

INTERNATIONAL

Nurse practitioner prescribing practice in Australia

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Abstract

Purpose: In Australia, nurse practitioner (NP) services are a relatively new development with little being known about the prescribing practices of Australian NPs. The aim of this study was to conduct the first national study of Australian NP prescribing practices.

Data sources: Focus groups were conducted to inform construction of an electronic survey that was available for all NPs and NP candidates across Australia to complete.

Conclusions: Seventy-two percent of authorized NPs and 39% of NP candidates reported that their practice involved prescribing pharmaceutical agents. Of those respondents who did prescribe during the course of their practice, 59% ($n = 29$) of the authorized NPs and 64% ($n = 16$) of the NP candidates reported that they usually prescribe at least once a day. The results from this study suggest that fewer Australian NPs prescribe than do NPs in the United States, and those who do prescribe do so less frequently.

Implications for practice: The current health policy framework in Australia while creating space for the role of the NP is restricting the role's utility and potential contribution to the health care of Australians.

In Australia, the nurse practitioner (NP) is defined as “a registered nurse educated and authorized to function autonomously and collaboratively in an advanced and extended clinical role” (Australian Nursing & Midwifery Council, 2006). Legislation protecting the title “Nurse Practitioner” has been passed in all Australian states and territories. Legislation enabling the NP to prescribe has been passed in all states and territories except the Australian Northern Territory where this legislation is under review. NPs have three legislated extended roles under which they are able to initiate diagnostic investigations, prescribe medications, and make limited referrals (Australian Nursing & Midwifery Council, 2006). Similarly, in the United States, the NP has established title protection in all 50 states with prescribing authority varying among states from independent prescribing to the

requirement of direct or indirect physician involvement (Kaplan, Brown, Andrilla, & Hart, 2006; Phillips, 2007).

Evidence from both Australia and the United States has shown that NP services can increase efficacy, maximize resources, and improve patient access to healthcare services and medicines (Bailey, 2004; College of Nursing, 2003; Phillips, 2007; Towers, 2005; Wand & Fisher, 2006). Nurse prescribing has allowed nurses to provide more timely and comprehensive care packages, and has enhanced NPs ability to provide holistic care (Bradely & Nolan, 2007; Courtenay, 2007; Jones, 2004). It is not clear however, the extent to which NP prescribing has been implemented in Australia, nor how implementation of this practice compares to the experience in the United States.

NP prescribing—A review of the literature

The NP role was introduced in the United States as a result of a shortage in primary care physicians in the 1960s (Towers, 2005). In 2009, there were an estimated 125,000 NPs in the United States (American Academy of Nurse Practitioners [AANP], FAQs about NPs, available at <http://www.aanp.org/AANPCMS2/AboutAANP/About+NPs.htm>). The NP has a well-established advanced practice role that has evolved over the past 40 years with NPs increasingly practicing in speciality and subspecialty areas (AANP; Phillips, 2007; Towers). Throughout this time, NP services have been subjected to a research focus on public safety, quality of care, and productivity, resulting in a wealth of research in NP practices (Rhoads, Ferguson, & Langford, 2006).

Studies from the United States have identified that a significant number of NPs prescribe as a routine component of their clinical role (Goolsby, 2005a; Kaplan & Brown, 2004; Pulcini & Vampola, 2001; Scudder, 2006; Talley & Richens, 2001). A national survey undertaken by the AANP in 2004 collected data on prescribing patterns reported by 16,062 NP respondents who were in active practice at the time of the survey (Goolsby, 2005a). The survey sample was randomly selected using a stratified approach representative of the overall NP population by specialty. The respondents represented approximately 17% of the total U.S. NP population. The proportion of respondents who reported regularly prescribing was high across the entire sample. In seven states, 100% of respondents reported that they prescribed pharmacologic agents as a component of their clinical role. In only two states did less than 90% of respondents report that they prescribed pharmacologic agents (Georgia, 82.3% and Hawaii, 88.2%) (Goolsby, 2005a).

