

# Snapshot of the Australian Public Hospital Pharmacy Workforce in 2005

Karen M O'Leary, Yvonne M Allinson

## ABSTRACT

A workforce questionnaire was sent to 198 Australian public hospitals with more than 50 beds. This report details the data returned from 99 (50%) public hospital pharmacy services and compares the results to earlier studies performed at the same time of year in 2001 and 2003. Key findings of the 2005 snapshot of the hospital pharmacy workforce in public hospitals in Australia are that:

- overall 69.95 of the 972.27 (7%) of establishment pharmacist full-time equivalent positions were vacant—an improvement from the 2003 figure of 10%;
- 1 in 3 hospital pharmacists work part-time;
- almost 1 in 3 hospital pharmacists have a postgraduate qualification;
- number of pre-registration positions available has remained steady despite an increase in the number of pharmacy graduates;
- percentage of hospital pharmacy technicians with formal qualifications as a pharmacy technician or pharmacist has increased to over 45%;
- 66 respondents indicated the need for additional 154.68 pharmacists full-time equivalent (or an increase of 16%) in the next two years. The majority of these related to extending clinical pharmacy services and the ongoing introduction of the Pharmaceutical Benefits Scheme in public hospitals.

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## BACKGROUND

The first study of Australia's hospital pharmacy workforce (public and private hospitals) was undertaken in 2001.<sup>1</sup> The data from the 2001 study provided a baseline and were used to estimate the future demand for hospital pharmacists. A national study of hospital pharmacy services in public hospitals in 2003 highlighted that:

- 10% of established full-time pharmacist positions were vacant;
- one-third of hospital pharmacists worked part-time;
- one-third of hospital pharmacists had postgraduate qualifications; and
- less than 40% of pharmacy technicians had formal qualifications as a pharmacy technician or pharmacist.<sup>2</sup>

The data presented in this report update the findings of the 2003 study.

## METHOD

Hospital pharmacy services were identified from a list of public hospitals with the hospital peer group system published by the Australian Institute of Health and

Welfare.<sup>3</sup> A questionnaire was mailed to the pharmacy manager at each of the 198 hospital pharmacy services in late September 2005. A reminder letter was sent to non-respondents in November 2005 and SHPA members were asked to encourage their pharmacy manager to complete the questionnaire. Where a position for a pharmacist was funded but currently vacant, the person 'in charge' of the pharmacy service (usually a hospital pharmacy technician) was asked to complete the questionnaire.

Responses were entered into SurveyGold (version 7). All figures were extracted from the database using a combination of SurveyGold and Excel.

Estimates of the national workforce have been made by summing the extrapolated figures for each hospital peer group per state.

## RESULTS

The data presented are the responses from 99 public hospital pharmacy services across Australia. The number of replies by state and hospital peer groups are shown in Table 1. There are no data for subacute or non-acute hospital peer group as the questionnaire was only sent to hospitals with at least 50 beds. The response rate varied by location and type of hospital, and was lower than the previous study for all hospital peer group and states (except Victoria). Two hospital pharmacy services had no establishment pharmacist full-time equivalent as services were provided by a third party. These data are included.

## Pharmacists

The establishment pharmacist full-time equivalent positions and vacancies by state and hospital peer group are presented in Tables 2 and 3. There were 972.27 pharmacist full-time equivalent at the 99 hospitals and, overall, 69.95 (7%) full-time equivalent positions were vacant. The hospital peer group for principal referral hospitals includes two groups: metropolitan and rural. Six hundred of the 700 establishment pharmacist full-time equivalent for this hospital peer group are in metropolitan hospitals. The average establishment full-time equivalent differs between these groups with 26.17 in metropolitan and 8.98 in rural hospitals. Similarly, the vacancy rate in this hospital peer group differs with 4% in metropolitan and 20% in rural principal referral hospitals.

There has been a decline in the number of pharmacists working part-time—from 34% in 2003 to 31%. This figure is relatively consistent across states but the percentage of part-time pharmacists is greater in hospitals outside metropolitan areas. The data suggest that in the public hospital sector 1.16 pharmacists are required to cover each establishment pharmacist full-time equivalent.

Extrapolating the data for each hospital peer group in each state, it is estimated that there are 1596.98 pharmacist full-time equivalent in public hospitals with more than 50 beds and that approximately 1938 pharmacists are required to fill these positions.

