

The Australian and New Zealand Dialysis Workforce

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Abstract

Aim: To capture a "snapshot" of the current Australian and New Zealand dialysis workforce in order to contribute to the future renal workforce challenges.

Methods: A web-based survey of dialysis managers (n=221) were asked fifteen questions relating to demographics, age, full-time equivalent information, workforce designation, post-registration qualifications, subjective perceptions of staffing levels, staffing strategies and future dialysis research recommendations

Results: In Australia in 2008 there were 2433 registered nurses, 188 enrolled nurses and 295 dialysis professionals (technicians) and 327 registered nurses (RNs), 8 enrolled nurses (ENs) and 64 dialysis professionals in New Zealand. There were significant variations in staff/patient ratios, workforce profiles and post-registration qualifications. There is a significant association between staff/patient and home dialysis ratios. A high proportion of renal staff worked part-time, particularly in Australia. The dialysis workforce reflects the aging nature of the general nursing population in Australia and New Zealand. The majority of dialysis nurse managers perceived they had sufficient staff.

Conclusion: Workforce variations found in this study may be useful to identify future workforce challenges and strategies.

Introduction

People suffering established renal failure (ERF) require renal replacement therapy in the form of dialysis to maintain life. In Australia and New Zealand, nurses and patient care technicians are the numerically dominant groups providing care to people living with ERF.

The Renal Society of Australia (RSA), the peak nephrology nursing and dialysis professional body in Australia and New Zealand, recognised the frequent anecdotal claims of shortages of dialysis health professionals in Australia and New Zealand.

Given the 6% annual increase in people suffering ERF patients in Australia and New Zealand (McDonald & Excell, 2008), appropriate planning strategies are required to address workforce management to care for these people. Subsequently, in 2008, the RSA decided the first step to address workforce management was to accurately determine the number and characteristics of nurses and patient care technicians working in dialysis units in Australia and New Zealand. To date, no government or industry body has collected this data and thus, this information has never been accurately compiled.

Key Words

Dialysis, nursing, workforce, education, renal

A pilot study of the South Australian dialysis workforce was undertaken in February 2008 by the Flinders Renal Research for Improved Patient Outcomes (FRRIPO). The aims of this pilot study were to provide a snapshot of the current SA dialysis workforce and to inform a future Australian and New Zealand study. Using web-based survey software, FRIPPO successfully achieved a 100% response rate from the 18 dialysis units in South Australia who provided hospital, satellite, home and peritoneal dialysis therapies. Consisting of ten questions exploring the dialysis workforce, the pilot study informed the national study regarding both logistical and content aspects of the study.

The purpose of the Australian and New Zealand Dialysis Workforce Study (ANZDWS) was to contribute to national and state workforce groups, clinicians, managers, industry and governments to contribute to the recruitment and retention of the renal workforce. The study's major aim was to capture a "snapshot" of the current dialysis workforce in order to identify dialysis workforce needs and develop recruitment and retention strategies to meet the needs of people living with kidney disease in Australia and New Zealand.

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Materials and method

The web-based survey was sent to all Australian (n=205) and New Zealand (n=16) dialysis unit managers (or their designate). Thus purposive sampling was used and cross-referenced with Kidney Health Australia (KHA) and the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA) lists, in addition to individually checking with each unit. Survey questions were guided by the RSA Federal Board with the fundamental requirements that it provided dialysis workforce information, was able to be completed quickly (maximum 15 minutes) and a 100% response rate be achieved. A final questionnaire containing 15 questions was established and sent on the survey date of 31st October 2008. (Figure 1).

The survey asked questions relating to demographic characteristics of each unit, workforce age, full-time equivalent information, working hours, workforce designation, post-registration qualifications, subjective perceptions of staffing levels, staffing strategies and future dialysis research survey recommendations. An introduction and informed consent was attached to this survey.

