Understanding Influences on the Use of Professional Practice Guidelines by Pharmacists: A Qualitative Application of the COM-B Model of Behaviour

Investigators

Authors: *Deanna Mill[1] Dr Liza Seubert[1] Dr Kenneth Lee[1] Dr Amy Page[1,2,3] Dr Jacinta Johnson[4,5] Dr Sandra Salter[1] Prof Rhonda Clifford[1] Emma Murace[1] Fraser Fullerton[1] Matthew D. Halliday[1] Altinka Res[1] Dr Danielle D'Lima[6]

Author Affiliations and/or Institution where work was carried out:

1. School of Allied Health, University of Western Australia
2. Pharmacy Department, The Alfred
3. Centre for Medicines Use and Safety, Monash University
4. UniSA Clinical and Health Sciences, University of South Australia
5. SA Pharmacy, SA Health, Adelaide, Australia
6. Centre for Behaviour Change, Department of Clinical, Educational and Health Psychology, University College London

Corresponding author:
Ms Deanna Mill
Deanna.Mill@research.uwa.edu.au

Declarations

Abstract

Background: Pharmacy practice in Australia is guided by professional practice guidelines. The guidelines communicate expected pharmacist behaviours to facilitate a consistently high standard of patient care, but are infrequently used by pharmacists and students. It is therefore essential to understand what influences pharmacists' use of professional practice guidelines and how best to support positive behaviour change towards utilising these guidelines.

Objective: To explore perceived influences on the use of professional practice guidelines by Australian pharmacists, and to map these influences to the COM-B model of behaviour.

Method: Focus group discussions were undertaken with pharmacists <mark>(including intern pharmacists)</mark> from various practice settings, locations, and with varying years of experience. Audio-recordings from each focus group were de-identified and transcribed verbatim. Transcripts were analysed using the COM-B ('capability', 'opportunity', 'motivation' and 'behaviour') model.

Results: Nine focus groups with 45 participants were conducted. Limited awareness of professional practice guidelines hindered pharmacists' 'capability' to use them. Pharmacists indicated that challenges accessing, and suboptimal content design, limited their 'opportunity' to use the guidelines. Pharmacists' professional role and identity ('motivation') appeared to inhibit use of the guidelines if they were perceived to not apply to their current role, or if pharmacists believed their experience obviated the need to use them. Motivation to use professional practice guidelines was associated with a belief that the guideline(s) would support pharmacists in their practice.

Conclusion(s): Understanding what influences the use of professional practice guidelines should inform interventions to target and improve pharmacists' use of the guidelines. The Behaviour Change Wheel offers clear next steps for this process. Awareness, access, and content could be improved in the first instance, and this may also work to improve motivation. Leveraging influences on motivation may serve to ensure that use of professional practice guidelines is embedded in future practice, albeit motivation can be more difficult to target.

Keywords

Pharmacist, guidelines, behaviour change, professional practice

List of abbreviations

PSA = Pharmaceutical Society of Australia
BCW = Behaviour Change Wheel
COM-B = Capability, Opportunity, Motivation-Behaviour
APF = Australian Pharmaceutical Formulary and Handbook

Introduction

For numerous years the International Pharmaceutical Federation has tasked their member organisations with ensuring each country has quality guidelines and standards in place for the provision of 'Good Pharmacy Practice.'[1,2] Australia is one country where professional practice resources, particularly professional practice guidelines are readily available. The Pharmaceutical Society of Australia has been the custodian of these guidelines for over a decade. [3-5] While the scope and purpose of these guidelines may differ, they all communicate to pharmacists the minimum expectation of quality pharmacist practice, that is a key component of meeting legal, ethical and professional obligations. [3-5] Of these, arguably the most important are those from regulators and professional bodies that provide guidance for pharmacists on the minimum expectation for care provided to patients. [3-6] Such guidelines may include, but are not limited to, codes of ethics, codes of conduct, professional practice standards, service specific practice guidelines, medicine formularies, and medicine specific provision guidelines. [3-5,7-9] These guidelines range in their scope and purpose, but all function to educate pharmacists to enable consistent, evidenced based, safe, and effective service provision to patients.

When pharmacists are accused of malpractice the related professional practice guidelines are often viewed to bench mark their practice.[4,10,11] Beyond this, adhering to practice guidelines ensures pharmacists are not in breach of funding service agreements, meet agreed expectations of consumers and other health professionals, and are able to self-assess the quality of their own practice.[3,4,6,10] Furthermore, these guidelines can clarify how to proceed in unfamiliar situations and assist pharmacists to avoid practice misdemeanours.

Suboptimal practice in conflict with the expectations outlined in practice guidelines has been observed in pharmacy practice in Australia and overseas, in published and unpublished literature.[12-25] Like all health professions, challenges often arise with consistency of practice where autonomous professionals, including pharmacists, are practicing. These range from illegal practice to substandard provision of information to patients when they purchase a medicine.[11] There are a multitude of factors that likely influence suboptimal practice ranging from the individual practitioners' personal capabilities, including their knowledge and training, external factors influencing their practice environment such as access to resources or limited time, and the individuals' motivations including their beliefs and habits.[11] One potential explanation for practice deviations from expected professional behaviour may be that the profession's relevant practice guidelines are not known or used optimally.[26]

A recent national survey of Australian pharmacists, intern pharmacists and pharmacy students found that almost all (15/16) of the practice guidelines explored were self-reported to be used by less than half of all participants in the preceding 12 months.[26] From the pre-defined options in the survey the most reported reasons for not using the practice guidelines included limited awareness, the perception that the information in the guidelines was not needed and lack of relevance to the pharmacist's role.[26] Thus, while this study served to demystify the questions of 'if' and 'by whom' professional practice guidelines are used, the question remains: what specifically influences pharmacists to use or not use these guidelines? Limited research exploring pharmacists' reasons for use of practice guidelines exists. Of the observational studies comparing pharmacist practice to treatment and medicines provision guidelines, multiple found that a lack of awareness and limited access to the relevant guidelines posed a barrier to them being used and served as one of the reasons for participants deviation from behaviour detailed in the guidelines.[18,19,23,27] Older studies seeking to understand Australian pharmacists' navigation of ethical problems in practice and dispensing processes similarly called into question the useability of these guidelines in real world practice, citing poor awareness, length, and content as problematic.[16,28] However, given the primary aim of these studies was to assess practice, rather than reasons for/for not using practice guidelines, the reported insights on these influences have been limited to those listed.

A comprehensive understanding of what influences the use of pharmacists professional practice guidelines is critical for regulators, professional organisations, guideline writers and the profession itself to ensure these guidelines are fit for purpose and support the provision of quality pharmacist care as intended. Conceptualising the use of practice guidelines as a behaviour, subject to its own influences, may aid in providing further insights into use of these guidelines to achieve this. The capability, opportunity, motivation (COM), behaviour (B) model, also known as COM-B model of behaviour, facilitates the exploration of a behaviour and its influences in the context in which it occurs.[29,30] For example, the use of professional practice guidelines by pharmacists in their workplace. This model suggests that an individual needs the physical and psychological capability, physical and social opportunity and reflective and

55 automatic motivation for a behaviour to occur.[29,30] The model proposes these components are part of an interacting
56 system for a given behaviour (Figure 1). For example, providing a guideline directly to a pharmacist will increase their
57 physical opportunity to read and use it, which may in turn increase their motivation to do so. Mapping influences to
58 components of the COM-B model has been extensively applied by researchers and practitioners internationally as an
59 early step in the Behaviour Change Wheel (BCW) intervention development method (Figure 2). Recent pharmacy
60 specific examples include, but are not limited to, exploring deprescribing opportunities for community pharmacists
61 and understanding influences on pharmacy supply of naloxone.[31,32] The BCW provides a systematic and theory-
62 informed method for developing behaviour change interventions (Figure 3).[29,30] It provides practical steps to link the
63 identification and specification of a behaviour to the assessment of influences on the behaviour.[29,30] Further steps in
64 the method involve identifying congruent intervention strategies/components that can inform the design and
65 evaluation of an intervention (Figure 2).[29] This method has been used to successfully design and pilot an intervention
66 in Australian pharmacy to influence consumers' willingness to speak to pharmacy staff when purchasing over-the-
67 counter medicines.[33]
68
69 To the researcher's knowledge there has been no work to conceptualise pharmacists' use of professional practice
70 guidelines as a behaviour, or to openly investigate what influences use of these guidelines. To assist the
71 development of tailored interventions to optimise the use of professional practice guidelines, a richer understanding
72 of what influences the use of professional practice guidelines is necessary. The specific aim of this study was to
73 explore perceived influences on the use of professional practice guidelines by Australian pharmacists, and to map
74 these influences to the COM-B model of behaviour. This study is part of a broader body of research looking at how
75 the professionalism, specifically professional behaviour, of Australian pharmacists can be enhanced.
76
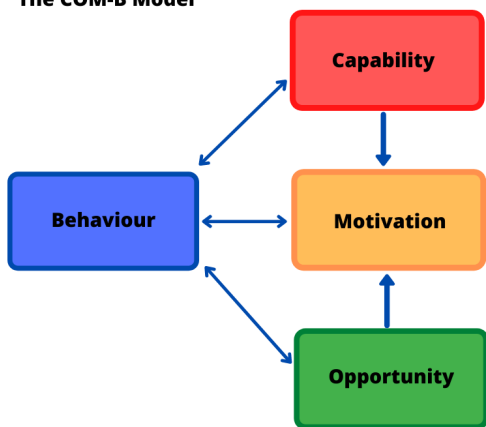
The COM-B Model