Scudder (2006) reported on the prescribing patterns of 224 NPs in the United States. Participants were asked to identify how often they prescribed pharmacological agents in their NP role. Results indicated that 26% ($n = 58$) wrote more than 16 prescriptions per day, 71% ($n = 159$) wrote between 1 and 15 prescriptions per day, and just 3% ($n = 7$) identified not writing any prescriptions on a regular basis. These findings were similar to an earlier U.S. study by Pulcini and Vampola (2001) where NP prescribing practices were examined in three surveys conducted in 1996, 1999, and 2001 with 1763, 1557, and 866 participants, respectively. The average number of patients seen per day remained constant at between 16 and 20 across the three surveys and the average number of prescriptions written per day also remained the same at 11 to 15 per day.

Prescriptive authority for NPs in Australia remains a relatively new development, commencing in 2001

(Cashin, 2007b). To date, there have been no published studies reporting Australian NP prescribing practices. The primary aims of this study were to examine Australian NP prescribing practices to identify what proportion of and how frequently respondents prescribe medication. Secondary aims were to compare and contrast frequency of Australian NP prescribing practices with those of NPs in the United States, and with Australian NP candidates.

Methods

Study design

In 2007, a total of almost 100 NPs, NP candidates, educators in NP courses, and managers of NP services participated in focus groups designed to discern the shape of NP prescribing behaviors, enablers, and inhibitors. Thematic analysis of the focus group data, plus a comprehensive review of published and unpublished literature, was used to inform the content of a national on-line survey. The electronic survey was available for a 2 week period via the National Prescribing Service and Australian Nurse Practitioner Association (ANPA) websites. Invitations to complete the survey were sent to all ANPA members, all Australian NP course coordinators to distribute to their students, and all participants in the original focus groups. In addition, the survey was advertised in specialty newsletters and at relevant professional conferences.

Study participants

A total of 68 authorized NPs and 64 NP candidates (student NPs and NPs in transitional roles, but not yet authorized) participated in the survey. At the time of data collection, there were 250 authorized or endorsed NPs in Australia. This gives a response rate of 27% of authorized NPs.

Data analysis

Data were collected via an online survey and converted to an Excel data sheet. Data were then imported to SPSS version 14.0 for Windows for descriptive analysis. Participant characteristics and outcome data are reported as raw data. To explore, if participants who were practicing in metro areas prescribed more frequently than those practicing in remote or rural areas, the chi-square (χ^2) test was used to compare these categorical variables.

Ethical approval

Ethical approval was received from appropriate Human Research Ethics Committees.

Results

Sample characteristics are shown in Table 1. Almost three quarters of authorized NPs and just over half of NP candidates had practiced in nursing for more than 21 years. The majority (70%) of participants were practicing in metro areas, with 24% practicing in rural areas, and 6% in remote areas. The majority of participants were practicing in the public health sector with just 6% of authorized NPs and 11% of NP candidates practicing in the private sector. Although there was participant representation from every state and territory, the majority of authorized NPs were located in New South Wales (56%), the first state to legislate an NP role and the jurisdiction with the largest number of authorized NPs. Over 30 specialty areas of practice were identified by respondents with the largest group being emergency care (23%).

Participants were asked to report the percentage of their usual practice that involved prescribing and also the frequency that they prescribed during the course of their usual practice. Thirty-two percent of authorized NPs and half of NP candidates stated that prescribing was involved in less than 5% of their practice (Figure 1). Almost 65% of authorized NPs and 70% of NP candidates stated that prescribing involved no more than a quarter

of their practice. Only 9% of authorized NPs and 8% of NP candidates stated that prescribing occurred in more than 75% of their practice. The percentage of usual practice that involved prescribing was not different in those practicing in metro areas versus those practicing in rural or remote settings ($\chi^2: p = .80$).

In order to establish the frequency of prescribing practice, participants were asked if, during the course of their practice, they prescribed "never," "less than once a month," "more than once a month but less than once a week," "more than once a week but less than daily," or "once a day or more" (Figure 2). A total of 19 authorized NPs (28%) and 39 NP candidates (61%) indicated that their practice does not involve prescribing. Of those respondents who did prescribe during the course of their practice, 59% ($n = 29$) of the authorized NPs and 64% ($n = 16$) of the NP candidates stated that they usually prescribe at least once a day. The frequency of prescribing was not different, in those practicing in metro areas versus those practicing in rural or remote settings ($\chi^2: p = .68$). Speciality settings did not contain large enough samples to make comparisons in relation to differences between prescribing practices.

