



Advancing the care of people with kidney disease

# The Australian and New Zealand Dialysis Workforce Survey

2009

Version 1.1

The Renal Society of Australasia is Australia's and New Zealand's peak body representing renal nursing and associated renal professionals. The Society's mission is to *advance the care of people with kidney disease*.

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# **The Australian and New Zealand Dialysis Workforce Survey**

**2009**

Prepared by Paul N Bennett, Liz McNeill and Nick Polaschek  
on behalf of the Renal Society of Australasia

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# Executive Summary

The dialysis workforce provides vital care for the 12,000 patients living with end stage kidney disease requiring dialysis in Australia and New Zealand. Largely made up of nurses, it also includes a significant number of dialysis professionals (also known as dialysis technicians). The Renal Society of Australasia (RSA) believed that steadily increasing prevalent dialysis patient numbers present significant challenges to renal services and the dialysis workforce.

In 2008 the RSA commissioned this study as a first step to address workforce management issues. The aim of this study was to capture a “snapshot” of the current dialysis workforce in order to identify dialysis workforce needs and contribute to development of recruitment and retention strategies to meet the growing demand for dialysis services in Australia and New Zealand. This data has never been collected previously.

Two hundred and twenty one dialysis managers covering every current operational dialysis unit in Australia (253) and New Zealand (25) responded to the 15 question emailed survey.

On the census date of October 31<sup>st</sup> 2008 there were 2433 registered nurses, 188 enrolled nurses and 295 dialysis professionals (also known as patient care technicians) in Australia. In New Zealand there were 327 registered nurses (RNs), 8 enrolled nurses (ENs) and 64 dialysis professionals (technicians). This equated to full-time equivalent numbers in Australia/New Zealand for RNs – 1843/256; ENs 141/5 and dialysis professionals 298/67.

This study revealed new information relating to statewide and countrywide variations in staff/patient ratios, workforce profiles and post-registration qualifications. Notably a high proportion of renal staff worked part-time. The study confirmed that the dialysis workforce reflects the aging nature of the general nursing workforce in Australia and New Zealand. The majority of dialysis nurse managers perceived they had sufficient staff, which was contrary to the initial catalyst of this study, the perception of shortages in the dialysis workforce. In saying this, when shortages occurred they were primarily able to be managed by offering overtime and calling in staff.

Recommendations include further research exploring staff/patient ratios, rates of home therapies, variations in statewide post-registration renal qualifications, delivery of post-registration education, appropriate workforce profiles, the role of the enrolled nurse, association between workforce profiles and patient outcomes and the apparent contradiction between anecdotal dialysis workforce shortages and dialysis manager perceptions.

# Background

People suffering end stage kidney disease (ESKD) require renal replacement therapy in the form of dialysis to maintain life. Nurses and dialysis professionals (commonly titled patient care technicians) are the numerically dominant groups providing care to people living with ESKD.

The Renal Society of Australia (RSA) is the peak nephrology nursing and dialysis professional body in Australia and New Zealand. The RSA has recognised a shortage of nephrology health professionals in Australia and New Zealand. Given the 6% annual increase in people suffering ESKD patients in Australia and New Zealand (McDonald & Excell, 2008), appropriate planning strategies are required to address workforce management.

In 2008, the RSA decided the first step to address workforce management was to accurately determine the number of dialysis nurses and patient care technicians who currently work in dialysis units in Australia and New Zealand. To this date no government or industry body has collected this data and thus, this information has never been accurately compiled.

A pilot study of the South Australian dialysis workforce was undertaken in February 2008 by the Flinders Renal Research for Improved Patient Outcomes (FRRIPPO). 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, FRRIPPO 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 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.

## Methods

A survey was developed to collect a snapshot of the current Australian and New Zealand dialysis workforce and was guided by the RSA Federal Board. Two fundamental requirements of the survey methods were that the survey be able to be completed quickly (maximum 15 minutes) and a 100% response rate be achieved. A final questionnaire containing 15 questions was established (Appendix 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.

The survey was sent to all Australian (n=205) and New Zealand (n=16) dialysis unit managers (or their designate). To ensure all units were surveyed cross referencing 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, was undertaken.

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 Social and Behavioural Ethics Committee (Approval number: 4326) using the National Ethics Application Form (NEAF).

