

**Exploring career advancement of pharmacy support staff within two Queensland hospitals: a qualitative study**

Author

Cheong, Aaron KW, McMillan, Sara S, Anoopkumar-Dukie, Shailendra, Kelly, Fiona S

Published

2022

Journal Title

Journal of Pharmacy Practice and Research

Version

Accepted Manuscript (AM)

DOI

[10.1002/jppr.1800](https://doi.org/10.1002/jppr.1800)

Rights statement

© 2022 The Society of Hospital Pharmacists of Australia. This is the peer reviewed version of the following article: Exploring career advancement of pharmacy support staff within two Queensland hospitals: a qualitative study, Journal of Pharmacy Practice and Research, 52 (3), pp. 228-235, which has been published in final form at <https://doi.org/10.1002/jppr.1800>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Self-Archiving (<http://olabout.wiley.com/WileyCDA/Section/id-828039.html>)

Downloaded from

<http://hdl.handle.net/10072/417306>

Griffith Research Online

<https://research-repository.griffith.edu.au>

Exploring career advancement of pharmacy support staff within two Queensland hospitals: A qualitative study

Aaron KW CHEONG, B.Pharm, M.Clin.Pharm, M.MedRes, MSHP, Senior Clinical Pharmacist<sup>1,2</sup>

Sara S MCMILLAN, B.Pharm, PhD, Senior Lecturer<sup>1</sup>

Shailendra ANOOPKUMAR-DUKIE, B.Sc (Hons), M.Sc, PhD, Head of School<sup>1</sup>

Fiona S KELLY, B.Pharm, PhD, Acting Deputy Head of Research<sup>1</sup>

<sup>1</sup> School of Pharmacy and Medical Sciences, Griffith University, Southport, Gold Coast, Australia.

<sup>2</sup> Department of Pharmacy, Logan Hospital, Logan City, Australia.

#### CORRESPONDING AUTHOR

Aaron KW CHEONG B.Pharm M.ClinPharm MMedRes MSHP

Senior Clinical Pharmacist

Logan Hospital Pharmacy Department

Metro South Health

Cnr Armstrong and Loganlea Roads, Meadowbrook Queensland 4131

E: [Aaron.Cheong@health.qld.gov.au](mailto:Aaron.Cheong@health.qld.gov.au)

PH: 07 3299 8818

#### Human Studies Statement

All study participants provided informed consent to be involved in the study. Ethical clearance was provided by the Metro South Human Research Ethics Committee [HREC/17/QPAH/276] and UnitingCare HREC [2017.16.230].

#### Conflict of Interest Statement

The authors declare that they have no conflicts of interest.

#### Acknowledgements

The authors would like to thank all research participants and the hospital sites involved for their support to conduct this study. We particularly thank Dr. Amary Mey for conducting some of the interviews.

**TITLE: Exploring career advancement of pharmacy support staff within two Queensland hospitals: A qualitative study**

**ABSTRACT**

**Background:** Internationally, pharmacy assistants and technicians have expanded their roles to allow pharmacist to concentrate on more clinical duties. The Australian model of care is currently exploring avenues for strategic role expansion for these support staff. **Aim:** To qualitatively explore pharmacist and support staff views on the training needs of Australian pharmacy support staff. **Methods:** Ethics approval was obtained from both Metro South Human Research Ethics Committee and UnitingCare HREC prior to the commencement of the study. Semi-structured interviews were conducted with personnel from the private and public settings to explore key issues identified in the literature. Interviews were conducted either face-to-face or via telephone between October 2017 to August 2018, with a mean duration of 39.85 minutes. The NVivo® 11 qualitative software was used to consolidate the data. The general inductive approach was used for thematic data analysis, which allowed for the emergence of new themes and sub-themes within the research topic. **Results:** A total of 25 participants consisting of ten pharmacists and 15 pharmacy support staff were recruited from a private (n=13) and a public (n=12) hospital in South-East Queensland. Participants across both pharmacist and pharmacy support staff express inadequacy in current certification level, with a need for further training. The main facilitators reported were organisational support, career progression, and remuneration. The main reported barriers were training cost and lack of time. **Conclusion:** This exploratory study provides critical insights into the evolving needs of support staff that can inform innovative strategic role expansion for efficient and sustainable training.

