This model has been shown to empower nurses, promote autonomy and contrary to popular belief, does not always require an all-RN staffing mix (Manthey 2003). Despite the evidence from overseas this model is rarely used in Australian hospitals (Middleton *et al.* 2008) with the exception of some critical care units (Watts *et al.* 2007).

There is little research which evaluates these models of care and findings in terms of satisfaction, quality and cost of care are contradictory (Tiedeman & Lookinland 2004). A comparative study of team nursing and patient allocation in Australia found no difference in patient satisfaction (Wu *et al.* 2000). Generally, patient satisfaction is positively associated with the number of RNs, a better nurse to patient ratio and level (years) of experience (Tervo-Heikkinen *et al.* 2008) but often, patients are unaware which model is being used (Gullick *et al.* 2004). There is also a suggestion that patient satisfaction is greater when continuity and communication are maintained rather than as the consequence of a specific model *per se* (Tiedeman & Lookinland 2004).

McGillis-Hall and Doran (2004) in a Canadian study of the effect of skill mix and delivery model on nurses' perception of care quality found 'total patient care' to be a negative influence on these perceptions. Recently in Australia, Walker, Donoghue and Mitten-Lewis (2007) conducted a natural experiment. Work sampling studies evaluated a change from a patient allocation model to team nursing incorporating a change from an all RN workforce to one which included enrolled nurses and assistants in nursing. To accomplish this change, bed numbers were reduced and more complex patients were admitted to another clinical unit, thereby reducing caseload and acuity. Following implementation of the team model, the authors found that there had been an overall decrease in unit related activities and an increase in direct and indirect patient care activities and hence a more effective and efficient utilisation of staff. In another Australian study, clinical nurses initially supported implementation of a 'shared care' model incorporating aspects of patient allocation and team nursing. Following implementation, concerns over ineffective communication and reduced availability of experienced staff were expressed and the incidence of infection rates, incidents (unspecified) and accidents increased (Fowler *et al.* 2006). Gullick and Shepherd (2004) found that nurses felt more satisfied and autonomous when using the patient allocation model and that team nursing could leave senior staff exhausted by the need for constant supervision. In a systematic review on team nursing, Pearson *et al.* (2006) found that social support from supervisors or peers in nursing teams increased job satisfaction.

Skill mix plays a role in the choice of which method of care delivery is used. Many years ago Durbin (1981) suggested that poor skill mix may turn a team-oriented model into a more task-oriented care delivery system. More recently Adams and Bond (2003a, b) found wards with a poorer skill mix (lower RN proportion) were more likely to be characterised by a more task-oriented, hierarchical approach. Gullick *et al.* (2004) suggested that patient allocation was preferable to maintain quality of care but may not be possible where RN numbers are low or the skill mix (fewer RNs) demands greater supervision, in which case team nursing may be more practical. Interestingly, in team nursing a good climate in a team

may offset the reality of inadequate staff dealing with heavy workloads (Sexton *et al.* 2006). There is a suggestion that wards using the 'total patient care' delivery system have a team nursing focus when skill mix is thin (McGillis-Hall & Doran 2004). The link between better skill mix (more hours of care provided by RNs) and positive patient outcomes has now been established in many countries (Kane *et al.* 2007).

In Australia more recently, there has been a move away from patient allocation models towards a more team-oriented approach. Using focus groups with over 1000 nurses in rural and metropolitan New South Wales (NSW), Chiarella and Lau (2006, 2007) found a range of team-based models of nursing care implemented with consistently positive outcomes, measured as self-reported improved communication, service integration and comprehensive patient care.

This paper presents findings from a portion of a larger study (Duffield *et al.* 2007). The present report examines the relationships between staffing, skill mix and the model of care. The study was conducted in an environment in which the length of stay of patients was 3.23 days, patients moved on average 2.26 times per episode of care, 1.25 patients went through each medical-surgical bed over a 24 hour period and where staff 'churn' (turnover plus staff and student rotations) averaged 50% (Duffield *et al.* 2009b, Duffield *et al.* 2009c).

METHODS

The component of the study reported here was conducted on 80 randomly selected general medical/surgical units at 19 public hospitals in NSW, Australia during 2004-2005. Each ward was studied for seven days. Ethics approval was gained from the Human Research Ethics Committee, University of Technology, Sydney, 13 health service committees and the NSW Department of Health. This is a secondary analysis of these data.

Nurses included in data collection 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; years of experience range from less than one year (RN1) to eight or more (RN8);
- Trainee enrolled nurses (TEN) and enrolled nurses (EN) – requires one 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.