Discussion

The sample characteristics of this current survey compare with those available for the national NP population during the study period (Dunn, 2007). As this was the first study to collect data on a national basis, comparisons of some sample data (e.g., duration of specialty practice, characteristics of NP candidates) to the national population are not available. The largest speciality in our sample was emergency NPs. In comparison, a survey of 16,062 NPs from across the United States found only 3% of respondents practiced in an emergency setting (Goolsby, 2005b). It has been reported that the majority of respondents in this U.S. survey indicated practicing as a private physician (33%) and in school health (19%) (Goolsby, 2005b), unlike our sample who were predominantly practicing in the public health sector.

The results from this study indicate that just over two thirds (68%) of authorized Australian NPs identified prescribing as part of their practice. Studies from the United States have identified over 90% of NPs prescribe pharmacologic agents (Goolsby, 2005b; Scudder, 2006). A comparison of results suggests that not only do more NPs in the United States prescribe as a component of their practice, but they do so more often. Only 43% of authorized NPs included in this study prescribe once or more a day, whereas studies in the United States report that 97% of NPs prescribe more than once a day

Table 1 Characteristics of study nurse practitioner and transitional nurse practitioner participants

	Nurse practitioners ($n = 68$)		Nurse practitioner candidates ($n = 64$)	
	Number		Number	
Age in years (SD)	47.1	7.5	43.4	8.0
Female	53	78%	53	83%
Years practicing as an RN				
<5 years	0		1	1%
5–10 years	3	4%	10	16%
11–25 years	7	10%	10	16%
16–20 years	10	15%	9	14%
21–25 years	14	21%	13	20%
>25 years	34	50%	21	33%
Location of practice				
Metro	52	76%	40	63%
Rural	12	18%	20	31%
Remote	4	6%	4	6%
Practicing in public sector	64	94%	57	89%
Practicing in private sector	4	6%	7	11%
Jurisdiction of NP authorization				
New South Wales	36	53%	NA	NA
Australian Capital Territory	6	9%		
Northern Territory	1	1.5%		
Queensland	7	10%		
South Australia	5	7%		
Victoria	8	12%		
Western Australia	5	7.5%		

NA, not applicable.

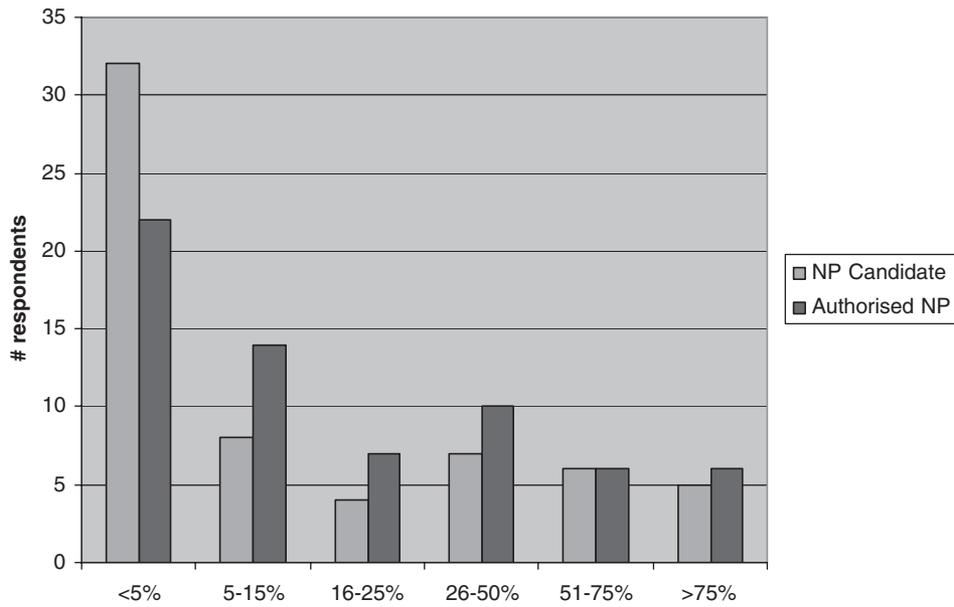


Figure 1 Percentage of usual practice involving prescribing.