78 **Figure 1 – COM-B Model of Behaviour [29]**
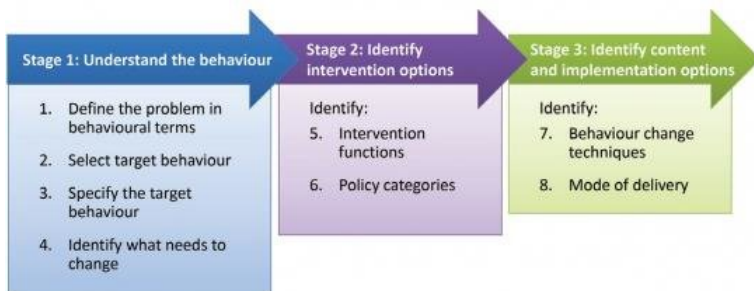
80 **Figure 2 – Behaviour change intervention design process [29]**

5
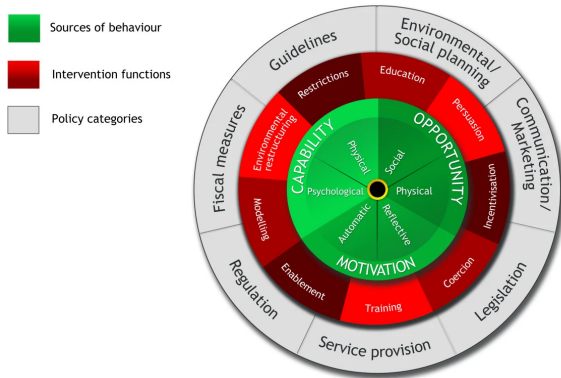
Figure 3 – Behaviour Change Wheel [29]

Methods

Study design

A descriptive qualitative methodology employing a series of online focus group discussions was undertaken to elicit an in-depth understanding of what influences pharmacists and intern pharmacists to use or not use professional practice guidelines. The professional practice guidelines included in this study were selected in collaboration with the peak body representing Australian pharmacists, the Pharmaceutical Society of Australia (PSA). These included service specific practice guidelines, Code of Ethics, Professional Practice Standards for Pharmacists, medicines supply guidelines and the guidelines in the Australian Pharmaceutical Formulary and Handbook (APF) (Box 1). All of these resources are freely available to all pharmacists, except the guidelines for provision of a Pharmacist Only medicine that can only be accessed by PSA members or those with an APF, which is a mandatory text for dispensing and patient facing pharmacists.[34] This study was conducted online in August - September 2020. Given the COVID-19 pandemic and physical restrictions in place in Australia at the time of this study, the entire methodology from recruitment to facilitating discussion to reimbursement was conducted completely online. Details on this online method have been published elsewhere.[35] The study is reported in line with the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist (Appendix 1).[36]

Box 1- Pharmaceutical Society of Australia professional practice guidelines considered

Professional practice guidelines considered

My Health Record Guidelines for Pharmacists[37]
Clinical Governance Principles for Pharmacy Services[38]
Dispensing Practice Guidelines[10]
Code of Ethics for Pharmacists[5]
Professional Practice Standards for Pharmacists[4]
Guide to Providing Pharmacy Services to Aboriginal and Torres Strait Islander People[39]
Guidelines for Pharmacists Providing Dose Administration Aid Services[8]
Guidelines for Pharmacists Providing Staged Supply Services[40]
Guidelines for Pharmacists Providing Medscheck and Diabetes Medscheck Services[41]
Practice Guidelines for the Provision of Immunisation Services Within Pharmacy[42]
Guidelines for the Continued Dispensing of Eligible Prescribed Medicines by Pharmacists[43]
Guidelines for Quality Use of Medicines (QUM) Services[44]
Guidelines for Pharmacists Providing Home Medicines Review (HMR) Services[45]
Guidelines for Pharmacists Providing Residential Medication Management Review and QUM Services [46]
Guidelines for Comprehensive Medication Management Reviews[47]
*Guidance for provision of a Pharmacist Only medicine Chloramphenicol for ophthalmic use[48]
*Guidance for provision of a Pharmacist Only medicine-Emergency contraception[9]
*Guidance for provision of a Pharmacist Only medicine Naloxone[49]
*Guidance for provision of a Pharmacist Only medicine Orlistat[50]
*Guidance for provision of a Pharmacist Only medicine Prochlorperazine[51]
*Guidance for provision of a Pharmacist Only medicine Proton pump inhibitors[52]
*Guidance for provision of a Pharmacist Only medicine Short-acting beta2-agonists (salbutamol and terbutaline)[53]
*Guidance for provision of a Pharmacist Only medicine Famciclovir[54]
*Guidance for provision of a Pharmacist Only medicine Adrenaline (epinephrine)[55]
*Guidance for provision of a Pharmacist Only medicine Astodrimer sodium[56]
*Guidance for provision of a Pharmacist Only medicine Glucagon[57]
*Guidance for provision of a Pharmacist Only medicine High-concentration fluoride toothpaste[58]
*Guidance for provision of a Pharmacist Only medicine Nitrates[59]
Guidelines in the Australian Pharmaceutical Formulary and Handbook (APF)[7]
*Guidelines are member only or available in the APF

Ethics approval

Approval for the conduct of this study was obtained from the Human Research Ethics Office at the University of Western Australia (RA/4/20/6014).

Participants

Pharmacists from a range of practice settings, roles and with differing years of experience were recruited to reflect the diversity within the profession.
Eligibility criteria included:
1. Australian Health Practitioner Regulation Agency registration as a pharmacist or intern pharmacist.
2. Located in Australia.
3. Able to provide informed consent to participate.
4. Able to access a stable internet connection and participate in discussions via the online videoconference platform.

Recruitment and sample

Participants were identified and invited to participate in the study through email invitations shared through the research team's professional networks. Professional bodies such as the PSA, the Pharmacy Guild of Australia and the Society of Hospital Pharmacists of Australia featured study advertisements in their e-newsletters to pharmacist members. Social media advertisements were also posted on several platforms (Twitter, Facebook, LinkedIn) and pharmacist specific forums (PSA Early Career Pharmacist Facebook group). Advertisements included a description of the study and a link to an online form for interested participants to submit an expression of interest and demographic details. Participant expressions of interest were reviewed, and participants were invited to participate if they met the eligibility criteria and were available at scheduled discussion times to enable 4-10 participants for each group. Eligible participants were selected through purposive sampling to ensure maximum variation in location, practice experience and demographics was obtained. Participant groups were organised according to current practice role (hospital

28 pharmacists, community pharmacists, pharmacy owners and speciality practice pharmacists) to minimise response
29 bias and increase synergy within groups. Participants were provided with a $60 online retail gift card for participation.
30

Research team

32 LS is a pharmacist and academic with extensive experience in employing focus group methodology to acquire
33 insights into pharmacy practice and is an experienced focus group moderator. KL is a pharmacist and academic with
34 extensive experience in qualitative methodology. In particular, KL has considerable experience in focus group design
35 and qualitative analysis methods. DD is an academic with a background in professional behaviour change. She has
36 extensive experience in applying behaviour change theories, models and frameworks using qualitative research
37 methods.
38

Researcher training

40 Both LS and KL conducted training for DM and the support researchers responsible for assisting in focus group
41 facilitation (MH, AR, FF, EM, JJ). Training was in the form of extensive discussion about research topic and aims,
42 information about focus group facilitation and observation of LS conducting a pilot focus group. DM then conducted
43 a pilot focus group under observation of LS and KL with targeted feedback on technique provided. KL also conducted
44 training on coding and thematic analysis using frameworks for DM, FF and EM. This involved discussion of different
45 coding techniques using an inductive or deductive approach and feedback provided on coding of pilot transcripts.
46

Discussion guide

48 The interview guide was developed by members of the research team with input from the Pharmaceutical Society of
49 Australia project team and members of an expert advisory group. Development of open-ended questions to explore
50 participant view, specific prompts covering each component of the COM-B model were discussed, reviewed and
51 finalised by the team. The expert advisory group consisted of representatives from professional pharmacist
52 organisations and experienced pharmacy practice researchers, all with extensive experience practising as
53 pharmacists and/or developing professional practice guidelines. The discussion guide probed participants about their
54 perceptions on the barriers and facilitators to the use of professional practice guidelines (see Table 1). The section
55 covered a general discussion of the use of professional practice guidelines, followed by more specific questions
56 about barriers and facilitators to their use. Question probes were guided by the COM-B model of behaviour to
57 ensure all potential influences were explored (Table 1).[29] A presentation featuring the professional practice
58 guidelines and discussion questions was also shared to aid participants in answering questions.
59