**KEYWORDS** Pharmacy technician, pharmacy assistant, pharmacy support staff, training framework, barriers and facilitators, workforce development, and hospital pharmacy.

## MAIN TEXT

### INTRODUCTION

Pharmacy assistants and technicians, referred to collectively as pharmacy support staff, are an indispensable workforce within the pharmacy profession, often performing technical tasks that release pharmacists to concentrate on more clinical, person-centred activities.<sup>1</sup> Examples include inventory control and medication dispensing.<sup>2</sup> Internationally, identified need for healthcare system reform and introduction of credentialing have expanded pharmacy technician roles, for example, to include prescription checking.<sup>3,4</sup>

Mandatory pharmacy technician credentialing or registration in the United States (US) since 2009 and the United Kingdom (UK) since 2011, is underpinned by training frameworks or competency based qualifications that require work experience and or additional exams.<sup>4-6</sup> In 2014, New Zealand and Singapore trialled and implemented the pharmacy accuracy checking technician and pharmacy technician accreditation, informed by the UK and US programs.<sup>7,8</sup> Although the Australian setting is similar to these, the only national training framework; certificate III and IV in pharmacy support services, is deemed inadequate for current hospital pharmacy support staff with individual organisations developing in-house training to address these perceived gaps.<sup>2,9</sup> Further, the acceptance and impact of prior efforts to standardise the tasks of Australian support staff, is unknown.<sup>2</sup> Consequently, the Society of Hospital Pharmacists of Australia (SHPA) defined a suitable structured competency assessment that incorporates observations, regular revalidation and supervised performance that meets the ethical and legal framework of the extended scope activity.<sup>10,11</sup> However, there is no consistency in defined roles or career progression for pharmacy support staff.

Both pharmacists and pharmacy support staff benefit through role expansion such as support staff prescription / medication order checking and assistance on wards.<sup>8,12</sup> Tangible

benefits for support staff include improved collegial relationships, work-life balance, job satisfaction and workplace retention.<sup>13</sup> Barriers identified to role expansion include pharmacist resistance to role expansion, limited acceptance of formalised training for this workforce, inconsistency in practice environments, competing priorities, and increased documentation requirements for pharmacists and support staff.<sup>14, 15</sup>

Despite reported benefits in comparable healthcare systems, pharmacy technicians' registration or extended roles are absent in Australia.<sup>5, 11, 12</sup> Greater insight into the challenges and opportunities for hospital Australian hospital pharmacy staff is needed. This study aimed to qualitatively explore pharmacy support staff and pharmacist experiences and views on the potential for advanced roles for hospital pharmacy support staff, training needs and related barriers in an Australian public and private hospital.

## **METHODS**

Semi-structured interviews were conducted with personnel from two hospital sites located within South-East Queensland to explore key issues identified in the literature.<sup>2, 9, 10</sup> Pharmacists and pharmacy support staff (i.e. currently enrolled or completed at least a Certificate III or IV) working in a hospital, and at least 18 years of age were eligible. Interview questions (Table 1) were pilot tested for face and content validity with three external pharmacy support staff and two registered pharmacists (one with qualitative research experience) known to the research team. The lead researcher (AC) was an experienced hospital pharmacist that worked at one of the study sites, the remaining team members included three academics, two (FK, SM) were pharmacists with experience in qualitative methodology. Ethics approval was obtained from the Metro South Human Research Ethics Committee [HREC/17/QPAH/276] and UnitingCare HREC [2017.16.230].

### *Setting and participants*

Stratified purposive sampling was employed to ensure diversity in participant work experience, education levels, and roles within a private and public hospital setting.<sup>16</sup>

### *Data collection*

Participants were briefed on the study and provided written consent. Demographic information was collected on gender, pharmacy experience and prior training. Three pharmacist researchers (AC, AM, FK) conducted interviews between October 2017 and August 2018, primarily in-person or by telephone according to participant preference, noting that the lead researcher did not undertake any interviews at their own workplace. Interviewers were experienced in conducting interviews, and FK and AM listened to initial interviews conducted by lead researcher (AC) to promote consistency.<sup>16, 17</sup> Interviews were audio-recorded with permission, transcribed verbatim and quality checked. Written interview debriefs were sent to the research team throughout to promote reflexivity and to identify data saturation.<sup>17, 18</sup>