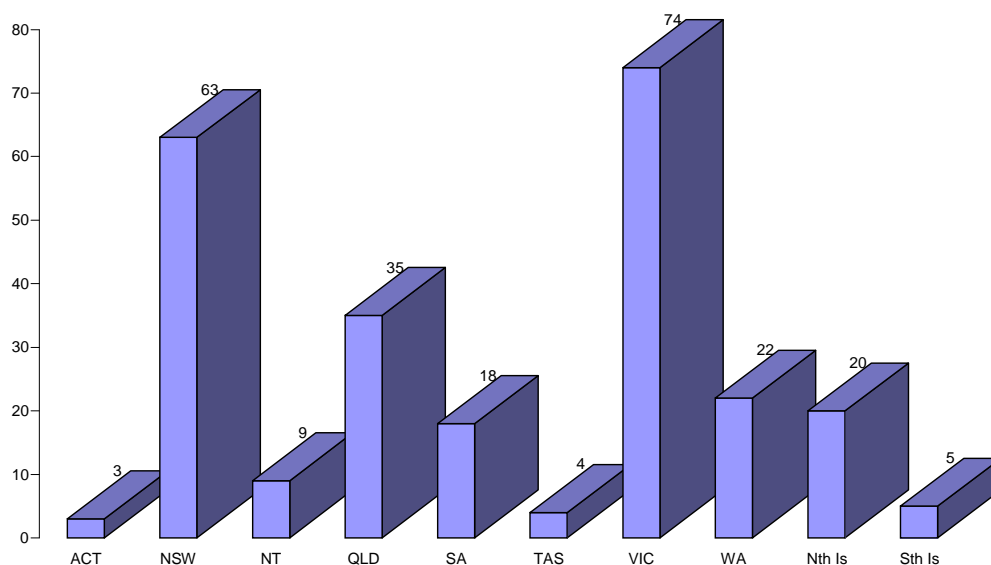
# Results

Two hundred and twenty one surveys were completed and returned culminating in a 100% response rate.

**Questions 1 to 3:** Questions 1 to 3 consisted of demographic and identifying data (Appendix 1). Data identifying the respondents' name and titles were discarded if requested following analysis.

The data represented a total of 253 dialysis units, 228 in Australia and 25 in New Zealand (Figure 1). 'Dialysis Units' included specific in-centre hospital units, satellite units, home training units and units combining several of these services. In some cases respondents treated a group of facilities under their management as a single unit, whereas others treated the different facilities they managed separately. In Australia, 10 units were identified as being inactive (temporarily closed) on 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.

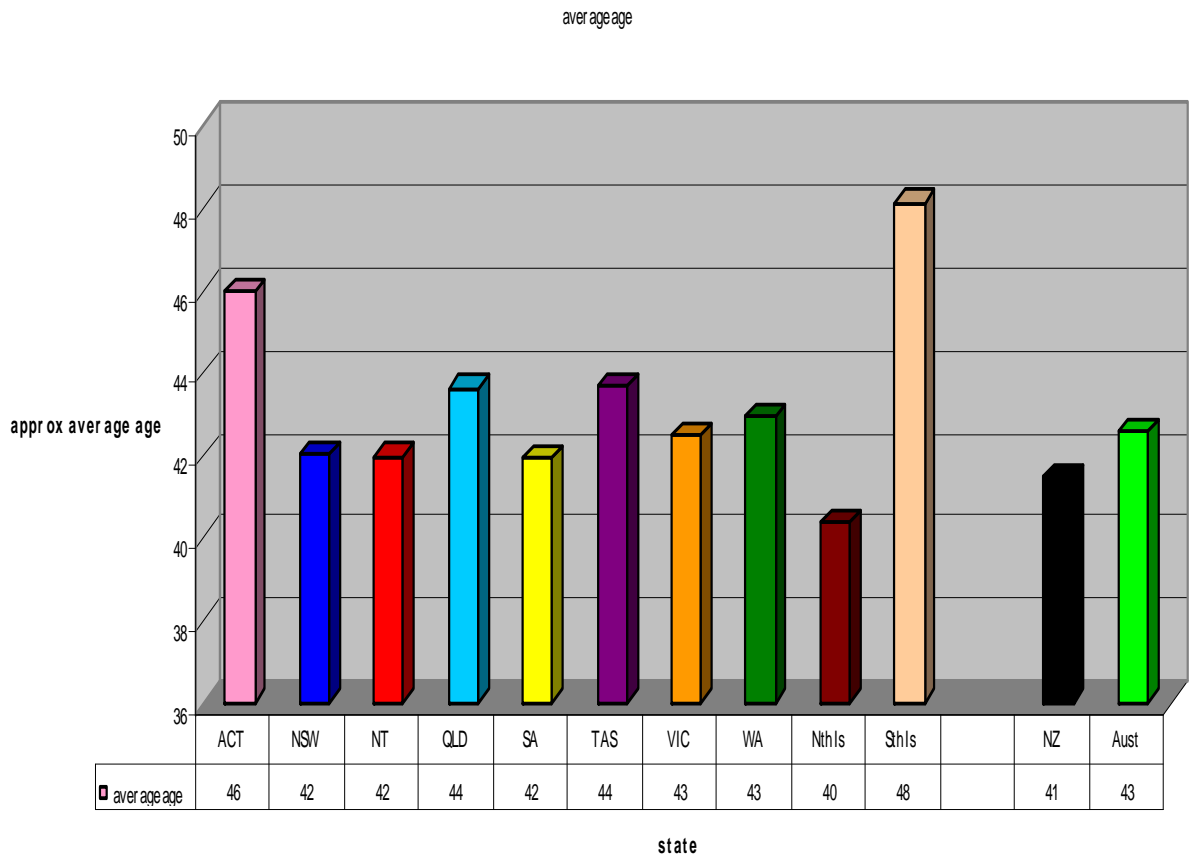
**Figure 1. Number of dialysis units per state/island**



**Question 4: What is the approximate average age of your dialysis workforce?**

Using this crude measure of approximation of age, the average Australian dialysis workforce was 42.5 years and the average New Zealand dialysis workforce was 41 years (Figure 2). 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).