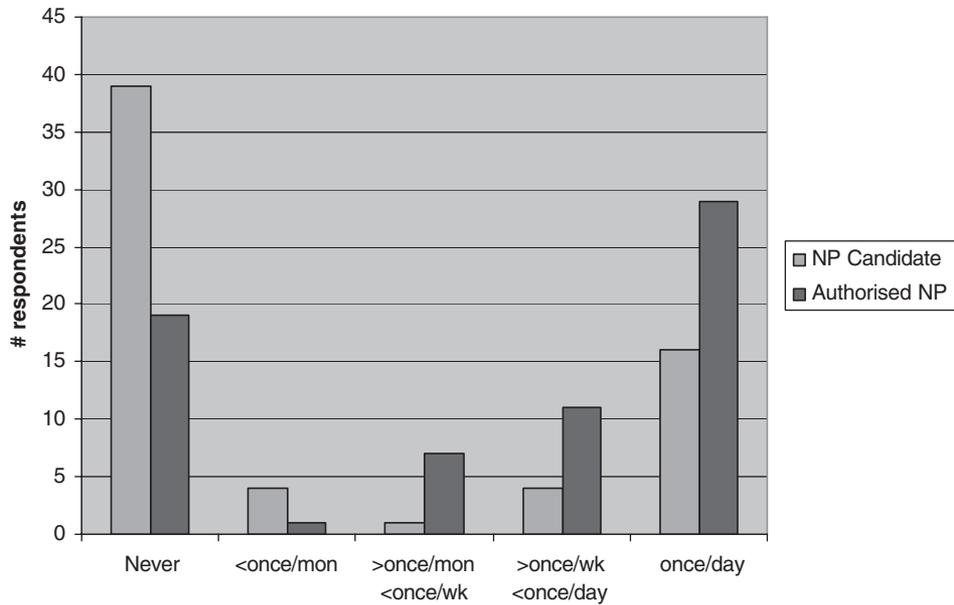


Figure 2 Frequency of prescribing in usual practice.

(Scudder, 2006). In the United States, the average number of prescriptions written is 11 to 15 per day (Pulcini & Vampola, 2001) which is considerably more than the average Australian NP in our survey.

Twenty-eight percent of authorized NPs in our sample, as contrasted with less than 10% of the American samples, reported never prescribing. There is substantial evidence in the literature identifying the range of

legislative, professional, organizational, and funding barriers impeding NPs prescribing both in Australia and internationally (Carrier, Gardner, Dunn, & Gardner, 2007; Cashin, 2007b; O'Connor, Hameister, & Kershaw, 2000; Phillips, 2007; Plonczynski, Oldenburg, & Buck, 2003). Results from the current study would suggest that a substantial proportion of Australian NPs face insurmountable barriers to prescribing in their practice, but of

those who do prescribe, most use it as a regular part of their daily clinical patient care.

In both Australia and the United States the legislation enabling NP practice is spread across state and national jurisdictions, and is often inconsistent, complex, and restrictive (Cashin, 2007a; Driscoll, Worrall-Carter, O'Reilly, & Stewart, 2005). In Australia, for example, NPs have legislated prescriptive authority in all states; however, the classes of drugs they may prescribe, and the ability of pharmacists to dispense based on an NP prescription, is inconsistent. Similarly in the United States, in 23 states, NP prescriptive authority is linked to a collaborative agreement with a physician, whereas in the other 27 states NPs can prescribe independently (Plonczynski et al., 2003).

In Australian health care, medicine has traditionally been the dominant group in influencing political decisions. The Australian Medical Association has been vocal in their opposition to NP prescribing (Cashin, 2007b; NSW College of Nursing, 2003) and similarly in the United States, the American Medical Association continues to oppose NP prescribing despite there now being over 40 years of evidence supporting NP practice (Phillips, 2007; Plonczynski et al., 2003). Such professional barriers have resulted in substantial constraints on the implementation of NP practice particularly at the organizational level as in, for example, the implementation of "NP Practice Protocols." Such "protocols" are prescriptive tools designed to limit NP practice and should not be confused with best-practice guidelines used to support clinical decision making in a multidisciplinary care environment (Carrier et al., 2007). These authors argue that the use of prescriptive clinical protocols designed specifically for NP practice is restrictive and potentially dangerous as "cook-book" style health care leads to de-skilling by reducing the need for independent thought, potentially resulting in missed cues and increasing the risk of poor decision making. They also argue that such protocols inhibit the development and utilization of NP capability. This reduces the contribution NPs potentially could make to a quality health services (Carrier et al.).