Analysis was performed by the lead researcher (AC) and consensus of the coding framework was achieved through multiple analysis discussion between the lead researcher and the two other pharmacist researchers (FK and SM). Multiple points of reflexivity were also achieved during the data familiarising phase through critical reflection and application of the final framework. The general inductive approach was used to facilitate targeted exploration of the views of pharmacists and pharmacy support staff to build on existing knowledge, interpret collective lived experiences working in hospital pharmacy, and search for complexity of views.<sup>16, 17</sup> Transcripts were read and re-read multiple times prior and NVivo<sup>®</sup> 11 was used for coding. Ongoing analysis discussions were conducted to facilitate reflexivity, identify data saturation, and promote trustworthiness. Data credibility was strengthened through the triangulation via interview field notes, and debriefs.<sup>17</sup> Participants were assigned a unique

identifier code indicating public (PU) or private hospital (PR), pharmacist (P) or support staff (PSS) participants, followed by a number (e.g. PUPSS1).

## RESULTS

Ten pharmacists and 15 pharmacy support staff were interviewed, (23 face to face, 2 by phone). Twelve participants worked in the public sector and 13 participants in the private hospital (Table 2). Mean interview duration was 39.85 mins (range: 20.08 to 60.04). Most participants were female (n=18) with 12 participants aged between 25 to 34 years. Seven participants had worked in the pharmacy sector for over 20 years, three entirely in hospitals.

### Perception of pharmacy support staff training frameworks

Pharmacists and support staff agreed that current certificates were inadequate, yet opinions diverged on how future training should be implemented and associated facilitators and barriers.

Participants generally felt that the current certificates were not specific or practical enough to sufficiently prepare support staff for the hospital workforce, requiring further on-the-job training:

*...I mean it's pretty minimal, I've helped guys go through Cert III and IV ...it's like any course, it can only teach you so much and I'm sure people pick up a lot on the job as well. But it's certainly not anywhere near the level that it probably needs to be...I think it's a good starting point. (PRP04)*

However, two support staff considered them sufficient if current roles were maintained, and not all pharmacists were aware of certificate content. Pharmacists from both sites, felt that in-house training sufficiently complemented current certificates to address gaps in skills:

*...we say okay, these people, they have Cert IV, they [pharmacy support staff] can go to the ward. We [management] throw them in the deep end, at the end...they are not*

*getting what they want and the pharmacists not getting what they want ...So what we do now is we put it back, we set up an internal competency program so that we give them the – enough tool to function so the pharmacist know that they can do it [the assigned job]... So I think Cert III, Cert IV gives a basic knowledge but it doesn't mean that they are competent. (PUP11)*

Pharmacists in the public hospital had developed a training framework to promote consistent service provision on wards and in inventory management. Similarly, the private setting had a training program to support technician medication history taking in the pre-surgery unit.

Whilst most participants who had commenced or completed Certificate IV reported interest in additional training qualifications, one considered assessment of individual skills, attitude and performance as important as formal qualifications when considering opportunities for pharmacy support staff:

*...I know that there are some staff members in here who don't have any of their certificates but are fantastic at their jobs and I think they could advance further in their career in a pharmacy setting. Whereas there are some people who have done their Cert IV, you know they're offered this position, but they don't care. And I feel that, you know, they could be offered to the wrong people, just based on what their previous learning has been. (PRPSS05)*

### **Facilitators and barriers to undertaking further training**

Facilitators described included organisational subsidy of training and / or paid time-off to pursue certification; a desire for professional development to be equipped for emerging job opportunities; increased remuneration, autonomy, and job satisfaction; recognition from co-workers, career progression, and job security:



*...I don't want to just be an assistant. I want to build my way up. I want to be able to work in the wards. I don't think I'd want to be a pharmacist; I don't think I'd go to that extent. But just be I guess a higher-highly recognised and be able to do more of the technical, more of the clinical stuff. (PUPSS22)*

*...I guess it's just them [support staff] being able to gain more knowledge and apply that knowledge in their workplace, and that I guess makes their job a bit more fulfilling possibly to some people. (PRP06)*

The most common barriers were lack of time and personal cost required to undertake study, particularly when balancing with other commitments. These barriers were attributed to insufficient organisational support by pharmacists and support staff in both settings, with one stating:

*...they [support staff] should be supported to do it in their work time as well, so they don't have to take work home and study at home. (PUP08)*

Lack of organisational support was compounded by limited career opportunities:

*... But when they're talking about when you finish diploma... we don't have any more higher position we can go. (PUPSS07)*

Limited organisational support was attributed by one pharmacist to inadequate access to resources such as mentors.