**Figure 2. Average age of the dialysis workforce per state/island**



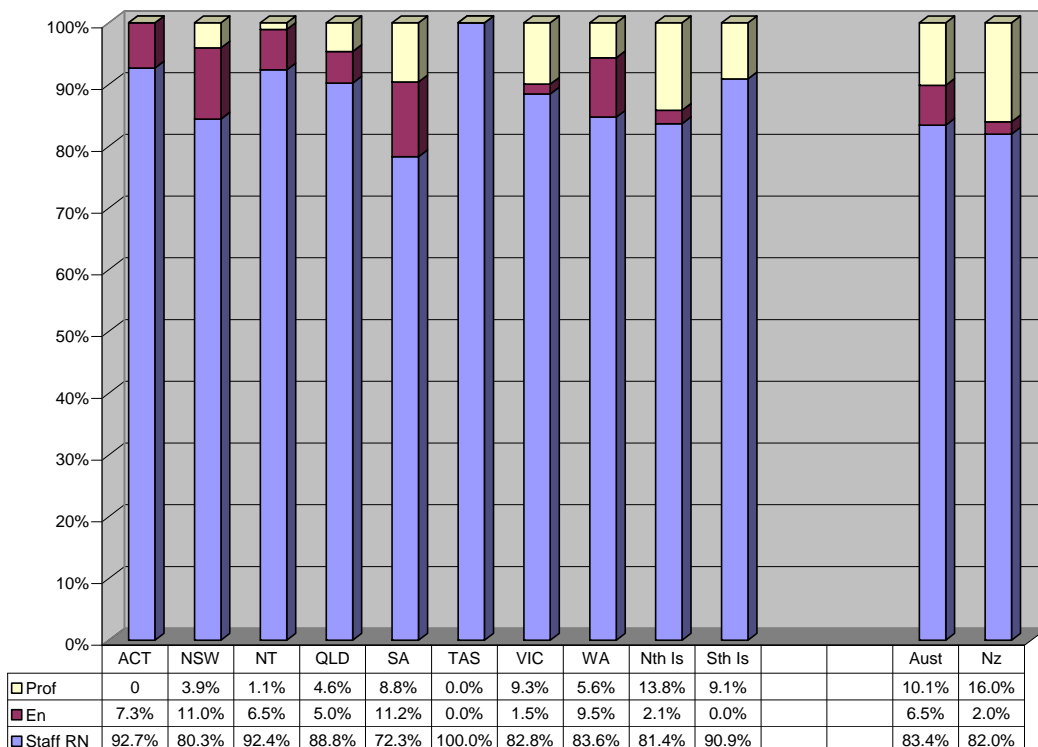
**Question 5, 6, 8, 9, 11 and 12:**

**What is your full-time equivalent staffing number (FTE) and how many registered nurses, enrolled nurses and dialysis professionals work in your units work:**

- greater than 30 hours per week?
- between 20 to 30 hours per week?
- less than 20 hours per week?

Most states and islands were staffed by registered nurses (RNs), enrolled nurses (ENs or Division 1 nurses) and patient care technicians. Tasmania was staffed only by RNs and the South Island of New Zealand does not employ ENs (Figure 3). States and territories with lesser populations, such as NT and ACT tended to have a greater proportion of registered nurses.

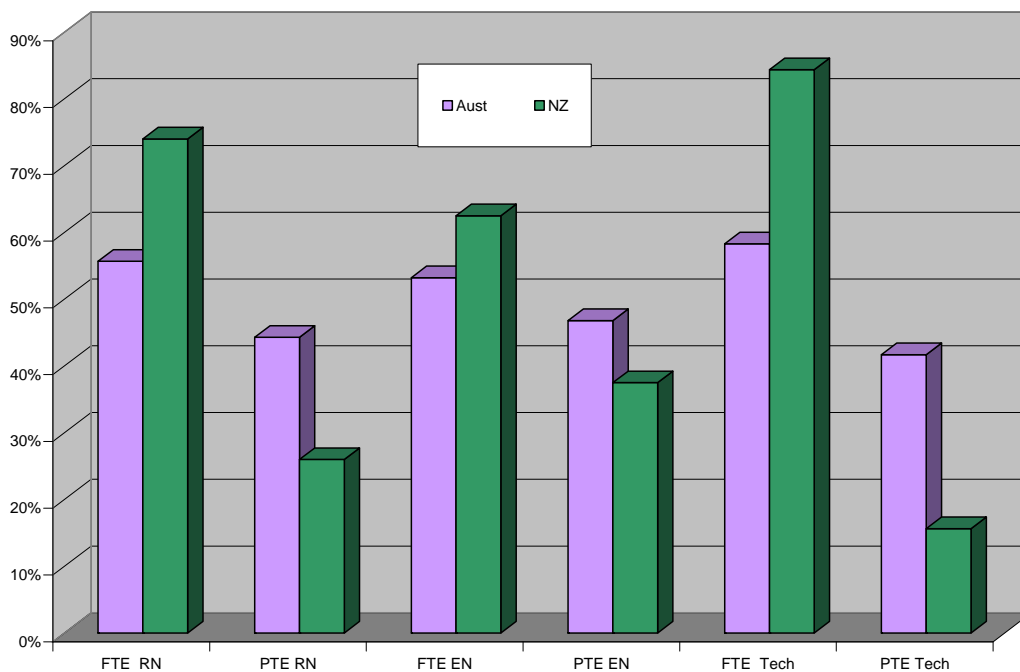
**Figure 3. Percentage of registered nurses, enrolled nurses and dialysis professionals per state, territory and island.**



**Question 5, 6, 8, 9, 11 and 12**  
**Part-time workforce**

In most states and islands 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 (Figure 4). Full time was defined as working greater than 30 hours per week.