Instruments

Each nurse participating in the study was asked to complete a Nurse Survey. This survey captured a wide range of individual nurse data, including the Nursing Care Delivery System instrument (NCDS) (Murray 1995) to determine the model of care in use on the ward and the 49 item Nursing Work Index-Revised (NWI-R) (Aiken *et al.* 2001, Estabrooks *et al.* 2002, Sochalski *et al.* 1999). Nurses also reported their qualifications and whether they considered themselves expert (defined as those whom other nurses ask for their clinical judgment or who act as preceptors).

Trained nurse data collectors obtained staffing data, including skill mix and hours worked from ward rosters. Nursing workload (acuity) data were captured for each patient per day using the PRN-80 (Chagnon *et al.* 1978a, b, Tilquin *et al.* 1981) from the contemporaneous medical record. PRN-80 and staffing data were used to calculate the 'Nursing Demand/Supply' variable by dividing the required

hours of care per patient from the PRN-80 by the hours of care provided (O'Brien-Pallas *et al.* 2004). This provided a measure of the balance between the work required and nursing hours available. 'Staffing hours' provided details of the proportion of hours worked by each employment category (including full or part-time and casual and agency staff) and level of nurse per ward and also the staffing hours available for all shift periods. Patient characteristics such as admissions for respite care, or waiting for a care facility (such as a nursing home) were also collected. Data were cleaned and units with incomplete staffing data were excluded from the analysis. Complete data were available for 77 wards.

Each respondent to the NCDS indicated on a 4-item questionnaire the degree to which each of the following models (primary, patient allocation, team nursing and task nursing) described the organisation of patient care on that unit, on a four-point scale from 'a lot like' to 'not at all like':

- I have overall 24-hour responsibility for a group of patients and manage their care from admission to discharge
- I provide almost all of the care for our assigned patients throughout the shift but I may not have the same patients from their admission to discharge
- We work as a team or group of nursing staff over the shift and together work to provide care to a group of patients
- We look at the tasks that need to be completed on the shift for patients and assign staff various tasks (Murray 1995)

Responses to the NCDS therefore reflect the nurses' perception of the degree to which each delivery system is in operation on that ward, thereby acknowledging the variation that may occur with different mixes of staff and patients, or at different times of the day. Data were treated as categorical and

calculated as a proportion of each response per question. Analysis of responses as the *highest proportion per ward* provided an indication of the models in use for each ward.

Analysis

Data were analysed using Stata analytic software (StataCorp LP 2007). Nurses' responses to the NCDS were first calculated as the proportion of each response per question across the sample (n=2278) and then aggregated to the ward level (n =77) to provide the proportion of responses per ward for each model. This provided an indication of the degree to which each model of care was perceived to be in use on that ward. Linear regression analyses were performed using NCDS variables as dependent variables and staffing, environmental and nurse variables as independent variables. That is, we reasoned that nursing models were potentially the creation of operational contingencies. To compare the relative contributions of the independent variables in the models, standardised coefficients (beta [β] weights) were calculated and reported where significant at the 0.05 level.

RESULTS

Data obtained included survey responses from 2278 nurses (response rate 80.9%) ward staffing on 13,442 nurse-shifts and 22,497 patient-days of information.

Responses to the NCDS reflected the variation in care delivery systems in operation. Table 1 shows the reported nursing models of care per nurse (n=2278). Only 15.3% of nurses reported having 24-hour responsibility for their patients from admission to discharge (primary nursing) and 55.7% reported that their care delivery system did not operate this way at all on the ward. Over two-thirds of nurses (69.3%) reported they looked after assigned patients throughout their shift (patient allocation model), but did not always have the same patients from admission to discharge (as with primary nursing). An additional 22.4% reported that this sounded a little like their system, so effectively nearly 92% of nurses indicated

that this system was in use on that ward at some time. Nurses who reported working in team nursing models totalled 46.4%, while 34.1% thought it sounded a little like their system. Therefore, 80.5% nurses considered themselves to be working in a team-related model. The task assignment model of care was the least likely with 18.7% nurses reporting they worked this way. However, nearly a quarter (23.2%) thought the description sounded a little like their system. When calculated as the greatest proportion of responses per ward, the data indicated that either patient allocation or team nursing were in operation, with no wards favouring task assignment or primary nursing.

The skill mix varied considerably across wards. The proportion of RN staff hours worked ranged from less than 45-100%. Twelve of the 80 wards had fewer than 60% of RN hours worked while 19 had more than 80%. On average, one-third of hours (31.3%) were worked by part-time nurses and 13.9% by casual or hospital pool staff. The lowest percentage of hours worked by full time staff was 24.5% on one ward and the highest percentage was 84.6%. There were ten wards which had less than 40% and only three wards that had over 80% full-time hours worked. One ward had a high of 47.8% of casual and agency hours worked and only one ward in the sample employed no casual or agency staff at all. Twenty- three wards had greater than 20% casual and agency hours worked.