60 **Table 1 –** Discussion themes, questions and prompts based on COM-B for focus group discussion on influences on
61 use of professional practice guidelines
62

Participant group: Pharmacists (community, hospital, owners)	
Discussion theme	**Prompts**

Please describe a situation where you have used (or have seen someone else use) a professional practice guideline? The PSA produce many practice guidelines as you can see here. Describe a situation where you have used any of these or other guidelines. ***[If they have not used any, then ask them to describe <u>why</u> they haven't used them]***	Please describe a situation where you wanted (and/or) needed access to these resources? Did you access the resources? Why/why not? **When** o During pharmacy training/university? (PO, SO, RM, AM) o During intern training? (PO, SO, RM, AM) o When providing a new service? (PO, SO, RM, AM) o When completing continuing professional development? (PO, SO, RM, AM) o When providing patient care? (PO, SO, RM, AM) **Why** o Why did you/they use it? (RM, AM, SO) **Access and use** o Did you/they find it easy to access? (PsycC, PO) o Did you/they read part of it or all of it? (PsycC, PO) o Did it provide the information that you/they needed? (PsycC, PO) o What worked/was useful? (PsycC, PO) o What didn't work/ was not useful? (PsycC, PO) o How was it accessed? (PsycC, PO)
When thinking about practice guidelines in general or any of the PSA guidelines that we showed you. We would like to know, what influences your use of these resources?	Please describe any barriers or facilitators to using these resources. **Capability-** Psychological, Physical : o What do you know about how to use these documents? *Describe an example.* (PsycC) o What do you think about the content of the documents? *Describe an example.* (PsycC, PO) o What do you think about structure and or length of these documents? *Describe an example.* (PsycC, PO) o What skills (if any) do you think are needed to use the documents? (PhysC, PsycC) **Opportunity-** Social, Physical: o What influence do you think time and resources (e.g. money) have on your use of these resources? (PO) o What do you think about access to these documents? *Describe an example.* (PO) o What do you think about using these documents in practice? (PO) o How do you think these documents can be used when engaging with patients or at point of care? (PO, SO, RM) o How do you think others (e.g. patients, prescribers, pharmacists) influence your use of these documents? (SO) o How do you think engagement with a professional body influences your use of these guidelines? (SO, PO) **Motivation-** Automatic, Reflective: o Please describe how you feel about using/not using these documents? (AM) o Do you believe that using these guidelines is/would be a good thing to do? *Why/why not?* (RM)
How do you think these documents could be improved in the future?	How do you think these documents could be improved in the future? o Please describe what an ideal practice guidance resource would look like. (PO) o Please describe how you would use it? (PO, PsycC) o Please describe how you would access them? (PO) o Please describe how they would be structured? (PO) o Please describe when would you use it? (AM, RM, PO, SO) o Please describe why would you use it? (AM, RM, PO, SO) o Who do you think should write them? (PO, SO) o How do you think they should be advertised and shared? (PsyC) o How detailed do you think they should be (e.g. brief outline or comprehensive with specific examples)? (PO)

Physical capability = PhysC; Psychological capability = PsycC; Social Opportunity = SO; Physical opportunity = PO; Reflective motivation = RM; Automatic motivation = AM

Piloting

Two pilot focus groups were conducted (n = 8) for training of the research team, and as a pre-test for the videoconferencing technology selected to facilitate the discussions and to refine the discussion guide. [35] During the pilot it was decided that an additional researcher was needed to provide technical support to participants and ensure the moderator could concentrate on the discussions.[35] Minor refinements were made to the discussion guide to ensure questions were clear and use of the videoconferencing software was clear.

Focus group facilitation

Focus group moderators (DM or LS) conducted focus group discussions. A second researcher (JJ, AR, MH, FF,DB or EM) was present to take field notes on the discussion and participants responses for further context on the group dynamic.[35] A third researcher (AR, MH, FF, DB or EM) was present to provide technical support to participants when necessary.[35] Participants were asked to log in 10 minutes prior to the scheduled discussion start time, where they were provided a link to the electronic participant information, demographics and an online consent form to fill out, if they had not already completed it. Focus groups commenced by confirming completion of consent form and providing time for participants to ask any clarifying questions, then an outline of the project, the project aims, explanation of the run time, testing of videoconference technology, rules for discussion and then discussion questions. The discussions were video and audio recorded.

Data Analysis

The discussions were transcribed verbatim by a transcription service, then verified, and de-identified by one of the research team (MH, EM, FF or DM). The transcripts were read and re-read for familiarity by each of the researchers responsible for analysing them (EM, FF or DM). Data fragments, usually sentences or full participant responses were coded to one or more elements of the COM-B model using the framework method[60] in duplicate by either DM and one of FF or EM. After coding two transcripts, the researchers (DM, FF and EM) reviewed their coding and consistency as a quality assurance measure.[61] The elements and descriptors of each of the COM-B elements were further refined with additional detail and examples added to promote clarity in interpretation between the researchers. This was an iterative process and was repeated after two, four then all the transcripts had been independently coded by at least two researchers (DM and one of EM or FF). At least two researchers (DM and one of EM or FF) then reviewed the data coded to each COM-B element and independently coded the data fragments, using an inductive approach to identify subthemes for each element.[62] The identified subthemes within each element were also reviewed after two, four and all transcripts has been coded, this was discussed between researchers (DM, EM, FF) until consensus on those codes, their descriptors and examples were also agreed upon. All coding disagreements at each stage were resolved through discussion by the analysis team and often included adaptation to the code descriptors (DD, DM, FF, EM). The final identified subthemes and corresponding data fragments (charted in a matrix)[60] were then discussed with experienced behavioural scientist (DD) who sought clarification from the coding team on the themes descriptors to ensure internal consistency in coding and that subthemes had been recognised under the appropriate COM-B element. These final themes were presented back to the coding team for review and were agreed upon. NVivo® (version 12) was used to facilitate coding, theming, and analysis.

Data Saturation

For this study data saturation was considered to have occurred when no new codes were derived from the inductive coding of themes within each element of the COM-B framework for at least two consecutive focus groups.

Findings

Nine focus groups were conducted in August - September 2020. A total of 45 pharmacist participants partook in the online discussions. This included intern pharmacists to pharmacists with 43 years of experience from community, hospital and specialty practice settings and metropolitan to remote practice locations. The participants' demographic data can be viewed in Table 1. Data saturation was reached in the 9th focus group (e.g. no new codes were generated after the 7th focus group). Discussions on influences on the use of professional practice guidelines lasted approximately 30-45 minutes.

10

14   **Table 1-** Demographics of focus group participants

	Pharmacist focus group type			
	Community pharmacists	Hospital pharmacists	Speciality practice pharmacists	Pharmacy owners
Total participants, (number of groups) per pharmacist type	16 (3)	12 (2)	8 (1)	9 (3)
Female, n (%)	12 (75)	9 (75)	5 (63)	6 (67)
Years since registration, median (IQR)	4 (7)	8 (7)	28 (27)	14 (15)
Currently working, n (%)				
Intern	2 (13)	1 (8)	0 (0)	0 (0)
Registered pharmacist, Full time	10 (63)	11 (92)	7 (88)	9 (100)
Registered pharmacist, Part time	3 (19)	0 (0)	1 (13)	0 (0)
Hours not specified	1 (6)	0 (0)	0 (0)	0 (0)
State/Territory, n (%)				
Western Australia	3 (19)	0 (0)	0 (0)	4 (44)
Northern Territory	1 (6)	1 (8)	0 (0)	0 (0)
Queensland	2 (13)	0 (0)	3 (38)	2 (22)
Australian Capital Territory	2 (13)	0 (0)	1 (13)	0 (0)
New South Wales	4 (25)	2 (17)	0 (0)	0 (0)
Victoria	2 (13)	4 (33)	2 (25)	3 (33)
Tasmania	0 (0)	1 (8)	0 (0)	0 (0)
South Australia	1 (6)	4 (33)	2 (25)	0 (0)
State not specified	1 (6)	0 (0)	0 (0)	0 (0)
Rural or remote practice location, n (%)	3 (19)	1 (8)	3 (38)	3 (33)

