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# Development of a strategic model for integrating complementary medicines into professional pharmacy practice

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ABSTRACT

*Background:* Traditional medicine (TM) and complementary medicine (CM) products have played an increasingly important role in the business of pharmacy for over two decades in a number of countries. With a focus on the quality use of all medicines including complementary medicines, there have been a number of initiatives to encourage the integration of TM/CM products into professional practice. Recent studies report that many of the barriers that prevent such integration remain.
*Objectives:* To explore the pharmacists' perspective regarding how barriers to the integration of TM/CM products into the professional practice of pharmacy could be resolved.
*Methods:* Purposive sampling and snowballing were used to recruit 11 registered pharmacists who had worked in community pharmacy for a minimum of 6 months to participate in one of 3 focus groups. Focus group questions informed by previous studies, explored participants' perspectives on the actions required to support professional services related to TM/CM products.
*Results:* Pharmacists proposed that five key stakeholders (professional pharmacy organizations, universities, government, pharmacy owners, and pharmacists) enact 4 developments that require a collaborative effort ("education and training", "building the evidence base", "developing reliable and accessible information resources", and "workplace support for best practice"). Manufacturers of TM/CM products were not identified by pharmacists as collaborators in these developments.
*Conclusion:* Collectively, the findings from this study support a strategic model to guide the integration of TM/CM products into the professional practice of pharmacy.


## 1. Introduction

Traditional medicine (TM) and complementary medicine (CM) products refer collectively to herbal medicine, dietary supplement, health supplement, vitamins, minerals and natural products, which are also known as "dietary supplements" in the U.S., "natural health products" in Canada, "food supplements" in the UK, "complementary medicines (CMs)" in Australia or "traditional medicine" and "health supplements" in China.[1–5] They are a group of diverse products with varying levels of evidence to support their safety and efficacy.[6–10] Over the last 3 decades, there has been a steady increase across the globe in the use of these products with the fastest growing market being reported in the Asia-Pacific regions.[11–16]

Many consumers believe that TM/CM products are a safe approach that empower them to self-manage their nutritional status, overall well-being, and in the overall management of specific health conditions.[17–19] It has been identified that consumers spend more money out of pocket on complementary medicines than on prescription medicines.[20] It was also found that TM/CM products are commonly used by chronically ill patients, with many of them using these products concurrently with conventional medicines.[21,22] The lack of professional involvement in the prevalent use of TM/CM products has been associated with adverse reactions and drug-herb interactions.[23–32]

To ensure the safe and appropriate use of TM/CM products, the pharmacists' involvement at the point of sale has been encouraged.[33–36] Previous studies have shown that pharmacists generally recognize their role in helping consumers make informed decision about these products.[37–44] Discussions about pharmacists' potential role in the area of TM/CM products started at least 15

*Abbreviations:* CM, Complementary Medicine; CMs, complementary medicines; TM, Traditional Medicine; TGA, Therapeutic Goods Administration.

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years ago as reported in a systematic literature review.[45] The literature review identified seven major responsibilities representing various forms and levels of pharmacists' involvement in this area. In the Good Pharmacy Practice issued jointly by the International Pharmaceutical Federation and the World Health Organization, it states that "*pharmacists should take steps to update their knowledge and skills about complementary and alternative therapies such as traditional Chinese medicines, health supplements, acupuncture, homeopathy and naturopathy*" as part of their role in maintaining and improving professional performance.[35] Position statements have been issued nationally to recommend inclusion of TM/CM products into pharmacy practice. In Australia, for instance, professional pharmacy organizations recognize the relevance of CMs to pharmacy business and practice and have initiated efforts to encourage the extension of pharmacists' duty of care by developing a roadmap and issuing a position statement.[46,47]

Despite these efforts and initiatives, there appears to be a gap between the contribution of TM/CM product sales to the business of pharmacy and the necessary measures to ensure the safe and proper use of these products by consumers. The development of a model that ensures the appropriate care for consumers who use TM and CM products appears to have stagnated.[48–51] This may be due to limited research focused on identifying solutions or strategies for moving forward into the future. The aim of this study was to develop a strategic model that is informed by the pharmacists' perspective to guide the integration of TM/CM products into the practice of pharmacy.

## 2. Methods

### 2.1. Study design

This study took place in Australia, and a qualitative study design using focus groups was employed to create an environment for an open discussion about pharmacists' opinions about how to integrate CMs into pharmacy practice. A purposive sampling approach and a snowballing technique were used to recruit participants. Potential participants for the focus groups were identified via professional contacts of the research team.

Discussions were prompted by the focus group facilitator. At the beginning of each focus group discussion, participants were presented with a list of 10 responsibilities that had been proposed for pharmacists to assume related to the safe and appropriate use of CMs (Annex). The first 6 items were extracted from the Pharmaceutical Society of Australia position statement on CMs and the remaining 4 items were developed based on the findings of a systematic literature review.[45,46] Based on the researchers' earlier work and published literature, a discussion guide was also developed, which was refined after pilot-testing by 3 pharmacists (Table 1).

### 2.2. Study sample

This study recruited Australian pharmacists with full registration on the Register of the Australian Health Practitioner Regulation Agency who had worked in community pharmacy for a minimum of 6 months. Sampling considerations included the pharmacy business model the participants worked in (i.e. independent pharmacy or chain pharmacy), geographical location, and participants' demographic information (age, gender, and professional registration type).