**Figure 4. Full-time dialysis workforce percentages.**

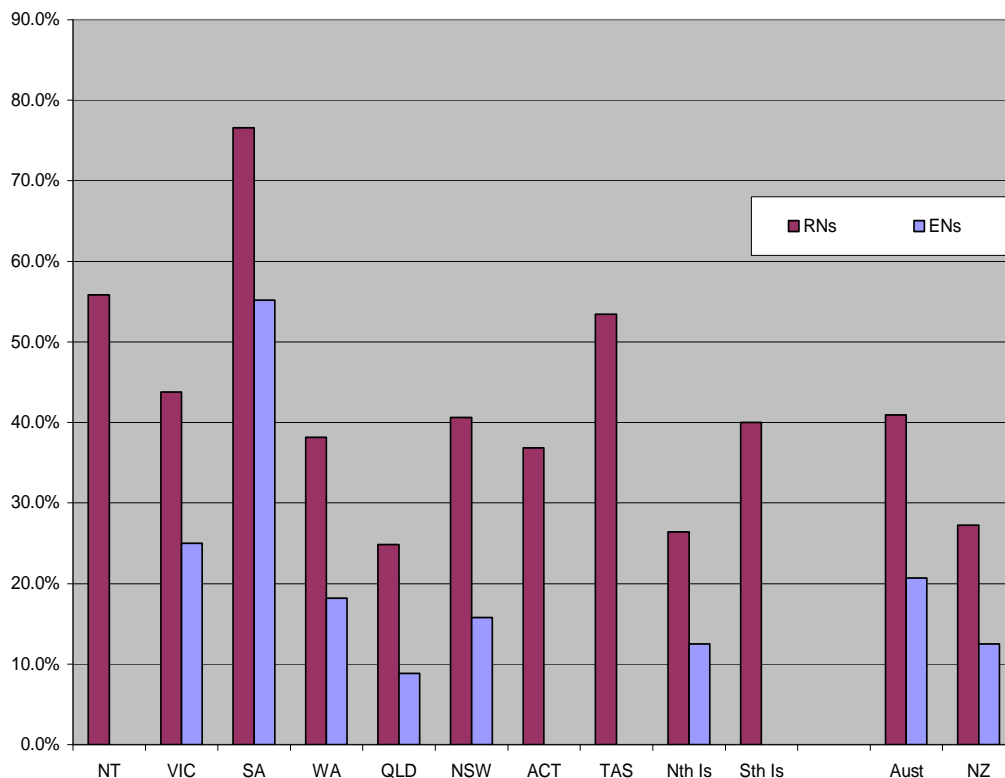


**Questions 7 and 10. How many RNs and ENs have post registration renal qualifications (renal/nephrology certificate/diploma etc)?**

The percentage of RNs with post-registration renal qualifications varied from 76% in South Australia to 25% in Queensland. Forty one percent of all Australian registered nurses had post registration renal qualifications compared to New Zealand with 21% (Figure 5).

Few ENs working in the Northern Territory or Australian Capital Territory had post registration qualifications. South Australia had significantly more ENs with post registration renal qualifications (55%) and Australia (21%) had a higher rate than New Zealand (13%) (Figure 5).

**Figure 5. Renal nurses with post-registration renal qualifications**



**Question 13. What best describes the usual staffing levels in your dialysis unit?**

- Always have enough staff, usually have enough staff, sometimes have enough staff, rarely have enough staff, never have enough staff.