Complacency was also reported as a potential barrier to further training or role expansion:

*A lot of the staff, the assistants in our area, have done the same thing for so long they probably or possibly don't believe that they could do anything else outside of that. So they're just quite comfy just plodding along... (PUPSS22)*

The relative influence of barriers and facilitators were depicted as the most common overlapping themes (Figure 1). For example, the potential for the three barriers of cost, time, and lack of course availability to be addressed through organisational support. The significance of internal organisational support was highlighted when participants expressed the need to be appreciated, accentuating the humanistic element within the facilitators and barriers context:

*it's kind of that recognition that you're not just a nobody, like you have done something to get to where you are. And that's important... (PRPSS02)*

### **The perceived professional influence and hierarchy**

Two support staff working in the private hospital observed traditional hierarchical superiority between pharmacist and support staff as limiting to career progression and / or trust:

*I think maybe they [pharmacists] do feel threatened. Yes. And they [pharmacists] just feel that because they [pharmacy support staff] haven't done their degree that they're [pharmacy support staff] not entitled to have the rights to do the role essentially of a pharmacist if they are not a pharmacist. (PRPSS08)*

*...some of the older ones [pharmacists] may feel that they want to take more ownership of the work you know they seem very traditional. But again, I've encountered a few younger people too who, for different reasons I think just prefer to do it themselves... Maybe they just like to double check it you know. I think possible the younger pharmacist might have a bit of trust issue or some of them, a bit superior. (PRPSS11)*

However, most support staff considered that advanced roles would not encroach into the pharmacist realm, and some acknowledged that concerns were more likely amongst older pharmacists:

*I don't think any of them [pharmacists] would have toes stepped on by us [support staff] you know helping them more. They always are so busy...Maybe like the older generation pharmacists might struggle with it... (PRPSS10)*

Participating pharmacists were not threatened and most supported role advancement. However, legal frameworks meant that pharmacists could limit delegation:

*...all ward pharmacists love what the technicians do. They do have complete faith in them 'cause you – once you get into that role they do undergo a lot of training and they actually sometimes even take better histories than we do...I haven't come across anyone actually who's resistant to that. They're really appreciative. (PUP08)*

Whilst supportive of change, pharmacists emphasised the reliance of the current model on pharmacists trusting and assuming responsibility for support staff, also acknowledged by selected support staff:

*I think it's a lot to do with trust and we have assistant[s] that are very, very good and we can trust for everything, but we have an assistant that may not be... So, we feel that we need to be able to trust someone before we actually delegate it. (PUP11)*

*...Not so much threatened but, more so like because they [pharmacists] sign their name on everything...if something goes wrong it falls on them. So that's probably like one kind of barrier...at the end of the day, it's their registration that they're putting on the line... (PUPSS12)*

## **DISCUSSION**

To our knowledge, this is one of few studies to have explored and compared views of Australian pharmacists and support staff about role expansion and associated training frameworks within a public and private hospital. Key insights include appreciation of the

benefits of support staff role advancement, recognition of important facilitators and barriers to further training and career progression and acknowledgement of deficiencies in current training certificates.

Almost all participants expressed positive views on role advancement and described a range of facilitators and barriers. Facilitators included known intrinsic motivators of improved work performance.<sup>19</sup> These include desire to progress, increased professional autonomy, enhanced individual commitment to the organisation sustained by satisfaction with work activities that enhances performance and a sense of empowerment.<sup>19</sup> Internal motivators such as empowerment could lead to prospective employment opportunities by a greater sense of control and influence amongst support staff.<sup>20</sup> Organisational support was another key facilitator as discussed below.

Core challenges aligned with known intrinsic barriers characterised by cost, lack of time, incentive, organisational support, and mentorship.<sup>21</sup> Negative connotations of cost mainly related to low wages, compounded by personal expense incurred paying for training to progress.<sup>22</sup> Finding time to study was considered as a juggle between family and employment commitments.