An examination of staffing hours by nurse grade/year found that RN8s (8 years of experience or more) provided most of the staffing hours (32%), with ENs providing 22.1% and RN1s (first year of practice) 10.2%. The distribution of staffing across 24 hours showed that most staffing hours were allocated during the day and evening periods. Considering only RN grades, it was found that more experienced RNs were working at night, while nurses with one year of experience or less (RN1s) were more likely to work during the day and evening shifts (see Figure 1).

Correlation of patient, nurse, skill mix and ward environment characteristics with the model of care found several statistically significant associations (Table 2). Skill mix variables (proportion of hours worked by RNs) in particular were associated with patient allocation and team nursing approaches. A higher proportion of expert nurses correlated negatively with team and task models but positively with patient allocation. The number of hours nurses worked away from their usual ward was correlated with a task assignment model. The proportion of nurses with a bachelors degree or higher was positively associated with patient allocation and negatively with team nursing. A higher proportion of patients on the ward waiting for a care facility (perhaps older and more dependent patients) were more likely to be cared for in a team nursing rather than patient allocation model. Heavier workload (i.e. a greater difference between hours of care required by patients and that supplied), more nurses working on their usual ward, more experienced nurses on the ward and a higher proportion of part time nurses were all associated with a lower likelihood of primary nursing as the model of care.

Linear regressions were then conducted on the delivery model variables, to determine the strongest predictors of the various approaches (Table 3). Skill mix, together with nurse characteristics such as experience and expertise, were found to be significant. The workload of nurses was a negative predictor of both primary nursing and team nursing, while the hours that nurses were working on wards other than the one to which they were usually assigned was linked to the task assignment model.

As skill mix had been found to be significant, a further analysis was undertaken with the proportion of hours of RN by years of experience as predictor variables (Table 4). A higher proportion of most categories of RNs was related positively to the patient allocation approach, while lower proportions were negative predictors of team nursing. This supports the previous analysis that the proportions of RN and EN staff may influence the model used, but does not provide further information on the relationship between years of experience of RNs and the model of care in use.

In summary the results indicate that there was no predominant model of care (care delivery system) in operation on any of the wards. Patient allocation or team nursing were most likely and no wards favoured task assignment or primary nursing. Skill mix and nurse characteristics such as experience and expertise were found to be significant predictors in the model of care in use. A higher proportion of RNs predicted a patient allocation model.

DISCUSSION

The prevailing view in Australia has been that the model of care (nursing care delivery system) used on a ward has been a 'philosophical' decision determined by the nursing unit manager. However the results from this study challenge this notion. Nurses on the same ward and even on the same shifts on a ward indicated that they worked to different models. This arises because of the extraordinary level of variability which occurs now in staffing nursing units and the demanding and unpredictable working environment (Duffield *et al.* 2009a, Duffield *et al.* 2009b). The basis on which a nursing unit manager or shift team leader decides to allocate staff to patients is now more likely to be a pragmatic rather than philosophical decision designed to make best use of the staffing resources available and patient requirements at any given time and made daily or by shift rather than as a unit policy.

To staff their unit or ward nursing unit managers must know and understand their patient population to use available staff resources to advantage. Shortened lengths of stay, high usage of part-time, casual and agency staff together with a workforce with significant numbers of newly graduated registered nurses provide a context where staffing decisions and the allocation of patients to staff have become more complex. It is not surprising that decisions about how to allocate patients to staff relate to skill mix and staffing stability (staff working on their usual wards). Task assignment is applied when there is a poorer skill mix and when nurses are moved to another ward and the ward and patients are unknown to

them. Under these circumstances, the nurse in charge of the shift may feel that task assignment is the only safe method of allocating patients to staff.

In contrast, patient allocation is associated with richer skill mix (more RNs), more RNs with degrees or higher and more expert nurses. Better skill mix is predictive of patient allocation even if the RNs were in their first year of employment. Newly registered nurses (RN1) comprise a significant proportion of the workforce now on acute medical and surgical wards. Working alone (as occurs with patient allocation), may not be the best method for inexperienced nurses to learn how to provide care. This method of caring for patients may predominate as it is the 'model' taught in most undergraduate nursing curricula.

It is clear from the results that the model of care used is no longer a decision based on the philosophical beliefs of the nursing unit manager about how they would like to manage patient care on their ward or unit. It is a pragmatic decision made by whomever is in charge of the day or shift about what is the best way to allocate patients to staff to ensure safety. To do this successfully requires skills not previously expected of managers, certainly not in Australia.