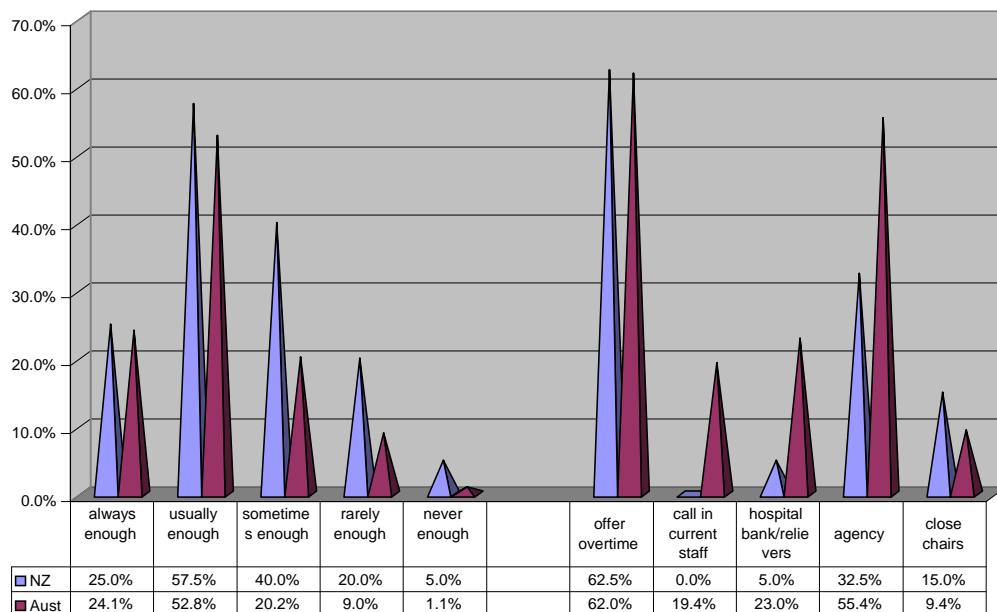
The majority of both Australian (82%) and New Zealand (77%) dialysis managers 'always or usually' had enough staff. Only 10% of Australian units and 25% of New Zealand North Island units had 'rarely or never' enough staff (Figure 6). There were no significant differences between other states.

**Question 14. When you do not have enough staff, how do you complement your staffing levels?**

- Offer overtime, call in current staff, hospital bank/relievers, Agency, close chairs

Most nurse managers offered overtime or called in current part-time staff to compliment staffing levels (Figure 6). There were no significant differences between states or islands.

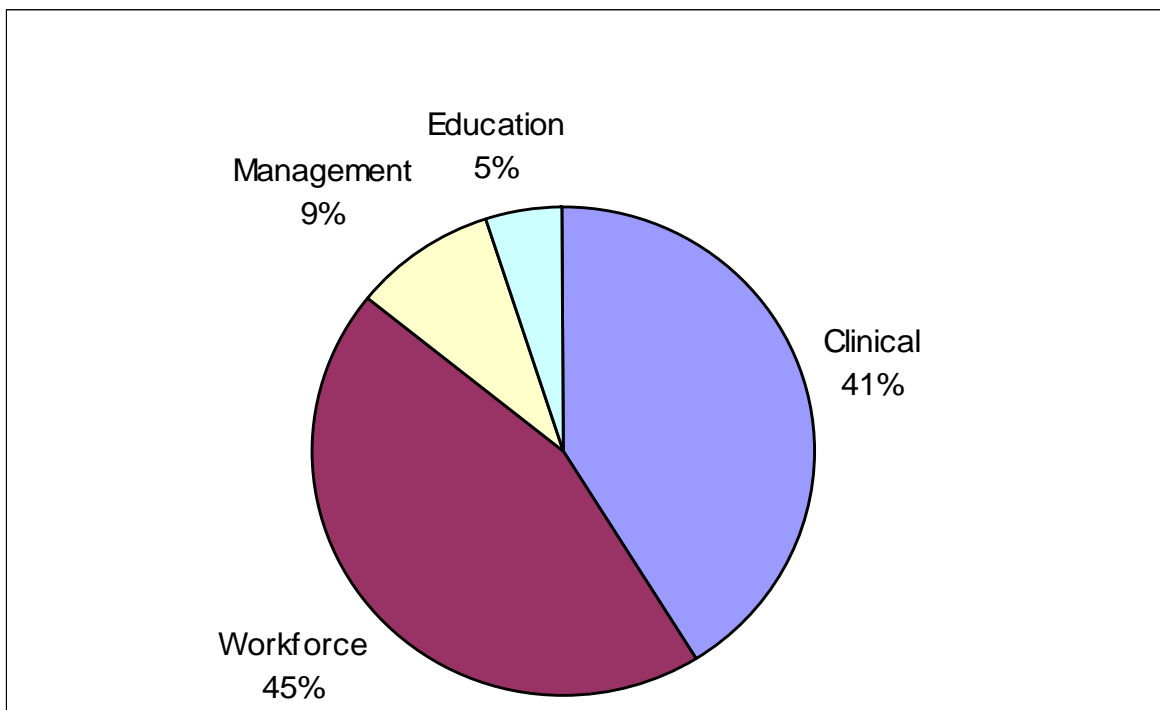
**Figure 6. Levels of staffing and staffing strategies**