15
16   The subthemes identified from the COM-B analysis are summarised in Figure 4. Each component of COM-B
17   and its related subtheme(s) are discussed below with illustrative quotes. No data or themes were coded to
18   physical capability or automatic motivation. Quotes are labelled as participant type code and participant
19   number – focus group number. Participant type code: CP = community pharmacist, SP = specialty practice
20   pharmacist, HP = hospital pharmacist, O = Pharmacist Owner.
21
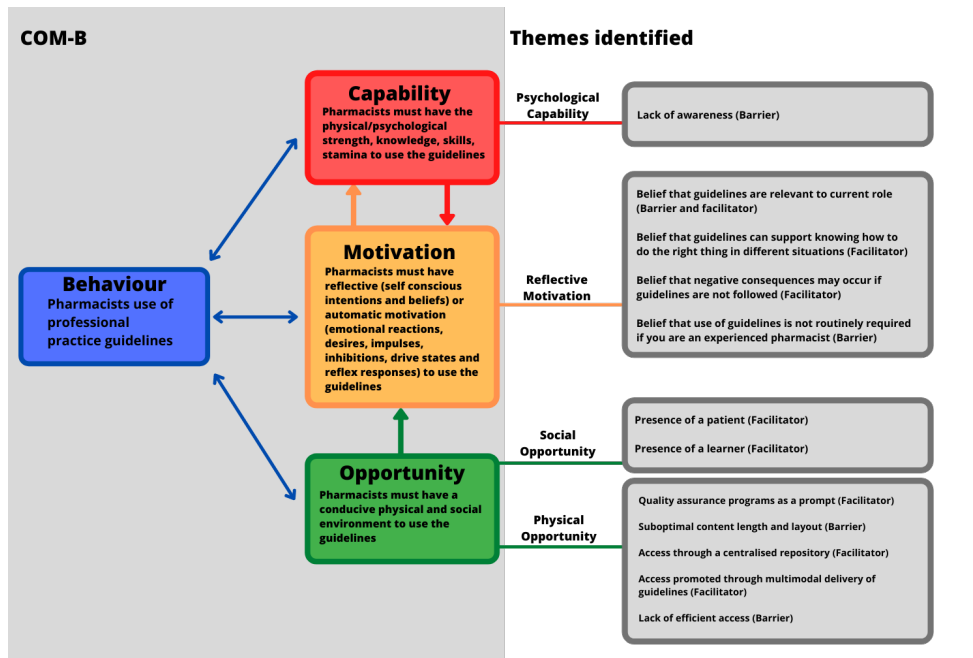
Figure 4 - Findings from the thematic analysis mapped to COM-B components

Discussions and comments from all participant groups commonly started with something along the lines of "I do not use them often but…" and then an example was given by the participant or an explanation as to why.

COM-B: Psychological Capability

Lack of awareness (Barrier)

Pharmacists expressed that a lack of awareness and knowledge of the existence of these guidelines prevented them from accessing and using them.

> *"And one of the things is the almost marketing or publicity. When those guidelines came out unless you are the sort of person that sits and reads every email from start to end, I think a lot of people just didn't simply know they were there." SP4-FG7*

This included a lack of awareness for when practice guidelines were changed or updated.

> *"… The last time I flicked through the APF and saw some of the [S3 guidelines] there's a few more that they've sort of snuck in there somewhere at some point, and I've kind of gone that's there, you know. So I think for me it's less access and it's more knowing that they're there at all." CP6-FG2*

COM-B: Social Opportunity

Presence of a patient (Facilitator)

Pharmacists reported being prompted to access and use professional practice guidelines when a patient came in seeking advice for a product or ailment. This was of particular importance when they were unsure how to proceed or wanted reassurance that their actions were going to provide the best possible care for

the patient (see *Belief that guidelines can support knowing how to do the right thing in different situations*).

> "I worked a Saturday, I was the only pharmacist on and I had a lady come in for emergency contraception and she'd been assaulted. And I just wanted to make sure that I gave her all the correct information, who to follow on with, the extra services to offer her. I used [relevant S3 guidance document] and made sure that I did the right thing as per the guidelines. And it was very helpful. It gave me a lot of peace of mind that I'd already done all the right things, that I'd said all the right things. I followed up with her, I encouraged her to report it and everything like that."CP5-FG2

Presence of a learner (Facilitator)
Pharmacists who had pharmacy students or intern pharmacists working with them, or those working in a teaching environment would access and use the guidelines to answer the learners' questions and teach appropriate processes. This was to ensure that pharmacists and interns were practising according to legislation and guidelines to provide adequate patient care. Participants noted that this was not usually because they did not know the answer as a practising pharmacist, but more that they wanted to demonstrate how the guidelines could support the learner in practice if they were not sure how to proceed (see *Belief that guidelines can support knowing how to do the right thing in different situations*).

> "I looked [a guideline] up the other day for my intern, you know Neutrafluor, the fluoride toothpaste. None of us could remember why its S3. Even after reading the practice guidelines I still don't know why its S3. I mean I do, it's the fluoride thing but yeah I often will refer my interns to it like if someone wants to get a Chlorsig ointment for their dog and it's like well, that's not why a pharmacist can just you know, sell that an S3. Where would you find the answer to that? Not having looked there." O1-FG10

COM-B Physical Opportunity
Lack of efficient access (Barrier)
Pharmacists expressed they found the guidelines difficult to locate and access in their current form and agreed that the guidelines should require minimum time to find particularly when needed in patient care situations. Many participants described searching for keywords or descriptions of the guideline in 'Google' and hoping that this bought up what they were looking for.

> "It's hard to find a website but with Google search if you know the right terms - if you know exactly what it is called, you can find it. If you don't know what they are calling that file or that guideline, you are pretty well out of luck." CP2-FG1

Some participants were aware that the guidelines were able to be access through the PSA's website but suggested that the functionality of this site also limited their ability to locate the guideline they needed.

> "I know when I was looking for a lot of the practice standards and guidelines when I've been doing my work and trying to find them, I had to google them and I had to click all over the blooming website until I finally found them and you shouldn't have to do all that digging.." SP5-FG7

Access through a centralised repository (Facilitator)
Participants suggested that a centralised repository of all relevant practice guidelines would aid timely access. Discussions included the repository could be in the form of an application where notifications could be sent when changes were made to the guidelines or that the guidelines could be hosted centrally on a website.

> *"It would be nice to have a repository in the one location where if I just search it up it will just list it up there with say the latest version or something like that."* HP1-FG4

> *"If there was an app or something how good would that be?"* CP1-FG1

Access promoted through multimodal delivery of guidelines (Facilitator)

Similarly, participants suggested that integrating the guidelines into dispensing software would be a useful way to improve access to and awareness of the guidelines available. Particularly, if the pharmacist was prompted to access them when selecting a related product.

> *"I wonder if inside the dispense software or something there was hyperlinks that you could click on to a flowchart while you were dispensing something… so for example, you were putting a morning-after pill through…in your dispense software, and…there was a hyperlink and you could go straight to a flowchart and [read it and think] oh yeah, I've got to do that.."* O1-FG10

Use of different delivery modes, such as short videos with links to further information or engaging in "story telling" type awareness campaigns were suggested to facilitate access to guidelines and information, particularly in the time poor environment of pharmacists.

> *"I think the professional bodies need to engage agencies who are expert at storytelling and get that skill into the practice guidelines, so they're more accessible."* O3-FG10

Suboptimal content length and layout (Barrier)

Pharmacists acknowledged that the level of detail provided in current guidelines may be necessary when learning how to provide a new service, but that they would be more likely to read a summary.

> *"And almost sometimes having, like with a journal article where there's an abstract at the beginning where it's a much more succinct version or a checklist. But you can read more about that if you wish to or need to. I mean, some are really good but some are very wordy and it takes you a while to find what you want, so sometimes you need to read it two or three times before I've got it straight in my head. So having almost a more summarised version of some of them, and you can read onto a more detailed version if you need to."* O2-FG12

Many participants cited flow charts and visual summaries as being useful to enabling them to access the guideline content rapidly, particularly in the case of pharmacists only medicines supply guidelines they would refer to when supply medicines to patients.

> *"…I think that the pharmacist-only medicines guidance documents are really good. Like I actually do use them quite a bit just to remember things …They're just set out really well with that first bit where it has like the flowchart, and then it goes into each sort of thing. It's kind of how you would approach patients so I think they're really good."* CP1-FG2

Pharmacists also suggested the guidelines should be online/digital in a searchable format so that they could easily navigate to relevant sections.

> *"I think the search function is the real benefit for electronic guidelines"* SP1-FG7

Quality assurance programs as a prompt (Facilitator)

Some pharmacists reported only accessing the guidelines to meet external quality assurance program requirements, such as the Australian Quality Care Pharmacy Program (QCPP). Pharmacists understood they

14

needed to have the guidelines readily accessible to meet these requirements and would seek them out for this reason, but reflected that this did not mean that they would read them.

> *"Just personally I have quite a lot because I'm in the process of getting our other pharmacy ready for QCPP and all the changes with QCPP 2020 I have been accessing them a lot recently. But prior to that, yeah I'm certainly just as guilty. I'm not going to say that I access things regularly. Generally, with policy reviews, which is QCPP related, I would access them."* O2-FG12

COM-B: Reflective Motivation
Belief that guidelines are relevant to current role (Barrier and Facilitator)
Uniquely hospital pharmacists discussed rarely using any of the practice guidelines, citing they lacked relevance to hospital pharmacists' role and their practice as a reason for not using them. This was the only distinct difference observed in themes between participant groups. Hospital pharmacist participants also reflected that these guidelines would likely be more relevant to those in community pharmacy and if they should transition practice settings suggested this would trigger them to seek them out and review the practice guidelines.