The nursing unit manager needs to understand the casemix of their unit; patient flow daily, weekly and annually; the skills and knowledge of staff, many of whom may be relatively unknown; which method of allocating patients produces the best outcomes for their patient mix. More importantly, some of these same decisions are made on a shift-by-shift basis by team leaders and registered nurses, many of whom may be very inexperienced first year registered nurses.

Nursing unit managers require the authority, responsibility and accountability for determining appropriate staffing assignments. To do this successfully they require data which is accurate and timely. Most importantly they need data on what has worked on their unit with a particular patient mix

and staff. This includes skill mix data which is related to patient outcomes. Mandated ratios of 80% RN staffing may for example, be too rich a mix on some unit types and not sufficiently rich on others.

Talking about a 'model of care', certainly those used traditionally to define the practice of nursing, is no longer relevant. Chiarella (2007) has argued that shortages in the skilled health workforce and the changing face of nursing will inevitably lead to different models of care and different definitions of what is meant by model of care.

Limitations

In this study, skill mix rather than RN years of experience positively correlated with the model of care in use. However, years of experience in a particular specialty or years working in the particular ward were not examined, which could possibly influence findings. The NCDS instrument allowed respondents to select the same response for each care delivery system, so that an individual may have indicated that all models were in use on that ward. However, although this limitation precluded the determination of an exclusive care delivery system from each nurse's response, it indicated the way care models were perceived by the nurse – as a variable factor that may be applied differently at different times. Also, an indication of the most prevalent model in use per ward was calculated, which was considered appropriate for a ward level analysis.

CONCLUSION

As nursing shortages are likely to continue and staffing continues to shift to the use of less registered nurses, it is timely to consider how best to allocate staff to patients. As this study has found, no one method will fit every ward and more importantly, may need to vary on a shift-by-shift basis. What is needed however, is a method of matching patient needs to staff abilities on the basis of data and evidence.

Relevance to clinical practice

Variability in the models of care reported by ward nurses indicates that nurses adapt the model of nursing care on a daily or shift basis, according to patients' needs, skill mix and individual ward environments.

Contributions

Study design: MR, CD, DD

Data collection & analysis: MR, CD

Manuscript preparation: MR, CD, CCP, NB, DD

The authors declare no conflict of interest in relation to this study.

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Table 1 Nurse Reports on Models of Care

	Not at all like our system	Not much like our system	A bit like our system	A lot like our system
I have overall 24 hour responsibility for a group of patients and manage their nursing care from admission to discharge	55.7%	15.7%	13.2%	15.3%
I provide almost all of the care for our assigned patients throughout the shift but I may not have the same patients from their admission to discharge	3.6%	4.7%	22.4%	69.3%
We work as a team or group of nursing staff over the shift and together work to provide care to a group of patients	5.5%	13.9%	34.1%	46.4%
We look at the tasks that need to be completed on the shift for patients and assign staff various tasks	37.2%	20.9%	23.2%	18.7%

N=2278

Note that each question is responded to independently

Table 2 Correlation of Measured Variables with Model of Care

	Primary nursing	Patient allocation	Team nursing	Task assignment
Proportion patients waiting for a care facility	.045	-.258*	.275*	.109
Proportion of hours worked by RN	.050	.545**	-.543**	-.298**
Proportion of hours worked by EN	-.141	-.534**	.450**	.170
Proportion of hours worked by Part Time nurses	-.283*	-.140	.003	-.245*
Years worked in nursing	-.383**	-.108	.204	-.119
Hours worked on other wards	.201	-.074	.160	.418**
Proportion expert nurses	-.196	.283*	-.278*	-.282*
Proportion nurses working on their usual ward	-.341**	-.024	.075	-.186
Proportion nurses with bachelor's degree or higher	.274*	.439**	-.310**	-.053
Nursing demand/supply	-.353**	-.107	-.060	-.157

****Correlation is significant at $\leq .01$ (2-tailed)**

***Correlation is significant at $\leq .05$ (2-tailed)**

Table 3 Linear Regression on Model of Care*

	Primary nursing	Patient allocation	Team nursing	Task assignment
Proportion of hours worked by RN	--	--	-.54 (<.01)	-.46 (≤.01)
Proportion of hours worked by EN	--	-.33 (≤.01)	--	--
Years worked in nursing	-.20 (≤.01)	--	--	--
Hours worked on other wards	--	--	--	.31 (≤.01)
Proportion expert nurses [§]	--	.20 (.02)	--	--
Nursing demand/supply	-.24 (≤.01)	--	-.27 (≤.01)	--
Adjusted R ²	.21	.32	.34	.22