In an ideal world, the cost and time conundrum can be addressed via strategic organisational support. For example, direct payment for training and / or working hours to pursue professional development to mitigate individual burden. Financial incentives such as paid time to pursue higher qualifications, or to mentor support staff, could in part address perceived 'lack of time.' With appropriate organisational incentives, employees may be more inclined to offer collegial support thereby increasing mentor capacity. Organisations able to implement more advanced scope positions, would address the perceived barrier of 'limited job opportunities,' provide greater job security and satisfaction, potentially contributing to efficient

and sustainable resource management. Another benefit may include competitive advantage of preferred employer and improved remuneration that would enhanced professional credibility further facilitating support staff retention as reflected in international literature.<sup>13</sup>

Even so, individual attitudes can have an influence. For example, support staff perceptions of hierarchy, lack of trust and pharmacist insecurity over pharmacy support staff role expansion. However, this was largely unfounded with participating pharmacists positive towards delegation, within the context of legislative restrictions. Such misperceptions highlighted a need to explore better communication channels and these could be identified and overcome through collaborative team-based approaches.<sup>23</sup>

The inadequacy of current training certificates was cited frequently, particularly with respect to job preparedness and associated time-burden for support staff to complete and mentors to support. Innovative approaches to training are needed to enable nimble responses to emerging needs whilst remaining accessible to busy people. One strategy is the introduction of stackable units using micro-credentialing as a flexible modular approach of working towards higher qualifications. This allows individualised professional development to meet organisational needs by allowing support staff to select micro-credentials that certify them for specific responsibilities or tasks.<sup>24</sup> Micro-credentials could accrue to meet the requirements of a broader certificate or diploma, with participants or organisations only paying for the modules undertaken.<sup>24</sup> More manageable cost effective educational modules may realistically allow for paid professional leave, limit burden on mentors, and allow them to selectively mentor in areas of specialty.

Micro-credentialing could provide a framework for pharmacy support staff registration and / or accreditation for higher duties that could gradually introduce these concepts whilst addressing participants' concerns. With micro-credentialing offering both flexibility and

portability, modules can be tailored to the needs of the individual and organisation. Investment into this area may be beneficial and essential in the optimisation of patient care, reduced workload stress for pharmacists, increased autonomy and job satisfaction of pharmacy support staff, and enhanced workforce retention and utilisation.

### **Strengths and limitations**

These perceptions obtained represent a 'snapshot in time' in two hospitals and may not represent the views of all stakeholders within those organisations or of stakeholders in all Australian hospitals. Participants opted into the study and introducing potential self-selection bias, however the stratified purposive sampling technique facilitated diversity in participants within this population and collection of relevant and unique themes. Concurrent data analysis allowed for consolidation of themes and confirmation of collection of varied viewpoints. With the research focused on the development of pharmacy support staff, these processes were applied to provide rigour by allowing thick description of the data from a homogenous group (i.e., a collective industry perspective) whilst allowing for the emergence of differing views from both pharmacists and pharmacy support staff (i.e., individual health worker level). This allowed the researchers to cross-examine the shared experiences amongst the pharmacy support staff for further thematic stratification purposes. Furthermore, the principles of transferability and dependability, were addressed by the recruitment of pharmacy support staff undertaking or having completed the Certificate III and Certificate IV training.

Whilst it is likely that bias could be introduced through the participation of individuals with interest in pharmacy support staff training and / or progression, this was unavoidable as it was impossible to collect data on the characteristics of people who elected not to participate. Participants were assured multiple times that all opinions were valid to limit social desirability bias with researchers unrelated to staff in the public hospital conducting those interviews to maintain confidentiality. This meant that three pharmacist researchers conducted the interviews

and standardisation was facilitated by use of an interview guide, interviewer training and two researchers reviewed transcripts of interviews conducted by the lead researcher prior to conducting their first interview. The analysis was conducted by the lead pharmacist (a hospital pharmacist) in collaboration with two pharmacist academics with greater qualitative analysis experience and more limited hospital experience. Although there is potential for bias in analysis through the lens of pharmacy, diversity in health research experience supported by emphasis on reflexivity limited this as did a final review of results and discussion by the fourth author who is not a pharmacist

Overall, this study provides important insights into career goals for pharmacy support staff, and potential challenges to developing and implement training frameworks that support career progression. Diversity in participant experience and data saturation support the trustworthiness of study findings.

## **Conclusion**

The perceptions and views obtained from both pharmacists and support staff have provided vital insight into real-life industry demands and requirements, highlighting opportunities for development within the pharmacy profession. Study findings provide critical understanding into the unmet and evolving needs of pharmacy support staff, opportunities for strategic development and innovation to address current barriers.