> *"More recently I haven't referred to them as much and I think that's to do with the fact that I work in a hospital pharmacy and some of these guidelines are more centred around community pharmacist roles, in my opinion... I feel like if I was to transition into community pharmacy, that I would definitely go back and look at those resources because I think they are quite relevant to the everyday activities of the community pharmacist and they'd feel that they would provide me with extra knowledge of things that I would need to do or guidelines to follow."* HP2-FG4

Pharmacists who formally or informally engaged in the role of an educator were prompted to access and use the guidelines, even when they felt they personally knew the information already (see '*Belief that use of guidelines is not routinely required if you are an experienced pharmacist*'). Many suggested that this was the only time they accessed them or when they are of most use.

> *"I use these kinds of guidelines a lot in education, so I volunteer myself to do the codes, the practices, the ethics and the PBS dispensing for our intern pharmacists each year, but I also use it when I'm educating pharmacy assistants or dispense techs."* HP3-FG4

Belief that use of guidelines is not routinely required if you are an experienced pharmacist (Barrier)
Many pharmacists felt that the practice guidelines were ingrained in their practice and 'part of who they were.' Thus, they did not need to access the documents because they felt they knew the contents, what they are required to do and that they were doing it. This theme clearly related to the perceived level of experience the pharmacist identified themselves to have. With those who considered themselves to be experienced/not needing the guidelines' and those whom were considered to be 'inexperienced' or 'early career' being assumed to need them more.

> *"With regards to the dispensing practice guidelines, the professional practice standards and code of ethics I feel like that's all ingrained into me so thoroughly at this point that I feel like who I am as a pharmacist is part of that if that makes sense. I don't need to check if I'm still doing the right thing, I know that I'm doing the right thing because I've been trained for this and I feel that all those things have made me the pharmacist that I am but now I don't need to go and check if I'm still doing the right thing."* CP2-FG1

Thus, participants reflected that the practice guidelines would likely be of more use to someone who was new to the profession with less experience, such as a recent graduate or intern as they would not have

developed this level of knowledge and practice confidence yet. They discussed that they mostly used guidelines when they were initially learning and entering the profession.

> "I guess if you are a new graduate and you don't have that experience behind you, it's good to have guidelines that you can look up and follow but once you've had enough experience out there and you've seen the same thing 100 times, generally you can kind of feel your way through it. And as FG9-P3 said, you can wing it knowing that what your obligations are as health professionals but also being able to be practical about it and getting it done efficiently." O1-FG9

The participants that considered themselves experienced also acknowledged that they would access guidelines if they were changed or updated. Although this is completely dependent on them being aware of the change *(see 'Lack of awareness')*.

> "Or mainly if there's something new, like a down scheduling that is now an S3 medication, that was previously prescription only, I might look at something then. Or a new service we're able to provide, like with vaccinations… I mean I think the years of doing lots of accreditations and what-not I feel reasonably familiar with them but yeah, I certainly wouldn't access them regularly unless I'm reviewing something. Or if something's new." O2-FG12

Belief that guidelines can support knowing how to do the right thing in different situations (Facilitator)
Pharmacists reported using the professional practice guidelines when they required information or assurance for the best course of action, in some cases this was to provide best patient care *(see 'Presence of a patient'* but was often to ensure they met professional obligations such as legislative requirements for compounding a medicine*)*.

> "I've most recently used the practice standards during my intern year but I've also used the APF a little bit when I've been compounding some creams just to double check that I am using the correct formula..". CP4-FG1

Participants described these occurrences as occasional and triggered by the pharmacist identifying their own knowledge gap while practising and not always in response to a patient presentation.

> "Or if there's something that I want to double-check you know, something comes up in practice at some stage and you're not sure that you're reading or your understanding of what you're supposed to be doing there is correct, if it makes mention of a specific part of the thing in a guideline." CP6-FG2

This extended to situations where they were unfamiliar with the service that they needed to provide or there had been changes to that service.

> "So I can understand if all of a sudden new services are available, yes, I would then look at the guidelines just to make sure I understand what the protocols are but then after I've used the guidelines once I'm never going to look at them again unless there is a new service that I need to review. I wouldn't look at them." O1-FG9

Belief that negative consequences may occur if guidelines are not followed (Facilitator)
Consequences of 'not doing the right thing' were discussed by pharmacists and acted as another prompt to use the guidelines. These were discussed in the context of actual consequences for the individual pharmacists, such as losing their registration, or the pharmacy such as losing funding for services and for the patient such as experiencing medicines related harm.

"Especially for things like meds checks, DAAs, supplying all of those things, we have to be aware of the guidelines in order to claim for those professional services so you have to be abiding by those rules in order to get the funding." CP1-FG1

"…we refer to the guidelines before we make a procedure because if I have like you know a four page or 5-6 page procedure for anything, pharmacists won't read it, it won't happen. And they'll choose bits that they want to do and yeah, cos of where we are logistics we have to be extremely accurate with everything. Cos if I make a mistake here, it goes out to the …patient, you know that patient could end up in hospital. The nurse might not pick it up. There's lots of things we have to be very careful of." O2-FG10

Discussion

To the authors' knowledge, this is the first qualitative study to explore barriers and facilitators to pharmacists' use of professional practice guidelines. This study found that use of practice guidelines by practising pharmacists was sporadic and usually prompted by situations arising in practice, involving learners or patients where the pharmacist was unsure how to proceed and may potentially fear what will happen if they do not proceed in a guideline concordant manner. Use of practice guidelines was dependent on the belief that guidelines will support knowing how to proceed in different situations. Furthermore, this use of practice guidelines was also dependent on the individual pharmacist's awareness of the guidelines, their content and understanding of where to find them, facilitated by how easily they can be accessed and navigated when needed. Pharmacists also indicated that they believed practice guidelines were more useful to less experienced pharmacists and for those who identified as experienced pharmacists, routine use was unnecessary. These influences must be considered as part of an interacting system that either results in pharmacists using or not using practice guidelines. How the use of practice guidelines may be preceded by other professional behaviours (e.g. recognising oneself has a knowledge gap and needs support to address it) will also need to be reviewed. Both considerations will be essential in any work to optimise pharmacists' use of professional practice guidelines.

Limited awareness (Psychological Capability) of the guidelines was identified as a barrier in our study. This finding was consistent with previous research. Poor awareness has been suggested as an issue in analogous studies where observed pharmacist practice has deviated from accepted practice guidelines[16,19,23,28] and educational needs of pharmacists to support practice have been explored.[18] Awareness has also been cited as an issue when reviewing barriers and facilitators for implementation of clinical guidelines and their uptake by prescribers.[21,63] Improving awareness may increase the motivation of pharmacists to use the guidelines, as knowing that the guidelines exist, along with guideline contents, may influence pharmacists' *perception* of relevance of each guideline to their current role, or *belief* that the guideline may assist them when they do not know how to proceed (Reflective Motivation). If an individual does not know that a guideline exists, has been updated or what information it contains, then they would not be able to use it. Thus, working to improve awareness may be a feasible focus point for intervention, given this may also increase motivation to use the guidelines.

Participants spoke about patients or learners (Social Opportunity) prompting them to access practice guidelines. Pharmacists suggested they accessed the guidelines in these situations because they believed the guideline would support them to provide an appropriate level of care to the patient or to demonstrate to learners how the guideline could provide this support (Reflective Motivation). Furthermore, having a role as an educator (Reflective Motivation) acted as a facilitator in that pharmacists used practice guidelines for the purposes of teaching interns, pharmacy students and/or other pharmacy staff. This has also been identified as a facilitator in previous work where the implementation of medicines supply guidelines was assessed, and participants reported that they mostly used the guideline for educating others.[27] Thus, social influences also have the potential to influence the pharmacist's motivation to use the practice guidelines. Interventions focused on this relationship should consider patients and learners as the target and involve consideration of their behaviour in addition to the pharmacist's behaviour (e.g. asking the pharmacist to check their guidelines).