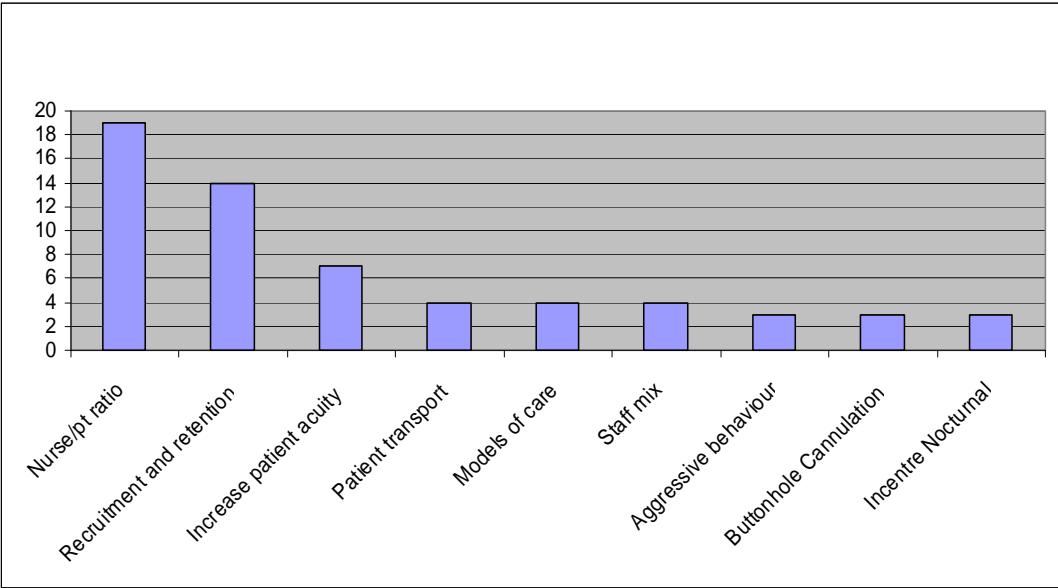
**Question 15. What future research/surveys would you like to see being done in the dialysis context?**

This question was optional. One hundred and eleven of the 221 dialysis managers replied (RR = 50%) providing 163 responses amounting to 70 unique research questions. Areas where dialysis managers saw the need for further research varied greatly. Unique research questions were categorised into: clinical (41), workforce issues (21), nurse management (4), and nurse education (4) (Figure 6). 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).

**Figure 7: Research categories**



**Figure 8: Specific Research Areas**



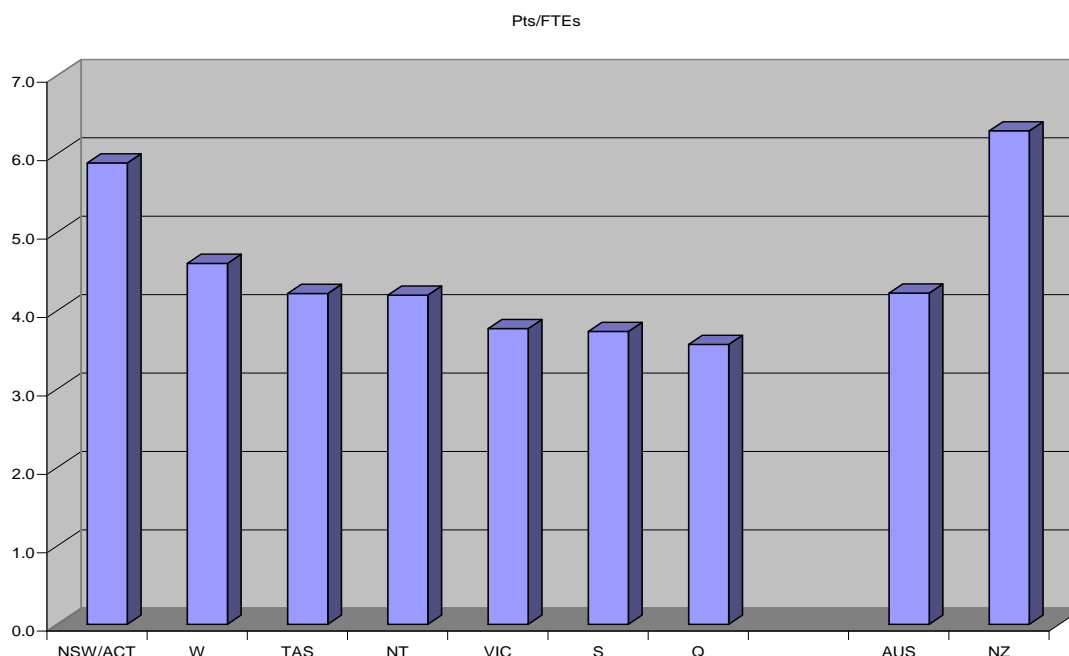
# Discussion

This survey was conducted to obtain a snapshot of the Australian and New Zealand dialysis workforce. This was a response to recent discussions at the 2007 and 2008 RSA Annual General Meetings. 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.