Descriptive statistics were performed using Microsoft Excel © v2003. Categorical data is presented as percentages and frequency counts. Ethics approval was received through the Flinders University of South Australia Social and Behavioural Ethics Committee (Approval number: 4326) using the National Ethics Application Form (NEAF).

Results

A 100% response rate was achieved reflecting data from all dialysis units in Australia and New Zealand (Australia = 228, New Zealand = 25). This number of units is greater than the number of dialysis managers because some dialysis managers responded for more than one dialysis unit. In Australia, 10 units were identified as being inactive (temporarily closed) on

Figure 1. Survey Questions

1. What best describes your dialysis unit? (Incentre/Satellite/Home Training / Peritoneal Dialysis)
2. Details of person completing this survey
3. What State, Territory or Island is your unit located?
4. What is the approximate average age of your dialysis workforce
5. On Friday 31st October 2008 what is the total Registered Nurse (RN) full time equivalents in your unit ?
6. How many RNs in your units work: Greater than 30 hours per week? Between 20 to 30 hours per week? Less than 20 hours per week?
7. How many RNs have post registration renal qualifications (renal/nephrology certificate/diploma etc)?
8. On Friday 31st October 2008 what is the total number of Enrolled Nurse (EN)/ Division 2 (Div 2) full time equivalents (FTEs)?
9. How many EN/Div 2s in your units work: Greater than 30 hours per week? Between 20 to 30 hours per week? Less than 20 hours per week?
10. How many EN/Div 2s have post enrollment renal qualifications (renal/nephrology certificate/diploma etc)?
11. On Friday 31st October 2008 how many dialysis professionals (patient care technicians in your unit work Greater than 30 hours per week? Between 20 to 30 hours per week? Less than 20 hours per week?
12. What is the total number of dialysis professional full time equivalents (FTEs)?
13. What best describes the usual staffing levels in your dialysis unit?
14. When you do not have enough staff, how do you complement your staffing levels?
15. What future research/surveys would you like to see being done in the dialysis context?

the census date and thus are not included however, 5 new units were discovered that were not listed on either the KHA or ANZDATA registers. The reported data showed a significant variation in the size of renal units throughout Australia and New Zealand, from large urban multi functional units to smaller district satellites.

Workforce Profile

The average age in Australia was 42.5 years and in New Zealand was 41 years. There was no significant difference between states of Australia, however, the average age in New Zealand's South Island was 48 years which continues to have the highest general average age across New Zealand (District Health Boards New Zealand, 2008). Most regions were staffed by registered

nurses (RNs), enrolled nurses (ENs or Division 1 nurses) and dialysis patient care technicians. Tasmania was staffed only by RNs and the South Island of New Zealand does not employ ENs (Figure 2). States and territories with lesser populations, such as NT and ACT tended to have a greater proportion of registered nurses. In most regions, there was a heavy dependency on part time staff except for the Northern Territory and New Zealand's South Island where the large majority of staff worked full time. Full time was defined as working greater than 30 hours per week.

Education Status

Forty one percent of all Australian registered nurses had post registration renal qualifications compared to New

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Zealand with 21%. The percentage of RNs with post-registration renal qualifications varied from 76% in South Australia to 25% in Queensland. South Australia had significantly more ENs with post registration renal qualifications (55%) and Australia (21%) had a higher rate than New Zealand (13%) (Figure 3).

Staffing levels and strategies

The majority of both Australian (82%) and New Zealand (77%) dialysis managers 'always or usually' had enough staff. Only 10% of Australian units and 25% of New Zealand units had 'rarely or never' enough staff. Nurse managers offered overtime or called in current part-time staff to compliment staffing levels. There were no significant regional differences.

Future Research Studies

Survey participants were asked "What future research/surveys would you like to see being done in the dialysis context?" One hundred and eleven of the 221 dialysis managers replied (RR = 50%) providing 163 responses amounting to 70 unique research questions. Unique research questions were categorised into: clinical (41), workforce issues (21), nurse management (4), and nurse education (4). Clinical research questions were further categorized into: improving patient's quality of life (6), home/nocturnal/frequent dialysis (6), access management (4), infection control (3) and other (22). Frequency of responses revealed that dialysis managers were looking for research into workforce (73), clinical aspects (67), management (15) and nursing education (8).