## **ACKNOWLEDGEMENTS**

The authors would like to thank all research participants and the hospital sites involved for their support to conduct this study. We particularly thank Dr. Amary Mey for conducting some of the interviews.

## REFERENCES

1. Hepler CD. Clinical pharmacy, pharmaceutical care, and the quality of drug therapy. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*. 2004;24(11):1491-8.
2. Cheong AK, Foo CC, Pham HQ, Pham TT, Gibbs MJ, Reeves P. Time for a CHAT? A pilot study of the implementation of the Competency Handbook for Assistants and Technicians (CHAT). *Journal of Pharmacy Practice and Research*. 2019;49(6):525-31.
3. Snowswell C. A meta-analysis of pharmacists and pharmacy technicians' accuracy checking proficiency. *Research in Social and Administrative Pharmacy*. 2019:1-6.
4. Keresztes JM. Education...A Must in All Levels of Pharmacy Practice. *Annals of Pharmacotherapy*. 2010;44(11):1826-8.
5. Alkhateeb FM, Shields KM, Broedel-Zaugg K, Bryan A, Snell J. Credentialing of pharmacy technicians in the USA. *International Journal of Pharmacy Practice*. 2011;19(4):219-27.
6. Jerry E. Emily s Law: Requiring Minimum Education and Training Standards for Pharmacy Technicians. *Hosp Pharm*. 2011;46(2):103-4.
7. Chew L, Leng LH, Mok Shiang N-H, Brown A. Technicians and other pharmacy support workforce cadres working with pharmacists: Singapore case study. *Research in Social and Administrative Pharmacy*. 2017;13:291-3.
8. Napier P, Norris P, Green J, Braund R. Experiences of pharmacy staff during the introduction of the checking technician role in New Zealand. *International Journal of Pharmacy Practice*. 2019;27(2):149-56.
9. Anderson BJ, Carroll ME, Taylor SE, Chow A. Perceptions of hospital pharmacists and pharmacy technicians towards expanding roles for hospital pharmacy technicians: a cross-sectional survey. *Journal of Pharmacy Practice and Research*. 2020.
10. Bekema C, Bruno-Tomé A, Butnoris M, Carter J, Diprose E, Hickman L, et al. Standard of Practice for Pharmacy Technicians to support Clinical Pharmacy Services: The Society of Hospital Pharmacists of Australia; 2019 [cited 2019 1 December]. Available from: [https://www.shpa.org.au/sites/default/files/uploaded-content/website-content/SOP/standard\\_of\\_practice\\_for\\_pharmacy\\_technicians\\_to\\_support\\_clinical\\_pharmacy\\_services\\_-\\_november\\_2019\\_0.pdf](https://www.shpa.org.au/sites/default/files/uploaded-content/website-content/SOP/standard_of_practice_for_pharmacy_technicians_to_support_clinical_pharmacy_services_-_november_2019_0.pdf).
11. The Society of Hospital Pharmacists of Australia (SHPA). Exploring the role of hospital pharmacy technicians and assistants to enhance the delivery of patient centered care: A white paper on the findings and outcomes of the 'pharmacy technician and assistant role design within Australia Hospitals (Redesign) project': SHPA: SHPA; 2016 [cited 2017 8 February]. Available from: [https://www.shpa.org.au/sites/default/files/uploaded-content/website-content/tech\\_redesign\\_white\\_paper.pdf](https://www.shpa.org.au/sites/default/files/uploaded-content/website-content/tech_redesign_white_paper.pdf)
12. Hickman L, Poole SG, Hopkins RE, Walters D, Dooley MJ. Comparing the accuracy of medication order verification between pharmacists and a tech check tech model: a prospective randomised observational study. *Research in Social and Administrative Pharmacy*. 2018;14(10):931-5.
13. Desselle SP. Job Turnover Intentions Among Certified Pharmacy Technicians. *Journal of the American Pharmacists Association (JAPhA)*. 2005;45(6):676-83.
14. Minard LV, Deal H, Harrison ME, Toombs K, Neville H, Meade A. Pharmacists' perceptions of the barriers and facilitators to the implementation of clinical pharmacy key performance indicators. *Public Library of Science (PloS) one*. 2016;11(4):1-17.
15. Mattingly AN, Mattingly II TJ. Advancing the role of the pharmacy technician: a systematic review. *Journal of the American Pharmacists Association*. 2018;58(1):94-108.