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Karen M O'Leary, BPharm, Projects Manager, Yvonne M Allinson, BPharm, GradDipHospPharm, GradDipHealthAdmin, Executive Director, SHPA, Collingwood, Victoria

Address for correspondence: Karen O'Leary, SHPA, Suite 3, 65 Oxford Street, Collingwood Vic. 3066, Australia  
E-mail: koleary@shpa.org.au

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**Table 1. Questionnaires received by state and hospital peer group**

State	ACT	NSW	NT	Qld	SA	Tas.	Vic.	WA	Total
No. HPS	2	71	3	35	17	3	48	19	198
No. replies received	1 (50%)	27 (38%)	1 (33%)	15 (43%)	9 (53%)	1 (33%)	36 (75%)	9 (47%)	99 (50%)
HPG	Principal referral	Specialist women's and children's	Large-major city	Large - regional and remote	Medium-group 1	Medium-group 2	Small acute	Sub-acute and non-acute	Psychiatric
No. HPS	58	10	28	23	32	28	8	0	11
No. replies received	35 (60%)	5 (50%)	14 (50%)	14 (61%)	15 (47%)	11 (39%)	2 (25%)	0	3 (27%)

HPS = hospital pharmacy services; HPG = hospital peer group

**Table 2. Profile of hospital pharmacist workforce by state**

State	Pharmacist establishment FTE	No. FTE vacant	No. filling these positions	No. working part-time	No. with postgraduate qualifications	Pharmacists' hospital experience			
						< 2 years	2-5 years	5-10 years	>10 years
ACT	22.80	0	25	4 (16%)	0	5 (20%)	5 (20%)	6 (24%)	9 (36%)
NSW*	176.75	18.73 (11%)	203	77 (38%)	50 (25%)	33 (16%)	29 (14%)	30 (15%)	111 (55%)
NT	10	0	10	0	2 (20%)	3 (30%)	4 (40%)	1 (10%)	2 (20%)
Qld	127.10	22.62 (18%)	131	49 (37%)	42 (32%)	19 (15%)	21 (16%)	15 (11%)	75 (57%)
SA*	102.20	2.40 (2%)	122	30 (25%)	28 (23%)	24 (20%)	20 (16%)	17 (14%)	61 (50%)
Tas.	27	0	38	13 (34%)	15 (39%)	4 (11%)	3 (8%)	13 (34%)	4 (11%)
Vic.	435.84	23.20 (5%)	524	161 (31%)	158 (30%)	78 (15%)	74 (14%)	92 (18%)	282 (54%)
WA	70.58	3 (4%)	79	16 (20%)	27 (34%)	20 (25%)	8 (10%)	15 (19%)	26 (33%)
<b>Total</b>	<b>972.27</b>	<b>69.95 (7%)</b>	<b>1132</b>	<b>350 (31%)</b>	<b>322 (28%)</b>	<b>186 (16%)</b>	<b>164 (14%)</b>	<b>194 (17%)</b>	<b>579 (51%)</b>

FTE = full-time equivalent; \*Includes hospital pharmacy services with outsourced services

**Table 3. Hospital pharmacist workforce by hospital peer group**

Hospital peer group	Pharmacist establishment FTE (total)	No. FTE vacant	No. filling these positions	No. working part-time	No. with postgraduate qualifications	Pharmacists' hospital experience			
						< 2 years	2-5 years	5-10 years	>10 years
Principal referral	700.75	44.90 (6%)	822	231 (28%)	226 (27%)	131 (16%)	118 (14%)	141 (17%)	420 (51%)
Specialist women's and children's	88.10	2.1 (2%)	106	36 (34%)	28 (26%)	24 (23%)	21 (20%)	22 (21%)	39 (37%)
Large- major city	73.70	6.45 (9%)	83	31 (37%)	30 (36%)	7 (8%)	12 (14%)	18 (22%)	49 (59%)
Large- regional and remote	48.78	10.50 (22%)	49	20 (41%)	12 (24%)	8 (16%)	6 (12%)	7 (14%)	28 (57%)
Medium-group 1*	31.77	3.80 (12%)	34	13 (38%)	10 (29%)	5 (15%)	4 (12%)	3 (9%)	22 (65%)
Medium-group 2	15.64	0.20 (1%)	21	13 (62%)	8 (38%)	5 (24%)	2 (10%)	1 (5%)	13 (62%)
Small acute	0.53	0	4	4 (100%)	2 (50%)	2 (50%)	0	0	2 (50%)
Psychiatric	13	2 (15%)	13	2 (15%)	7 (54%)	4 (31%)	1 (8%)	2 (15%)	6 (46%)
<b>Total</b>	<b>972.27</b>	<b>69.95 (7%)</b>	<b>1132</b>	<b>350 (31%)</b>	<b>322 (28%)</b>	<b>186 (16%)</b>	<b>164 (14%)</b>	<b>194 (17%)</b>	<b>579 (51%)</b>

FTE = full-time equivalent; \*Includes hospital pharmacy services with outsourced services

Respondents were asked how many pharmacists had resigned from their hospital pharmacy services in the past year. Across all hospital pharmacy services, 130 pharmacists resigned—a resignation rate of approximately 11% per annum.