Discussion

Analysis of the results of this survey revealed some expected and unexpected findings. Significant findings relate to: dialysis modality; variation in workforce profiles; variations in qualifications; comparisons with general workforce and research.

Figure 2: Proportion of Registered Nurses, Enrolled Nurses and Patient Care Technicians (Prof) per region and country

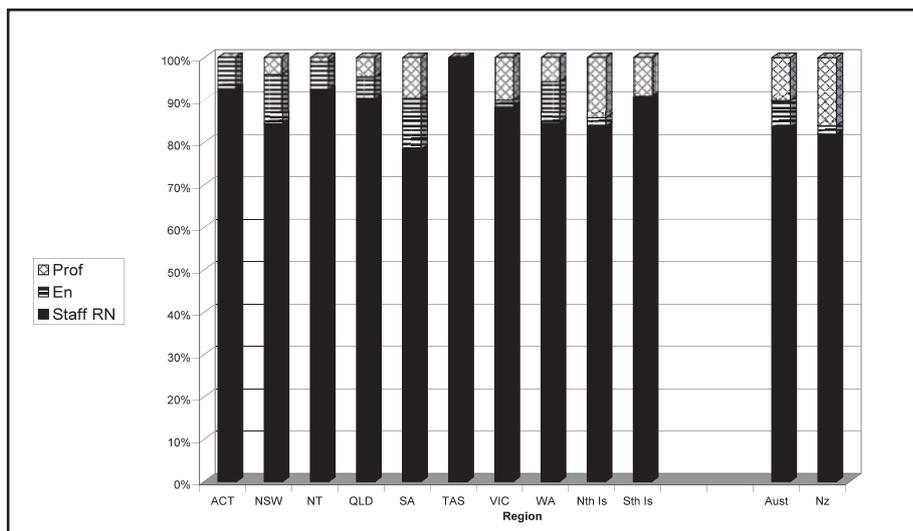
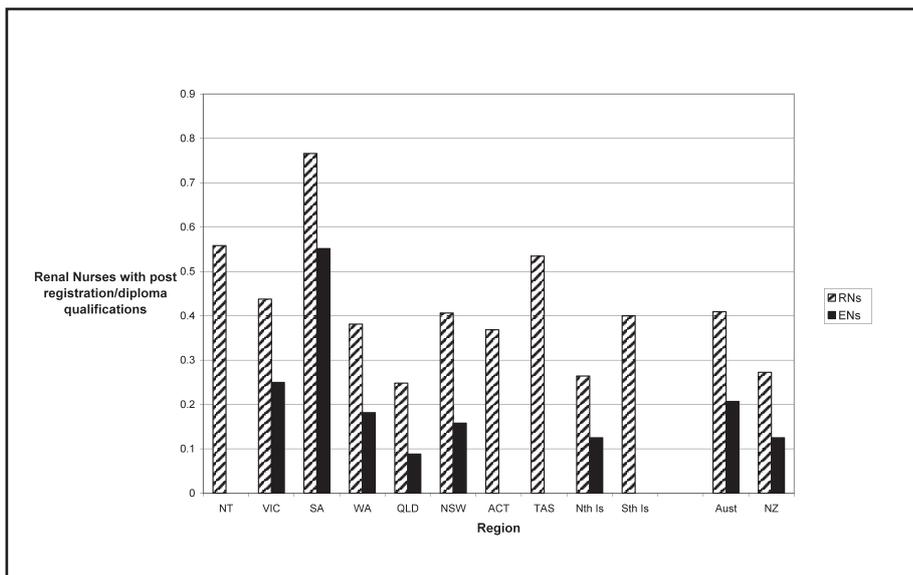


Figure 3. Renal nurses with post-registration/diploma renal qualifications



Workforce and dialysis modality

We compared our workforce data with the number of patients on dialysis in each region from the 2007 ANZDATA Registry (McDonald, Chang, & Excell, 2008). There were significant differences between states and countries ranging from one nurse to 3.7 patients in South Australia to one nurse for every 5.9 patients in

New South Wales/ACT. Furthermore, our analysis revealed one nurse to every 6.3 patients in New Zealand (individual Island breakdown was not available) and an overall, Australian ratio of 1 nurse to every 4.2 patients (Figure 4).