Efficient access to the guidelines and suboptimal content layout and length were identified as barriers (Physical Opportunity) in this study and have been identified in previous studies that observed or described pharmacists' practice,[27] use of guidelines,[26] identified training needs[18] or reviewed barriers and facilitators to implementation of clinical guidelines by prescribers.[21,63] Participants were forthcoming with practical solutions that were not dissimilar to those identified in prior research. These included: creating a centralised repository of the guidelines hosted on a website or through a mobile application, pop ups or links to relevant guidelines integrated into dispensing software and thus workflows,[27] leveraging the

benefits of technological platforms,[26,64] such as smart phones[21,63] and adapting the display of content.[26,64] These suggestions included providing short summaries of the key points at the start of the document, visualising the content as much as possible in flowcharts or similar and ensuring that the document was well sign posted and searchable. Community pharmacists were prompted to locate practice guidelines when required by upcoming quality assurance program audits (Physical Opportunity), but this didn't necessarily prompt them to read and use the content of the guidance resource. The intent of this requirement of these quality assurances programs may need to be reviewed considering this finding and highlights interventions to promote access do not always ensure use. Improving physical opportunity may also be a target for interventions to increase use of practice guidelines by pharmacists, however, if these interventions were to focus on content and access, they would likely need to be delivered by the guideline developers/owners themselves.

Several influences, pertaining to the Reflective Motivation of pharmacists, with the potential to be targets for behavioural intervention, emerged in this study. Interestingly, some of the identified influences appear to be in direct conflict with others and related to the perceived experience or role of the pharmacist. Some pharmacists indicated they would use the guidelines because they believed negative consequences would occur if they did not. While this was discussed as a powerful motivator when they were early in their career, it was acknowledged that with time and experience, this concern would subside. Thus, this fear of consequences may be a poor target for an intervention if the intention was for the intervention to have a sustained effect over time in a pharmacist's career and suggest interventions may need to be tailored to different career stages. Hospital pharmacists clearly articulated that, in most cases, they did not believe these practice guidelines were relevant to their role and that they were more relevant to community pharmacists (Reflective Motivation). This perception of a 'lack of relevance' was also found to be a common reason for not using practice guidelines in a recent survey study of Australian pharmacists.[26] While many of the practice guidelines are community pharmacy centric there are still key resources such as the dispensing guidelines, practice standards, Code of Ethics and governance guidelines that could apply in any practice setting and by thinking this they may be missing out on valuable information or limit their ability to adapt when their scope changes. This may not be an ideal target for intervention development as it would likely need to focus on a subset of the population (e.g. hospital pharmacists) to whom the majority of the guidelines in this study may indeed not be relevant to.

Many pharmacists believed they did not routinely need to use guidelines if they considered themselves to be an experienced or competent pharmacist, suggesting that the guidance provided was 'common sense' and more useful to those early in their career (Reflective Motivation). Contrary to this, many participants also seem to hold the belief that the practice guidelines could support knowing how to do the right thing in different situations and suggested they would review them when they did not know how to proceed in practice when providing patient care or a service. A similar view has been identified in analogous research where prescribers suggested clinical guidelines facilitated confidence in prescribing behaviours and were acknowledged as being useful to standardising care.[21] While different, both beliefs are likely underpinned by the same thing, the pharmacists' perception of their own competence and ability. In the first, it seems the pharmacist recognise no deficits, whereas in the second, the pharmacist acknowledges they need support and that the guidelines may provide this. In both cases, there is a general risk to practice quality if pharmacists do not recognise that their practice is sub-optimal or that they have a knowledge gap in the first place. Where a pharmacist has made incorrect assumptions about what is acceptable practice or is unable to routinely identify their own knowledge gaps, this sporadic use of the guidelines may become an issue. As discussed in previous studies, this may lead to pharmacists providing a sub-optimal service that damages the trusted relationship that they have with their patients, may breach funding requirements, hinder meeting legal, ethical and professional requirements of registration and thus, professional transgressions.[11,12] This may be addressed if the use of practice guidelines was routine. Thus, challenging these beliefs may be an effective intervention target to improve use of practice guidelines and indeed

professional behaviour more broadly. However, this should include consideration of the pharmacist's identification of their knowledge gap and how it may be addressed as a target antecedent behaviour.

Recommendations for practice and future research
All stakeholders involved in the writing of practice guidelines should consider the influences identified in this study and how they might address them. Applying the next steps in the Behaviour Change Wheel may assist in this process. These next steps include mapping congruent intervention functions and corresponding behaviour change techniques to the identified influences found in this study, and relevant policy categories to deliver the intervention. It is important to note that in this process, it is often not feasible to target all the identified influences for intervention and that these would need to be prioritised. It may be tempting for guideline writers to focus on addressing the barriers and facilitators identified in this study that pertain to capability and opportunity, as improving awareness and optimising the content of the guidelines would seem well within their remit. Identifying effective strategies for improving awareness of the guidelines, their optimal 'storage' location and what best structure and content looks like should be co-designed with key stakeholders and would also likely require further research. What may be more difficult to address and may need system level changes or input from other stakeholders (the profession, regulators, professional bodies etc.) is influencing the motivational factors identified in this study. Addressing these motivational influences may promote increased use of the practice guidelines, irrespective of how easy they are to access, their current layout, or in the absence of a prompt to do so. Thus, the researchers recommend intervention developers consider all three types of influences as potential key targets for future intervention design and then prioritise them according to likely overall impact on the use of guidelines and the resources available to support intervention implementation. These influences, and the relationships between them, could be considered in review, or development of, new practice guidelines both in Australia and internationally, for pharmacists and other related disciplines. Further work to explore the relative importance of the influences identified so that they can be prioritised as a target for intervention development may be necessary. If the use of a specific resource type is identified as problematic, then an exploration of specific influences for that resource would be recommended, prior to intervention development. The authors strongly advise that any intervention be subject to a systematic development process that is informed by evidence where possible. To provide clarity in what this process may look like, an illustrative example for one influence is included below.

> *Lack of awareness that the guidelines existed was identified as a barrier that mapped to the COM-B component psychological capability. Intervention functions suggested by the BCW to target capability are 'education' and/or 'training'. For each suggested intervention function the developers should consider the affordability, practicability, effectiveness/cost effectiveness, acceptability, side effects/safety and equity to determine the most appropriate to move forward with. In the case of education and training, due to costs and the sheer number of pharmacists in Australia, training is unlikely to be the most feasible intervention function to select. Additionally, education can be delivered in many different forms. Next steps would involve assessing and selecting Behaviour Change Techniques (BCTs) that are congruent with the education intervention function and considering their appropriateness for the context in which intervention will take place. As an example, the BCT 'information about social and environmental consequences' may be chosen. The resulting intervention may be delivered in the form of a profession wide email campaign, that includes an email delivered by the Pharmacy Board weekly that has a message or headlining case study that features a guideline such as, 'Preventing medication errors through good dispensing practice – Do you know the Dispensing Practice Guidelines?' along with a list or link to all the currently available guidelines that they should be familiar with.*

Strengths and limitations
Strengths of this study include the conceptualisation of use of practice guidelines as a behaviour and the use of a systematic theory informed method that facilitated an in-depth exploration of influences that can

be readily operationalised to inform intervention design in the future. Furthermore, the large number and diversity of participants recruited in terms of their geographical practice location, years of experience as a pharmacist and current role was a strength. Facilitation of the focus group discussions online was also a strength, as this allowed the researchers to gain a range of insights and perspectives from geographically diverse participants. Limitations include those common to focus group methodology such as, the views expressed are the participants' own and may have limited generalisability, participants' responses may have been biased by dominant participants' opinions or social desirability and there is a potential for data to be misinterpreted. To mitigate these factors, a demographically and geographically broad range of participants was recruited, and groups were organised according to participants' primary role to reduce response bias where power imbalances may exist (e.g. pharmacist owner vs employee). Furthermore, within the remit of this study all reasonable steps were taken to minimise misinterpretation of data including independent coding of data in duplicate with oversight from a behavioural psychologist with experience using the model. Professional membership status of participants was not collected, therefore differences between the responses of members and non-members could not be ascertained, however participants had the opportunity to raise membership as an influence on guideline use if they desired. Finally, when this study was conducted, Australia was experiencing its second wave of the COVID-19 pandemic (largely localised to one particular state) and, thus, pharmacists as frontline workers were under considerable stress and guidelines for supply of medicines and practice were changing rapidly. This may have affected the results of the study if participants were too absorbed in these changes to consciously reflect and report on them in the focus groups. However, participants were asked about environmental influences and the pandemic was not specifically mentioned.

Conclusions

This study has identified several factors that influence pharmacists' use of professional practice guidelines. Understanding these influences will allow design of behavioural interventions to increase their use. The Behaviour Change Wheel offers clear next steps for this process, including the selection of influences to focus on and mapping of intervention functions to the influences that have an evidence base for working. In this case, awareness, access and content layout will probably need to be improved in the first instance and could be addressed directly by the resource writers. Improving these may also work to improve motivation. However, leveraging influences on motivation may ensure that the use of professional guidelines is embedded in future practice regardless of the other influences. Albeit motivation can be more difficult to target and may require changes to broader practice culture and training that is not directly influenced by resource writers.