16. Buetow S. Health research methods: A tabular presentation: Nova Science Pub Incorporated; 2007.
17. Liamputtong P. Qualitative research methods. 4th ed. Melbourne: Oxford University Press; 2013.
18. Morse JM. The significance of saturation. *Qualitative Health Research*. 1995;5(2):147-9.
19. Dysvik A, Kuvaas B. Intrinsic motivation as a moderator on the relationship between perceived job autonomy and work performance. *European Journal of Work and Organizational Psychology*. 2011;20(3):367-87.
20. Zimmerman MA. Empowerment theory. In: Rappaport J., E. S, editors. *Handbook of community psychology*. Boston, MA: Springer; 2000. p. 43-63.
21. Payakachat N, Hight K, Reinhardt M, Pate A, Franks AM. Exploring factors associated with scholarly writing among US pharmacy practice faculty. *Research in Social and Administrative Pharmacy*. 2021;17(3):531-40.
22. Panagiotakopoulos A. Barriers to employee training and learning in small and medium-sized enterprises (SMEs). *Development and Learning in Organizations*. 2011;25(3):15-8.
23. Makowsky MJ, Schindel TJ, Rosenthal M, Campbell K, Tsuyuki RT, Madill HM. Collaboration between pharmacists, physicians and nurse practitioners: a qualitative investigation of working relationships in the inpatient medical setting. *Journal of Interprofessional Care*. 2009;23(2):169-84.
24. Hunt T, Carter R, Zhang L, Yang S. Micro-credentials: the potential of personalized professional development. *Development and Learning in Organizations*. 2019.

## TABLES AND FIGURES

**Table 1: Semi-structured interview guide**

---

### **Pharmacy support staff**

---

1. Why did you choose to work in pharmacy?
2. Have you undertaken any additional study (e.g., certificates or qualifications) as part of your job?
3. What motivated you to undertake this additional study?
4. How many years have you worked as a pharmacy support staff?
5. Have you always worked in pharmacy?
6. Have you worked in different regions or sectors of pharmacy?
7. What do you perceive the key roles or responsibilities of pharmacy support staff?
8. Explain what additional training have you received from your workplace to perform better in your job?
9. What are your thoughts on the training frameworks that you have received and/or would like to receive?
10. What would motivate to advance your career as a pharmacy support staff?
11. Do you see yourself staying in this profession until you retire? Why or why not?

---

### **Pharmacist**

---

1. What are your perceptions of the pharmacy profession?
  2. What do you perceive the key roles or responsibilities of pharmacy support staff?
  3. Are there any duties that you are willing to discharge to your pharmacy support staff? Why or why not?
  4. What is your perception on the current certification and/or training frameworks currently available in Australia in allowing pharmacy support staff to perform advanced roles?
  5. How do you think pharmacy support staff and pharmacists could progress in the pharmacy profession together?
-

**Table 2: Characteristics of participants**

Characteristics	Public hospital (n=12)	Private Hospital (n =13)	Total (n = 25)
<i>Professional role</i>			
Pharmacist	5	5	10
Pharmacy technician	1	7	8
Pharmacy assistant	6	1	7
<i>Gender</i>			
Female	10	8	18
Male	2	5	7
<i>Age group (years)</i>			
18 to 24	0	1	1
25 to 34	6	6	12
35 to 44	3	3	6
45 to 54	3	3	6
<i>Maximum education level</i>			
Secondary education ≤Year 12 or equivalent	2	0	2
Trade/technical/vocational training	0	6	6
Tertiary education	10	7	17
<i>Pharmacy support staff certification level</i>			
Completed Certificate III	1	3	4
Completed Certificate IV	2	1	3
Completed both Certificate III and IV	3	2	5
Completed Certificate III and undertaking Certificate IV	1	1	2
Missing data	0	1	1
<i>Years in the pharmacy industry</i>			
5 to 10	5	4	9
11 to 15	5	1	6
16 to 19	0	3	3
20 to 30	2	5	7
<i>Years in hospital pharmacy</i>			
Less than 5	3	3	6
5 to 10	4	6	10
11 to 15	3	3	6
20 to 30	2	1	3

Figure 1: Mindmap of internal and external facilitators and barriers