## 1. Workforce and dialysis modality

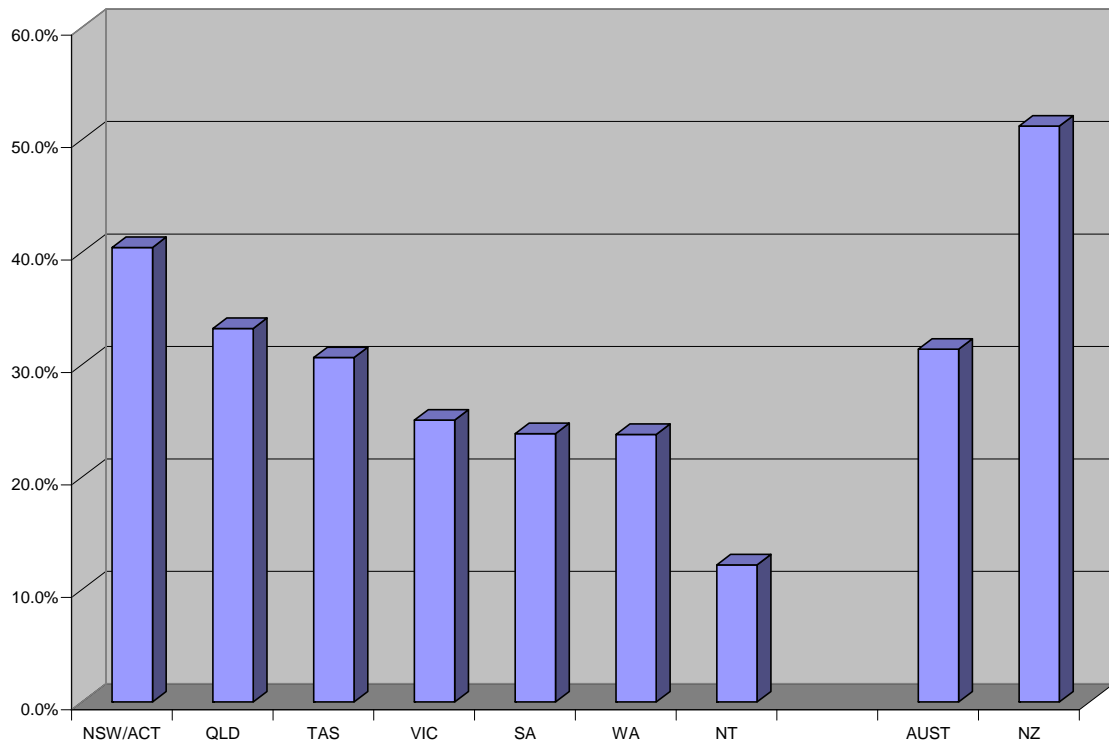
We compared our workforce data with the number of patients on dialysis in each state from the 2007 ANZDATA Registry (McDonald, Chang, & Excell, 2008). There were significant differences between states and countries ranging from one nurse to 3.7 patients in South Australia to one nurse for every 5.9 patients 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 9).

**Figure 9. Number of patients for each nurse per state**



We then compared the statewide nurse to patient ratios with dialysis modality data from Appendix 1 and 3 of ANZDATA (ANZDATA, 2008). A higher percentage of patients are dialysed at home in both New Zealand and New South Wales. (Figure 10).

**Figure 10. Percentage of patients on home dialysis modalities (home haemodialysis, home APD and home CAPD) relative to hospital and satellite modalities.**



This study demonstrated a possible association between statewide nursing ratios and dialysis service models. Those states with higher home dialysis rates (NZ and NSW) had lower nurse ratios compared to other states and territories in Australia where home dialysis numbers are comparatively low and where there is a higher number of nurses per patient. Although Northern Territory had the lowest rates of home dialysis we postulate that the unique characteristics of the Northern Territory, with their larger Indigenous population and unique nursing profile make comparisons difficult. However, Figures 9 and 10 show similarities between nurse/patient ratios and the percentage of home dialysis patients.

This result may suggest that self care dialysis at home is inherently less nurse-intensive than hospital and satellite dialysis. The variation in patient/staff ratios mirrors the variation in treatment modalities and suggests that dialysis units across Australia and New Zealand adopt similar policies in staffing for the different modalities.

## **2. Variation in state 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. Importantly, patient care technicians, have also provided direct patient care in dialysis units. These patient care technicians have often had science or research backgrounds. ENs have been a relatively new addition to the dialysis nursing workforce, although some patient care technicians had EN qualifications.

Variations in percentages of RNs, ENs and patient care technicians ranged from South Australia with a higher percentage of patient care technicians and ENs compared to Tasmania who are staffed by all RNs. Similarly there are variations between Australia and New Zealand (Figure 3).

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). Data in this report provides a basis for further research into the link between workforce profiles and patient outcomes.

Patent care technicians and enrolled nurses currently represent a significant proportion of the workforce in some regions. 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 patent care technicians and enrolled nurses 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 nurses, enrolled nurses and patent care technicians will need to be clearly defined.

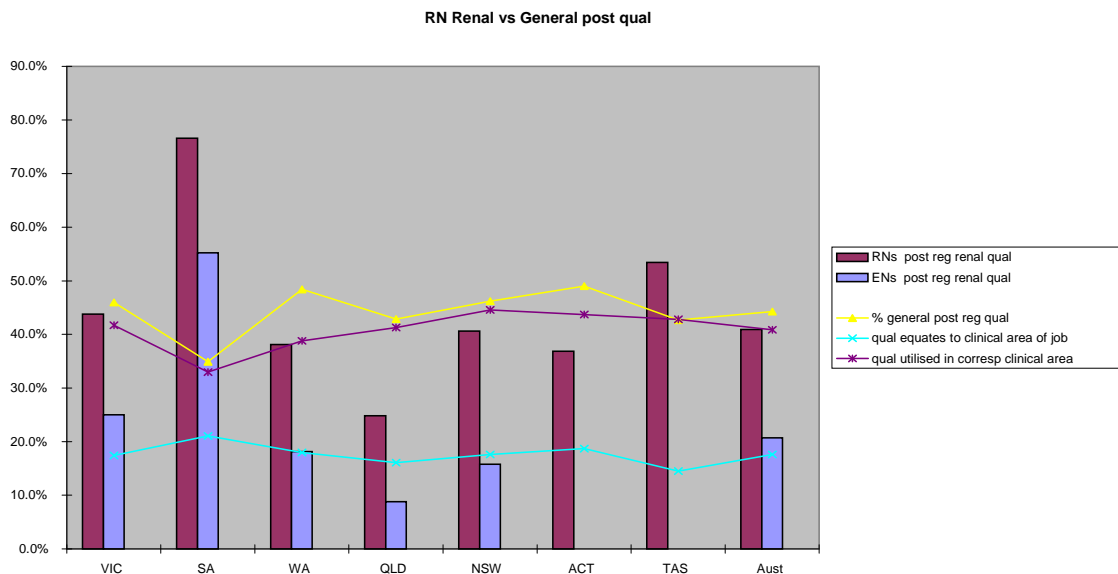
### 3. Variations in post registration qualifications