Although the healthcare systems between Australia and the United States have substantial differences in many areas, funding for health care is a difficult and politically fraught issue in both countries. In Australia only some hospital-based NP positions have patients who receive reimbursement of medical cost and medications via state hospital funding. To date private providers and healthcare insurers have not extended funding to include NP services (Cashin, 2006). Phillips (2007) highlighted the impact of reimbursement of services on American NPs' abilities to practice at their full scope. Because legislation was passed in the United States in 1997 to allow direct reimbursement

for Medicare services provided by NPs, Phillips contends that patients have had improved access to NP services including NP prescribing. A U.S. study reported that almost 40% of NP consultations that received government funded reimbursement would have opted for an alternative healthcare provider if reimbursement had not been available. O'Connor et al. (2000) reported on payment sources for 3733 NP consultations. Prepaid health plans (48.1%, $n = 1647$) were the most common payment option, followed by government insurances plans, i.e. Medicare or Medicaid (38.9%, $n = 1336$). Other identified payment sources were fee-for-service (13.2%, $n = 453$) and uninsured (5.7%, $n = 196$). In Australia, NP access to the Commonwealth Medical Benefits Scheme and Pharmaceutical Benefits Scheme is considered critical to the full realization of the possibilities envisioned in the role by the state-based legislators (Cashin, 2007b).

It would appear that overall, Australian NPs prescribe less as part of their practice than NPs in the United States, and when they do prescribe it is less frequently than do NPs in the United States. A possible explanation for this finding is that the differences between healthcare systems in Australia and the United States result in U.S. NP services being in greater demand, where prescribing practice is a routine component of the NP role. For example, in the U.S. NP services are viewed as a cost-effective alternative to physicians, services are easily accessible and provide a vast range of specialities, and services are also reimbursed (Phillips, 2007). In Australia, NP services are very few and far between in which services offered by the NP are not only unable to be reimbursed, including no access to the federal Pharmaceutical Benefits Scheme for NPs' patients, but NPs are also limited in what services they can provide (Carrier et al., 2007; Cashin, 2007a).

Our study produced some unexpected results in that almost 30% of NP candidates indicated that prescribing involves between 5% and 50% of their usual practice, with 25% identifying that they prescribe once or more a day. NP candidates, as they are not yet authorized as NPs, do not have authorization to prescribe. A possible explanation for this anomaly is that respondents misunderstood the question, or possibly that some candidates are currently prescribing outside of their legislatively approved scope of practice. This trend has been reported internationally (Surridge & Spriggs, 2006; Bradley, Campbell, & Nolan, 2005). Plonczynski et al. (2003) highlighted that, prior to advanced practice nurses receiving authority to prescribe, some physicians would leave pre-signed prescriptions or would co-sign for medications ordered by the advanced practice nurses. This is supported by a study of 1214 NPs in California exploring the reasons for the low rate of NP prescriptive privileges (Blodget, 2000). Approximately 10% of respondents identified using an alternate

strategy for prescription drug provision, with a small percentage (1%) identifying pre-signed prescriptions as an alternative strategy used for prescription drug provision.

Limitations

The sample represents 27% of Australian NPs, which limits the generalizability of the findings. However, the sample representation (i.e., 27% of all NPs in Australia) is comparable to similar overseas studies exploring NP prescribing practice (Goolsby, 2005a; Scudder, 2006). The inability to determine number of candidate/student NPs across Australia and estimate the response rate of candidate/students must also be factored into interpretation. It is important to acknowledge that NP prescribing practices in Australia have had decades less time to evolve than those of NPs in the United States, and the differences in healthcare systems between these countries will influence NP practice. However, despite these limitations, this is the first study to report frequency of NP prescribing in Australia, and provides a valuable insight into the contentious arena of NP practice.

Conclusion

Presently almost two thirds of Australian NPs prescribe as part of their practice. The NP role in Australia is a relatively new development in which NPs are experiencing a number of barriers to practice that have been similarly experienced by U.S. NPs over the past 40 years. These barriers include inconsistencies in state legislation, restrictive protocols, lack of funding, and opposition from medical colleagues. As witnessed in the United States, NP services have developed and barriers experienced by NPs have decreased, in concurrence with the growing evidence base that supports the efficacy of NP services. Further research into Australian NP services, including prescribing practices and outcomes, is imperative for future development of the NP role and services in Australia.

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