We compared the state-wide nurse to patient ratios with dialysis modality data from Appendix 1 and 3 of ANZDATA

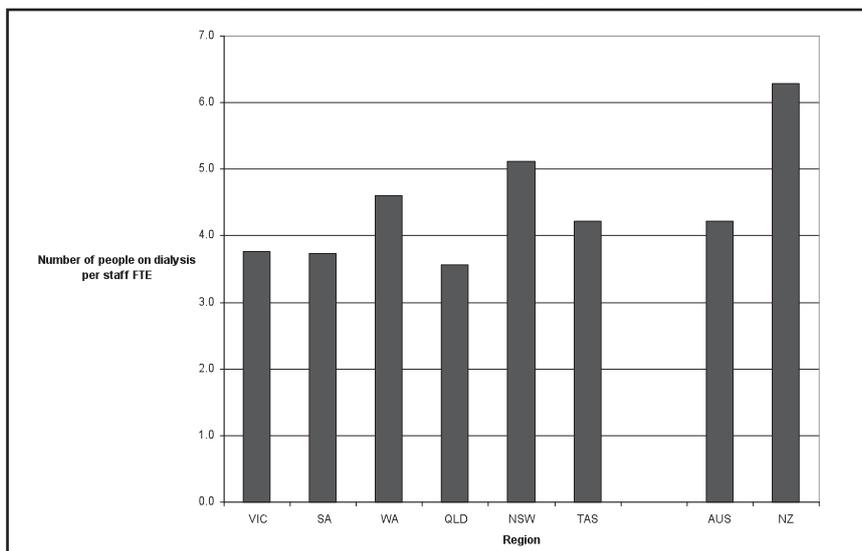
(ANZDATA, 2008). Those regions with higher home dialysis rates (NZ and NSW) had lower nurse ratios compared with regions where home dialysis numbers are comparatively low. A negative binomial regression test was performed on this data and a significant association was found. For every 9% increase in home dialysis percentages the patient/nurse ratio decreases by one. This result may suggest that self-care dialysis at home is inherently less nurse-intensive than hospital and satellite dialysis as the variation in patient/staff ratios mirrors the variation in treatment modalities.

Variation in regional workforce profiles

There are variations in the relative ratios of RNs, ENs and patient care technicians in each region. Since the start of chronic dialysis programmes in Australia and New Zealand, RNs have been the numerically dominant workforce supported by patient care technicians. Patient care technicians have often had science or research backgrounds. ENs have been a relatively new addition to the dialysis nursing workforce, although some dialysis professionals had EN qualifications. Variations in workforce profiles have economic implications for managers of dialysis services who are challenged to balance cost and quality. As both ENs and patient care technicians are paid less than RNs there may be pressure to replace RNs in dialysis services. However, the impact of such staff substitution on quality of care and patients outcomes is unclear (Flynn, Thomas-Hawkins, & Bodin, 2008).

With the need for a larger renal workforce to manage growing demand for dialysis in the future, in the context of relative shortage of nurses, the number of dialysis enrolled nurses and patient care technicians may need to increase. Consequently the role of the registered nurse in the dialysis context may alter somewhat. Therefore, the relationship between the roles of registered

Figure 4. Number of patients for each full time equivalent (FTE) per region



nurses, enrolled nurses and technicians will need to be clearly defined. Data in this report provides a basis for further research into the link between workforce profiles and patient outcomes.