There is significant regional variation between the percentage of nurses with post-registration renal qualifications. The reasons behind these differences are unknown; however it may be related to the change from hospital-based to university-based programs. The higher levels of post-registration renal qualifications in South Australia may be associated with 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 (Figure 11). In addition, dialysis units have a higher percentage of staff whose qualifications equate to their clinical area (Australian Institute of Health and Welfare, 2008). Figures were not available for the Northern Territory.

Implications of these findings are unknown. However, it would seem that more post-registration qualified renal nurses should contribute to better patient outcomes. This would need to be tested by further research in this area. Data related to dialysis professional qualifications was not collected because of the many variable qualifications of this group.

**Figure 11. Percentages of registered nurses with post registration renal qualifications (Australia only).**



#### **4. Strategies for supplementing staff shortages**

One driver for this study was the perception that there was a chronic shortage of staff in dialysis units. 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 regional differences.

This study showed dialysis units generally 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. As this report is derived from the views of the managers we recognise the perspective of front line staff may be different. Further research in this area would be valuable. In the future, were the number of part timers to drop (because, for example, more patient care technicians were employed to manage growing demand) these options might be restricted.

#### **5. Dialysis workforce age**

The average age of the dialysis workforce is between 40 to 45 years old (Figure 2). Within the 216 survey replies answering age (5 had no age stated), the general age ranged from seven respondents stating their average unit age as 30 years or below to four units stating 65 years of age, with the most commonly cited age being 40 years. This is comparative, 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.

## **6. Further dialysis workforce research**

The responses to question fifteen 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.

# Conclusions and Recommendations

This is the first report of its kind exploring the dialysis workforce in Australia and New Zealand. It has revealed new information relating to statewide and countrywide variations in staff/patient ratios, workforce profiles and post-registration qualifications. In addition 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
- Explore the reasons for variations in statewide post-registration nephrology qualifications
- Explore the need for better ways to deliver post-registration education including new educational technologies such as web streaming and virtual classrooms
- Explore appropriate workforce profiles including the role of registered nurse, the enrolled nurse and the patient care technician.
- Explore associations between workforce profiles and patient outcomes
- Explore 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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# Appendix 1: Survey Instrument

1. What best describes your dialysis unit (tick more than one if applicable)

- What best describes your dialysis unit (tick more than one if applicable) in-centre (hospital) unit
- satellite unit (no on-site nephrologist)
- home haemodialysis training unit
- peritoneal dialysis unit
- What is the name(s) of your dialysis unit and, if applicable, the administering hospital/ company/ organisation.

2. Details of person completing this survey

Details of person completing this survey Name:

Position:

Area Health Service

3. What State, Territory or Island is your unit located?

- What State, Territory or Island is your unit located? ACT
- NSW
- NT
- QLD
- SA
- TAS
- VIC
- WA
- NZ - North Island
- NZ - South Island

4. What is the approximate average age of your dialysis workforce (eg. 45 years old)?

5. On Friday 31st October 2008 what is the total Registered Nurse (RN) full time equivalents in your unit ? (FTEs vary but generally equivalent to between 35 and 38 hours per week)

6. How many RNs in your units work:

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:

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. Dialysis professionals who give direct dialysis patient care are a vital part of many dialysis units. (Included designations may include patient care technicians, haemodialysis technologists etc. It DOES NOT include patient care assistants who do not provide direct dialysis care and DOES NOT include biomedical machine technicians whose major role is to repair and maintain machines and R/O etc.).

On Friday 31st October 2008 how many dialysis professionals 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?  
weekdays

I always have enough staff

I usually have enough staff

I sometimes have enough staff

I rarely have enough staff

I never have enough staff

What best describes the usual staffing levels in your dialysis unit? I always have enough staff weekdays

I usually have enough staff weekdays

I sometimes have enough staff weekdays

I rarely have enough staff weekdays

I never have enough staff weekdays

Other (please specify)

14. When you do not have enough staff, how do you complement your staffing levels?

- When you do not have enough staff, how do you complement your staffing levels? offer overtime
- hospital bank/relievers
- agency
- call in current staff
- close chairs

Other (please

specify)

15. What future research/surveys would you like to see being done in the dialysis context?