References

1. International Pharmaceutical Federation. Good Pharmacy Practice- Joint FIP/WHO Guidelines on GPP: Standards for quality of pharmacy services [Internet]. 2011, [cited Accessed: July 7th 2021]. The Hague, The Netherlands Available from: https://www.fip.org/file/1476

2. International Pharmaceutical Federation. FIP Statement of Professional Standards- Code of ethics for pharmacists [Internet]. 2014, [cited Accessed: July 7th 2021]. Available from: www.fip.org/statements

3. Pharmaceutical Society of Australia. National Competency Standards Framework for Pharmacists in Australia (2016) [Internet]. Deakin West, ACT, Australia Pharmaceutical Society of Australia; 2016 [cited 2019 June 3]. Available from:
https://my.psa.org.au/servlet/fileField?entityId=ka17F000000cmnyQAA&field=PDF_File_Member_Content_Body__s

4. Pharmaceutical Society of Australia. Professional Practice Standards- Version 5. 2017 [cited Accessed: October 1st 2021]. Deakin West ACT Australia: Pharmaceutical Society of South Australia. Available from: https://www.psa.org.au/practice-support-industry/professional-practice-standards/

5. Pharmaceutical Society of Australia. Code of Ethics for Pharmacists. 2017 [cited Accessed: October 1st 2021]. Deakin West, ACT Australia,: Available from: https://www.psa.org.au/wp-content/uploads/2018/07/PSA-Code-of-Ethics-2017.pdf

6. Pharmacy Board of Australia. Code of Conduct for Pharmacists. 2014 [cited Accessed: October 1st 2021]. [Internet]. Available from: https://www.pharmacyboard.gov.au/Codes-Guidelines/Code-of-conduct.aspx

7. Sansom LN (editor). Australian Pharmaceutical Formulary and Handbook 24th edition. Canberra Pharmaceutical Society of Australia, ; 2018.

8. Pharmaceutical Society of Australia. Guidelines for pharmacists providing dose administration aid services. 2017 (Updated 2020) [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/Guidelines-for-pharmacists-providing-dose-administration-aid-services

9. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Emergency contraception. Canberra: Pharmaceutical Society of Australia; 2018. Available from: https://my.psa.org.au/s/article/Emergency-Contraception-S3-Guidance

10. Pharmaceutical Society of Australia. Dispensing Practice Guidelines. 2019 [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/Dispensing-Practice-Guidelines

11. Penm J, Chaar BB. Professional transgressions by Australian pharmacists. J Pharm Pract Res. 2009 7 July 2021;39(3):192-197. Available from: 10.1002/j.2055-2335.2009.tb00451.x

12. Sheshtyn P. Failure to maintain standards 2019 [amended 26/04/19; cited 29/04/19]. Australian Journal of Pharmacy Available from: https://ajp.com.au/news/failure-to-maintain-standards/

13. Alte D, Weitschies W, Ritter C. Evaluation of consultation in community pharmacies with mystery shoppers. Annals of Pharmacotherapy [Internet]. 2007 [cited 2019 July 2];41(6):1023-30. https://journals-sagepub-com.access.library.unisa.edu.au/doi/full/10.1345/aph.1H565

14. Berger K, Eickhoff C, Schulz M. Counselling quality in community pharmacies: implementation of the pseudo customer methodology in Germany. Journal of Clinical Pharmacy & Therapeutics [Internet]. 2005 [cited 2019 July 2];30(1):45-57. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2710.2004.00611.x

15. Collins JC, Schneider CR, Moles RJ. Emergency contraception supply in Australian pharmacies after the introduction of ulipristal acetate: a mystery shopping mixed-methods study. Contraception. 2018 09;98(3):243-246. Available from: https://dx.doi.org/10.1016/j.contraception.2018.04.020

16. Hattingh HL, King MA, Smith NA. An evaluation of the integration of standards and guidelines in community pharmacy practices. Pharmacy World & Science [Internet]. 2009 [cited 2019 July 2];31(5):542-549. Available from: https://dx.doi.org/10.1007/s11096-009-9309-9

17. Higgins SJ, Hattingh Hl. Requests for emergency contraception in community pharmacy: an evaluation of services provided to mystery patients. Research In Social & Administrative Pharmacy [Internet]. 2013 [cited 2019 July 2];9(1):114-19. Available from: https://dx.doi.org/10.1016/j.sapharm.2012.03.004

18. Lai Joyce Chun K, Olsen A, Taing M-W, Clavarino A, Hollingworth S, Dwyer R, et al. How prepared are pharmacists to provide over-the-counter naloxone? The role of previous education and new training opportunities. Research in Social and Administrative Pharmacy. 2019 2019/08/01/;15(8):1014-1020. Available from: https://doi.org/10.1016/j.sapharm.2019.03.003

19. Mishriky J, Stupans I, Chan V. Low back pain management – What Australian community pharmacists recommend and how this compares to current clinical guidelines. International Journal of Pharmacy Practice. 2021 [cited 1/20/2022];29(4):336-343. Available from: 10.1093/ijpp/riab022

20. Norris P. Purchasing restricted medicines in New Zealand pharmacies: results from a "mystery shopper" study. Pharmacy World & Science [Internet]. 2002 [cited 2019 July 1];24(4):149-53. https://link-springer-com.access.library.unisa.edu.au/article/10.1023/A%3A1019506120713

21. Paksaite P, Crosskey J, Sula E, West C, Watson M. A systematic review using the Theoretical Domains Framework to identify barriers and facilitators to the adoption of prescribing guidelines. Int J Pharm Pract. 2021;29(1):3-11. Available from: 10.1111/ijpp.12654

22. Puspitasari HP, Aslani P, Krass I. A review of counseling practices on prescription medicines in community pharmacies. Research In Social & Administrative Pharmacy [Internet]. 2009 [cited 2019 July 2];5(3):197-210. Available from: https://dx.doi.org/10.1016/j.sapharm.2008.08.006

23. Puspitasari HP, Aslani P, Krass I. Australian community pharmacists' awareness and practice in supporting secondary prevention of cardiovascular disease. Int J Clin Pharm. 2013;35(6):1218-1228. Available from: 10.1007/s11096-013-9854-0

24. Rutter PM, Horsley E, Brown DT. Evaluation of Community Pharmacists' Recommendations to Standardized Patient Scenarios. Annals of Pharmacotherapy [Internet]. 2004 [cited 2019 July 1];38(6):1080-1085. Available from: 10.1345/aph.1D519

25. Schneider C, Gudka S, Fleischer L, Clifford R. The use of a written assessment checklist for the provision of emergency contraception via community pharmacies: a simulated patient study. Pharmacy Practice [Internet]. 2013 [cited 2019 June 20];11(3):127-131.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3809138/pdf/pharmpract-11-127.pdf

26. Mill D, Johnson JL, Lee K, Salter SM, D'Lima D, Seubert L, et al. Use of professional practice guidance resources in pharmacy: a cross-sectional nationwide survey of pharmacists, intern pharmacists, and pharmacy students. Journal of Pharmaceutical Policy and Practice. 2021;14(1):1-19. Available from: 10.1186/s40545-021-00395-8

27. Watkins K, Fisher C, Misaghian J, Schneider CR, Clifford R. A qualitative evaluation of the implementation of guidelines and a support tool for asthma management in primary care. Asthma Research and Practice. 2016 2016/05/04;2(1):8. Available from: 10.1186/s40733-016-0023-9

28. Chaar B, Brien JA, Krass I. Professional ethics in pharmacy: The Australian experience. International Journal of Pharmacy Practice. 2005;13(3):195-204. Available from: 10.1211/ijpp.13.3.0005

29. Michie S, Atkins L, West R. The Behaviour Change Wheel: A Guide to Designing Interventions. 1st ed. Great Britain Silverback Publishing 2014.

30. Michie S, Van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Impl Sci [Internet]. 2011 April 23 [cited 2019 July 2];6(1). Available from: 10.1186/1748-5908-6-42

31. Korenvain C, MacKeigan LD, Dainty KN, Guilcher SJT, McCarthy LM. Exploring deprescribing opportunities for community pharmacists using the Behaviour Change Wheel. Research in Social and Administrative Pharmacy. 2020 2020/12/01/;16(12):1746-1753. Available from:
https://doi.org/10.1016/j.sapharm.2020.01.019

32. Nielsen S, Olsen A. Using the behaviour change wheel to understand and address barriers to pharmacy naloxone supply in Australia. International Journal of Drug Policy. 2021 2021/04/01/;90:103061. Available from: https://doi.org/10.1016/j.drugpo.2020.103061

33. Seubert LJ, Kerry W, Laetitia H, Watson MC, Clifford RM. A Theory Based Intervention to Enhance Information Exchange during Over-The-Counter Consultations in Community Pharmacy: A Feasibility Study. Pharmacy [Internet]. 2019 [cited 2019 July 2];7(2). Available from: 10.3390/pharmacy7020073

34. Pharmacy Board of Australia. Guidelines on Practice Specific Issues – Guideline 1 (List of reference texts for Pharmacists) September 2015 [cited Accessed: August 18th 2022]. Available from:
https://www.pharmacyboard.gov.au/codes-guidelines.aspx