Variations in post-registration qualifications

There was significant variation between the percentage of nurses with post-registration renal qualifications between states, territories and New Zealand. The reasons behind these differences are unknown; however it may be related to the change from hospital-based to university-based programs over the past 10 years. The higher levels of post-registration renal qualifications in South Australia may be associated with an established post-registration course, or possibly the maintenance of a shorter hospital-based program, whereas in most other states post-registration qualifications are gained through a university graduate certificate or master's degree.

South Australia's and Tasmania's high percentage of nurses with renal post graduate qualifications does not mirror other nursing areas and specialties in

these states. In addition, dialysis units have a higher percentage of staff whose qualifications equate to their clinical area (Australian Institute of Health and Welfare, 2008). It would seem that more post-registration qualified renal nurses should contribute to better patient outcomes however, this would need to be tested by further research in this area.

Strategies for supplementing staff shortages

One driver for this study was the view that staffing dialysis units is an ongoing problem (Gardner et. al. 2007). This study did not support this view revealing that the majority of dialysis unit managers 'always or usually' had enough staff, with less than 10% reporting to 'rarely or never' having enough staff. There were no particular state-wide differences. However, this study revealed that dialysis units managed staff shortages by overtime and calling in staff, made possible due to the high number of part-time staff employed in dialysis units. Significant use of these strategies may solve management staffing problems but can still be stressful for staff involved. In the future, were the number of part time staff to drop (because,

for example, more technicians were employed to manage growing demand) these staffing options may be restricted.

Dialysis workforce age

The average age of the dialysis workforce is comparable, although marginally lower, than the general nursing population in both Australia and New Zealand, with the respective average ages being 45.1 (Australian Institute of Health and Welfare, 2008) and 45–49 for New Zealand (District Health Boards New Zealand, 2008). Therefore, the same age related issues applying to general nursing in Australia and New Zealand will likely apply to the dialysis workforce. The only exception to this was the average age of the South Island dialysis workforce. This may be related to the small numbers in the South Island and the method of collecting this data.

Further dialysis workforce research

The responses were thematically analysed based on previous nephrology research categorization (Ind & Bennett, 2005). Dialysis managers identified many areas for future research ranging from workforce, education, management, ethical and clinical issues. They were striking in their different levels of generality, from the very specific to the global. It may be that research previously completed in these areas may not be accessible to clinicians at the coalface and has thus not influenced practice. Education and technological strategies achieving better dissemination of research may be required to transition research into practice in the Australian and New Zealand context.

Limitations

Due to the difficulty in defining a dialysis nurse let alone renal nurses working in wards and in other areas, this survey was limited to the dialysis workforce. Therefore this survey did not identify nurses working in non-dialysis contexts on the census date.

As in all quantitative surveys, due to issues of confidentiality and ethical requirements, we were unable to follow through many of the comments that we received. This resulted in the reduced potential to ask follow up questions in order to clarify responses.

We acknowledge that dialysis managers are very busy and thus limited the survey to 15 questions. However, this limitation maximised the response rate.

Conclusion and implications for practice, education and research.

This is the first report of its kind exploring the dialysis workforce in Australia and New Zealand. Although this study was undertaken in a defined region it may have international implications. Regional variations in staff/patient ratios, workforce profiles and post-registration qualifications found in this study may also be found internationally.

The study has confirmed that the dialysis workforce reflects the aging nature of the general nursing workforce in Australia and New Zealand. The perceptions of the majority of dialysis nurse managers that they have sufficient staff is contrary to the initial catalyst of this study, which was to give baseline data in order to improve the recruitment and retention of the dialysis workforce.

Further research is recommended to explore: variations in staff/patient ratios and in particular the possible relationship with rates of home therapies; reasons for regional variations in post-registration nephrology qualifications; appropriate workforce profiles including the role of registered nurse, the enrolled nurse and the dialysis professional; associations between workforce profiles and patient outcomes; further strategies in specific areas to address recruitment and retention issues and the apparent contradiction between anecdotal dialysis workforce shortages and dialysis manager perceptions.

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