The number of pharmacists with postgraduate qualifications by state and hospital peer group are presented in Tables 2 and 3. In this survey, 28% of all pharmacists had postgraduate qualifications. This fall is seen in a decline in the number of pharmacists with postgraduate qualifications in the larger cohorts, i.e. principal referral hospitals and Victorian hospitals.

The number of years of hospital experience for each pharmacist was also investigated (Tables 2 and 3).

**Table 4. Profile of other hospital pharmacy staff**

Hospital peer group	Pre-registration pharmacist establishment FTE n (average/hospital)	Pharmacy technician establishment FTE n (average/hospital)	No. pharmacy technicians with formal qualifications	No. other support staff establishment FTE n (average/hospital)
Principal referral	95.84 (2.81)	346.54 (10.19)	152	130.94 (3.85)
Specialist women's and children's	12 (2.40)	39.80 (7.96)	19	16.33 (3.27)
Large- major city	9.6 (0.8)	39.06 (3.26)	22	10.20 (0.85)
Large- regional and remote	10 (0.71)	30.96 (2.21)	12	10.30 (0.74)
Medium- group 1	8 (0.47)	23.49 (1.38)	10	3.60 (0.21)
Medium- group 2	0	6.18 (0.69)	3	2 (0.22)
Small acute	0.1 (0.05)	0	0	1 (0.50)
Psychiatric	2 (0.67)	4.25 (1.42)	1	1 (0.33)
<b>Total</b>	<b>137.54</b>	<b>490.28</b>	<b>219</b>	<b>95.37</b>

FTE = full-time equivalent

### Pre-Registration Pharmacists

Funding for pre-registration places varies between states. The number of pre-registration positions by hospital peer group is presented in Table 4. The bulk of positions (78%) were available at principal referral and specialist women's and children's hospitals and 71.4 (52%) of all pre-registration positions were available in Victoria.

### Pharmacy Technicians

Hospital pharmacy technicians are an essential part of the hospital pharmacy services workforce. A profile of hospital pharmacy technicians by hospital peer group is presented in Table 4. There were 490.28 pharmacy technician full-time equivalent. The bulk of hospital pharmacy technicians were employed in principal referral hospitals. At least 45% of all hospital pharmacy technicians had some type of formal qualification as either a pharmacist (overseas) or pharmacy technician.

### Other Support Staff

The number of support staff, such as stores or administrative staff, complete the picture (Table 4). A total of 95.37 full-time equivalent of support staff were employed. The fall in the total full-time equivalent for both hospital pharmacy technicians and support staff has altered the ratio of all support staff (pharmacy technicians and other support staff) to pharmacist full-time equivalent to 1:1.66.

### Changes in Service Delivery

Respondents were asked to list any new or revised service that was being planned by hospital management for introduction in the next two years and if any change was required to the pharmacist full-time equivalent for the service. Sixty-six respondents listed one or more initiatives and the majority required additional pharmacist full-time equivalent. Overall, an additional 154.68 pharmacist full-time equivalent (16%) would be required for these initiatives to be implemented. The most common changes were:

- 22 hospital pharmacy services listed the expansion of their clinical pharmacy services—42.9 full-time equivalent to meet the *Guiding Principles to Achieve Continuity in Medication Management* (Australian Pharmaceutical Advisory Council guidelines), 30.75 full-time equivalent to expand current clinical services, 3.5 full-time equivalent to expand services to the emergency department, and 1.6 full-time equivalent for service in pre-admission clinics;

- 12 hospital pharmacy services planned to introduce the Pharmaceutical Benefits Scheme, requiring 47.58 full-time equivalent;
- five hospital pharmacy services planned to enhanced medication safety, requiring 5.3 full-time equivalent; and
- three hospital pharmacy services were planning to introduce hospital outreach medication review services, requiring seven full-time equivalent.

### Data Limitations

The response rate was disappointing, given the importance of the topic and the number of avenues used to promote the survey. Of particular concern was the low response rate from principal referral hospitals in Queensland (6 of 13 hospitals) and New South Wales (7 of 16 hospitals)—given that the majority of pharmacists are employed in this hospital peer group.

When considering the results, the disproportionate number of responses from Victoria (36%) must be taken into account. As in the last two surveys, Victoria recorded a relatively low vacancy rate and a high number of pre-registration positions, and this may skew the results.

### DISCUSSION

Despite the limitations some aspects of the hospital pharmacy workforce have changed little over the past two years:

- percentage of pharmacists working part-time and those with postgraduate qualifications continue to hover around one-third of the total workforce;
- percentage of hospital pharmacists with more than 10 years experience remains high at 51%;
- number of pre-registration positions is similar; and
- 1.2 pharmacists are still required to fill each pharmacist full-time equivalent.