35. Halliday M, Mill D, Johnson J, Lee K. Let's talk virtual! Online focus group facilitation for the modern researcher. Research in Social and Administrative Pharmacy. 2021:1-6. Available from: 10.1016/j.sapharm.2021.02.003

36. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19(6):349-357. Available from: 10.1093/intqhc/mzm042

37. Pharmaceutical Society of Australia. My Health Record Guidelines for Pharmacists. 2019 [cited Accessed: October 1st 2021]. Available from: https://www.psa.org.au/wp-content/uploads/2019/09/MHR-Guidelines-for-Pharmacists.pdf

38. Pharmaceutical Society of Australia. Clinical Governance Principles for Pharmacy Services. 2018 [cited Accessed: October 1st 2021]. Available from: https://www.psa.org.au/wp-content/uploads/2019/05/PSAClinicalGovernancePrinciples2018_FINAL.pdf

39. Pharmaceutical Society of Australia. Guide to providing pharmacy services to Aboriginal and Torres Strait Islander people. 2014 [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/Providing-Pharmacy-Services-to-Aboriginal-and-Torres-Strait-Islander-People

40. Pharmaceutical Society of Australia. Guidelines for pharmacists providing staged supply services. 2017 (Updated 2019) [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/servlet/fileField?entityId=ka10o0000001DaSAAU&field=PDF_File_Member_Content__Body__s

41. Pharmaceutical Society of Australia. Guidelines for pharmacists providing MedsCheck and Diabetes MedsCheck services. 2017 (Updated 2019), [cited Accessed: October 1st 2019]. Available from: https://my.psa.org.au/s/article/Guidelines-for-pharmacists-providing-MedsCheck-and-Diabetes-MedsCheck-services

42. Pharmaceutical Society of Australia. Practice guidelines for the provision of immunisation services within pharmacy. 2020 [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/immunisation-guidelines

43. Pharmaceutical Society of Australia. Guidelines for the Continued Dispensing of eligible prescribed medicines by pharmacists. 2018 (Updated 2020) [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/Continued-dispensing-guidelines

44. Pharmaceutical Society of Australia. Guidelines for Quality Use of Medicines (QUM) services. 2020 [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/guidelines-for-qum-services

45. Pharmaceutical Society of Australia. Guidelines for pharmacists providing Home Medicines Review (HMR) services. 2011 [cited Accessed: October 1st 2021]. Available from: https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-Guidelines-for-Providing-Home-Medicines-Review-HMR-Services.pdf

46. Pharmaceutical Society of Australia. Guidelines for pharmacists providing Residential Medication Management Review (RMMR) and Quality Use of Medicines (QUM) services. 2011 (Updated 2018) [Available from: https://www.ppaonline.com.au/wp-content/uploads/2019/01/PSA-RMMR-and-QUM-Guidelines.pdf

47. Pharmaceutical Society of Australia. Guidelines for comprehensive medication management reviews. 2020 [cited Accessed: October 1st 2021]. Available from: https://my.psa.org.au/s/article/guidelines-for-comprehensive-mmr

48. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Chloramphenicol for opthalmic use. Canberra: Pharmacutical Scoiety of Australia; 2017. Available from: https://my.psa.org.au/s/article/Chloramphenicol-S3-guidance-document

49. Pharmaceutical Society of Australia. Guidance for provision of Pharmacist Only medicine Naloxone. Canberra: Pharmaceutical Society of Australia; 2019. Available from: https://my.psa.org.au/s/article/Naloxone-S3-guidance-document

50. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Orlistat. Canberra: Pharmaceutical Society of Australia; 2017. Available from: https://my.psa.org.au/s/article/Orlistat-S3-guidance-document

51. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Prochlorperazine. Canberra: Pharmaceutical Society of Australia; 2017.

52. Pharmaceutical Society of Australia. Gidance for provision of a Pharmacist Only medicine Proton pump inhibitors. Canberra: Pharmaceutical Society of Australia; 2017. Available from: https://my.psa.org.au/s/article/Proton-pump-inhibitors-S3-guidance-document

53. Pharmaceutical Society of Australia. Guidance for peovision of a Pharmacist Only medicine Short-acting beta2 agonists (salbutamol and terbutaline). Canberra: Pharmaceutical Society of Australia; 2017. Available from: https://my.psa.org.au/s/article/Short-acting-beta-agonists-S3-guidance-document

54. Pharmaceutical Society of Australia. Guidance for provision of a Pharmaicst Only medicine Famciclovir Canberra: Pharmaceutical Society of Australia; 2017. Available from: https://my.psa.org.au/s/article/Famciclovir-S3-guidance-document

55. Pharmacuetical Society of Australia. Guidance for provision of Pharmacist Only medicine Adrenaline (epinephrine). Canberra: Pharmacuetical Society of Australia; 2019. Available from: https://my.psa.org.au/s/article/Adrenaline-epinephrine-guidance-document

56. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Astrodrimer sodium. Canberra: Pharmaceutical Society of Australia; 2019. Available from: https://my.psa.org.au/s/article/Astodrimer-S3-guidance-document

57. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Glucagon. Canberra: Pharmaceutical Society of Australia; 2019. Available from: https://my.psa.org.au/s/article/Glucagon-S3-guidance-document

58. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine High-concentration fluoride toothpaste. Canberra: Pharmaceutical Society of Australia 2019. Available from: https://my.psa.org.au/s/article/High-concentration-fluoride

59. Pharmaceutical Society of Australia. Guidance for provision of a Pharmacist Only medicine Nitrates. Canberra: Pharmaceutical Society of Australia; 2019. Available from: https://my.psa.org.au/s/article/Nitrates-S3-guidance-document

60. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Med Res Methodol. 2013;13(1):117-117. Available from: 10.1186/1471-2288-13-117

61. Amin MEK, Nørgaard LS, Cavaco AM, Witry MJ, Hillman L, Cernasev A, et al. Establishing trustworthiness and authenticity in qualitative pharmacy research. Research in Social and Administrative Pharmacy. 2020 2020/10/01/;16(10):1472-1482. Available from: https://doi.org/10.1016/j.sapharm.2020.02.005

62. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative research in psychology. 2006;3(2):77-101. Available from: 10.1191/1478088706qp063oa

63. Fischer F, Lange K, Klose K, Greiner W, Kraemer A. Barriers and Strategies in Guideline Implementation-A Scoping Review. Healthcare (Basel). 2016;4(3):36. Available from: 10.3390/healthcare4030036

64. Mill D, Page A, Johnson J, Lee K, Salter SM, Seubert L, et al. Do pharmacy practice standards effectively describe behaviour? Reviewing practice standards using a behavioural specificity framework. BMC Health Serv Res. 2022;22(1):71-71. Available from: 10.1186/s12913-021-07358-4

Appendices

Appendix 1 - Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist[36]

No	Item	Guide questions/description	Detail reported or section of manuscript reported in
Domain 1: Research team and reflexivity			
Personal Characteristics			
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?	LS and DM were the moderators – see methods – focus group facilitation.
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*	LS - BPharm PhD DM – BPharm (Hons)
3.	Occupation	What was their occupation at the time of the study?	LS head of pharmacy program at UWA – see author affiliations DM – pharmacist and PhD candidate at UWA – see author affiliations
4.	Gender	Was the researcher male or female?	-
5.	Experience and training	What experience or training did the researcher have?	See Methods - Research team and Researcher training
Relationship with participants			
6.	Relationship established	Was a relationship established prior to study commencement?	Some participants may have known researchers and facilitators given participants were also registered pharmacist and recruited through professional networks.

No	Item	Guide questions/description	Detail reported or section of manuscript reported in
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. *personal goals, reasons for doing the research*	Occupation, reasons for research and source of funding
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*	Occupation
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*	Descriptive qualitative focus groups – see methods
Participant selection			
10.	Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*	Purposive – see Methods - Sample
11.	Method of approach	How were participants approached? e.g. *face-to-face, telephone, mail, email*	Online via email or social media advertisement – see Methods – Recruitment
12.	Sample size	How many participants were in the study?	45 – See Findings
13.	Non-participation	How many people refused to participate or dropped out? Reasons?	Not determined
Setting			

No	Item	Guide questions/description	Detail reported or section of manuscript reported in
14.	Setting of data collection	Where was the data collected? e.*g. home, clinic, workplace*	Online via videoconferencing platform – see Methods – Focus group facilitation
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?	Yes and observer and a technical support officer – See Methods – Focus group facilitation
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	See reported demographics in Table 1
Data collection			
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Yes – See Methods – Piloting and Discussion guide
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?	No.
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Both were recorded, only audio was used for analysis – see Methods – Focus group facilitation
20.	Field notes	Were field notes made during and/or after the interview or focus group?	Yes – see Methods Focus group facilitation
21.	Duration	What was the duration of the interviews or focus group?	30-45 minutes – see Findings
22.	Data saturation	Was data saturation discussed?	Yes – see results and methods
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No.