* Standardised β (beta) weight, p-value in parentheses

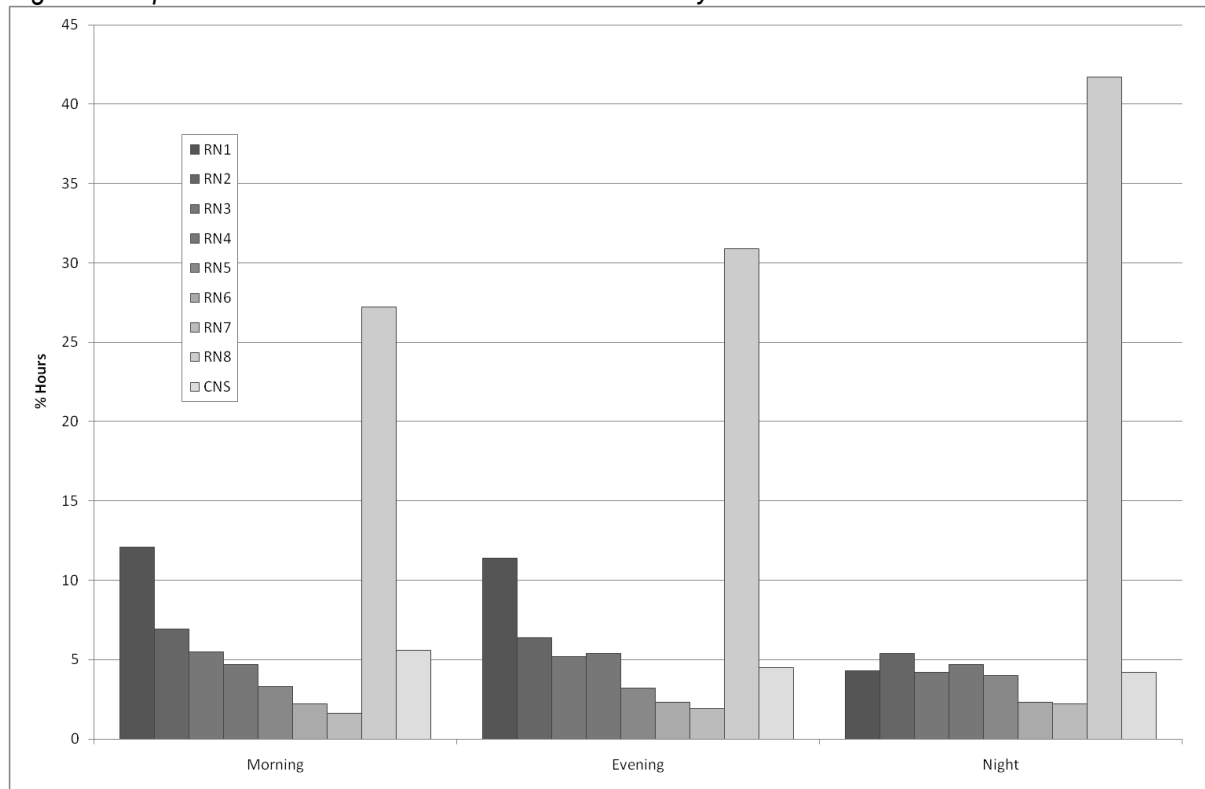
§ Nurses who self reported they were often asked by colleagues for their clinical judgement or to precept

Table 4 Linear Regression on Model of Care – Registered Nurse Categories

	Patient allocation	Team nursing
Proportion of hours worked by RN1	.36 ($\leq .01$)	-0.24 (.04)
Proportion of hours worked by RN2	.42 ($\leq .01$)	-0.33 ($\leq .01$)
Proportion of hours worked by RN3	--	-0.19 (.04)
Proportion of hours worked by RN4	.27 ($\leq .01$)	--
Proportion of hours worked by RN5	--	-0.26 (.02)
Proportion of hours worked by RN6	.25 (.02)	--
Proportion of hours worked by RN7	--	--
Proportion of hours worked by RN8	.47 ($\leq .01$)	-.4 (.03)
<i>Adjusted R²</i>	.30	.26

* Standardised β (beta) weight, p-value in parentheses

Figure 1 *Proportion of RN Hours Worked Per Shift-Period by Grade/Year*



RN1 = Registered Nurse in first year of practice; RN8 = Registered Nurse with 8 or more years of practice; CNS = Clinical Nurse Specialist (a personal grade awarded to individual nurses on the basis of expertise in a specialty).