The vacancy rate for pharmacists over the past two years has improved from 10% to 7%. It is not known whether this is a genuine reduction, the result of a decrease in the number of establishment positions, or bias created with a:

- low response rate from the states with, anecdotally, the highest vacancy rate (Qld and NSW); or
- high response rate from a state with a relatively low and reasonably stable vacancy rate (Vic.).

Since the last study there has been a modest improvement in the vacancy rate in Victoria and New South Wales but an increase in Queensland (17% to 18%), South Australia (1.8% to 2%) and Western Australia (0.6% to 7%). The states with the highest vacancy rates (Qld and NSW) also have the highest resignation rate for pharmacists (17% and 13% respectively) and they have had the greatest fall in the number of establishment positions over the past five years.

Given the continuing high vacancy rate for pharmacist positions in Queensland and New South Wales, it appears that recruitment of newly qualified pharmacists to the public hospital sector remains an issue in these states. The previous study examined the recruitment and retention strategies in use, and proposed, in each state. Salary increases for junior pharmacists and an increase in pre-registration places were cited as key strategies. Revised salaries for junior pharmacists have been achieved but there has been no notable increase in the number of pre-registration pharmacist positions.

The number of pharmacy graduates has increased considerably over the past five years from around 700 in 2001 to 900 in 2004 and more than 1000 in 2005 and this may have contributed to the drop in the national vacancy rate.<sup>4</sup> Data from the Graduates Careers Council of Australia (survey of pharmacists who registered in late 2004 to early 2005) notes that nationally 70% of the respondents who undertook their pre-registration training in hospital remain in the hospital sector.<sup>4</sup> This highlights the need for an increase in the number of hospital-based pre-registration positions to attract young pharmacists to the hospital sector.

The hospital peer group 'principal referral hospital' is defined as major city hospitals with more than 20 000 casemix adjusted separations and regional hospitals with more than 16 000 casemix adjusted separations. These two groups may have differences in their pharmacy service requirements. This is highlighted by the average number of pharmacist full-time equivalent—26.17 in metropolitan hospitals and 8.98 outside metropolitan areas. Similarly, the vacancy rate in principal referral hospitals outside metropolitan areas is higher (20%) than the metropolitan hospitals (4%). However, the total number of vacant positions in the hospital peer group are fairly evenly distributed—25 full-time equivalent in metropolitan areas and 20 full-time equivalent outside metropolitan areas. This confirms observations made in the earlier studies that, although hospitals in rural areas record higher vacancy rates, a larger volume of vacancies are in metropolitan hospitals.

In 2000, it was estimated that there were 1979.10 hospital pharmacist full-time equivalent across all Australian hospitals.<sup>5</sup> Extrapolating the data for each hospital peer group in each state it is estimated that there are approximately 1600 pharmacist full-time equivalent in public hospitals with more than 50 beds. The number of establishment positions has fallen almost 19% over the last five years. Principal referral hospitals are the only hospital peer group not to record a fall in establishment positions of 20% or more over that time.

Workforce studies have also anticipated a rise in the number of support staff used in hospital pharmacy services. The hypothesis is that the number and role of hospital pharmacy technicians would expand, with a corresponding drop in pharmacists' involvement in distribution activities. It is interesting

that the number of hospital pharmacy technicians has fallen considerably since the 2003–2004 study, from 564 to 490 full-time equivalent. The decrease is seen in every hospital peer group but the bulk of positions have been lost from principal referral hospitals. Similarly there has been a significant reduction (60%) in the number of support staff in hospital pharmacy services. The fall in the number of hospital pharmacy technicians and support staff has altered the ratio of all support staff to pharmacist full-time equivalent; it is now 1 to 1.66, it was 1 to 1.35 in 2001–02 and 1 to 1.31 in 2003–04. This could relate to factors such as improved efficiency, increased use of information technology and the introduction of the Pharmaceutical Benefits Scheme across the country requiring a greater involvement of pharmacists in distribution activities.

Sixty-six respondents indicated the need for an additional 154.68 full-time equivalent in the next two years. The majority of these related to extending clinical pharmacy services and the ongoing introduction of the Pharmaceutical Benefits Scheme in public hospitals. In the previous study in 2003–2004, respondents indicated that 100 additional pharmacist full-time equivalent would be required to deliver new services. Data from this study suggests that the hospital pharmacy services with these positions did not respond to this questionnaire, that these positions have not materialised, or positions have been lost at other hospital pharmacy services as the total full-time equivalent is similar in both studies.

## CONCLUSION

This is the third national pharmacy workforce study. The number of pharmacists and hospital pharmacy technicians employed in Australia's public hospitals has fallen since the first study in 2001. There has been a modest improvement in the national vacancy rate for pharmacist positions but the situation in New South Wales and Queensland remains of concern.

**Competing interests:** None declared.

## References

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