**Table 1**
Focus group discussion guide.

1. What do you think about these responsibilities?
2. How much you can relate to these responsibilities in your practice?
3. Multiple studies have identified the challenges that pharmacists are facing in complementary medicines. Who do you think can help pharmacists in developing their role in complementary medicines?
4. What do you think they should do?
5. Is there anything you would like add to the discussion?

### 2.3. Study procedure

An invitation and a participant information statement were sent to potential participants via email. Written consent was obtained from participants prior to each focus group commencing. The focus group discussions were conducted in a private conference room within the Faculty of Pharmacy building at The University of Sydney, New South Wales Australia. Each focus group lasted for 60–90 min and was audio-recorded with participants' consent. The allocation of pharmacists was such to optimize discussions among pharmacists from diverse background (age groups, years of experience, and the pharmacy model they practiced in). At the end of each focus group, participants were asked to provide their demographic information via a brief questionnaire. The study protocol was approved by the Human Research Committee at the University of Macao and The Human Research Ethics Committee at The University of Sydney for approval prior to commencement (2017-017).

### 2.4. Data analysis

The audio recordings of the focus groups were transcribed verbatim prior to analysis. Each transcription and field notes were then independently reviewed by two investigators. A thematic analysis using an inductive approach was applied, allowing commonalities and differences amongst the transcriptions to be identified as themes using open coding, grouping and categorizing. Constant comparison within and between themes were used to ensure the analysis represented all perspectives. Emergent findings were discussed and checked within the research team and the coding reviewed and refined.

## 3. Results

A total of 11 participants attended and completed one of the 3 focus group discussions. One participant, who was unable to attend the full duration of the focus group meeting offered to meet at a later date to complete the focus group discussion points. Considering the added value and insight provided by this participant, a meeting was conducted and the content was included in the analysis. Selected demographic information of the participants is shown in Table 2. Thematic analysis of the 3 focus groups identified 7 dilemmas that pharmacists had to face during their day-to-day practice and a series of suggestions about the solutions to these dilemmas.

### 3.1. Dilemmas that pharmacists had to face during their day-to-day practice

Participants discussed the dilemmas (Table 3) they faced meeting the proposed CMs responsibilities within the reality of their business and practice environments.

Dilemma 1: Discordance between position statements made by professional pharmacy organizations and the follow-up actions.

Although all participants agreed that provision of use about the use of CMs was relevant to their profession, they expressed their doubts about how to act on their responsibilities in practice.

**Table 2**
Selected demographic characteristics of focus groups.

| | Focus Group 1 | Focus Group 2 | Focus Group 3 |
|---|---|---|---|
| Location description | Private conference room | | |
| Date | 07/03/2017 | 08/03/2017 | 10/03/2017 |
| No. of participants | 4 | 3 + 1 (separate interview) | 4 |
| Gender | 2 men, 2 women | 2 men, 2 women | 4 women |
| Type of pharmacy business model | 2 independent<br>1 clinic<br>1 chain | 2 independent<br>2 chain | 3 independent<br>1 clinic |

**Table 3**
Dilemmas that Australian pharmacists had to face during their day-to-day practice.

| Theme | Sub-theme |
|---|---|
| Dilemmas | 1. Discordance between position statements made by professional pharmacy organizations and the follow-up actions<br>2. Discordance between meeting the ethical responsibilities and being a business person<br>3. Discordance between the lack of scientific evidence and witnessing cases where CMs have helped people<br>4. Discordance between a consumer driven CM market and providing professional responsibilities<br>5. Discordance between the need to learn about CMs and lack of personal and/or professional interests in CMs<br>6. Discordance between bearing the responsibility of "gate-keeper" and deferring CM-related enquiries to naturopath<br>7. Discordance between pharmacists and doctors related to the provision of CMs in pharmacy |

*"In terms of responsibility, we should do this but I don't necessarily know if we would achieve it. The list looks like a lot of responsibilities for a consumer-driven market of CM. What we do is an interpretation of this set of responsibilities is heavily diluted."*

All participants did not consider themselves well equipped to adequately fulfil the responsibilities on the list and questioned the lack of follow-up actions by professional pharmacy organizations. They believed that these organizations should be following up issuing a set of responsibilities with actions that equip pharmacists with appropriate tools including CMs knowledge and skills.

*"Guidelines are guidelines, and pharmacists don't necessarily practice by guidelines because there is a disconnection between guidelines and reality in many situations. I feel like listing out the responsibilities is useful but we need the means to do it. There is no means given … so that is the problem. This set of responsibilities does not line up with reality or they can only be lined up with reality only when there are resources to help you do it."*

*"They (the professional pharmacy organizations) need to provide us with solutions where we can make ourselves competent to practice to their guidelines whether that be training, references made available. We are expected to pay a membership and we expect more from them."*

Dilemma 2: Discordance between meeting the ethical responsibilities and being a business person.

Participants also said that pharmacists were often confronted with the conflicts because of their multiple roles when working in a pharmacy.

*"It comes back to the question of how we value our profession. Do we see ourselves as professional people or businessmen or businesswomen? Maybe pharmacists providing professional services in CMs would be conflicting to pharmacy business. Very often consumers come into the pharmacy and said they have been to these other 17 specialists. Can you please solve this problem? If you compare the actual enquiries and the actual sales generated with the enquiries, it is not a one-to-one match."*

Participants said that the way pharmacists practiced could easily be affected by the management of the pharmacy business they worked in, especially for employed pharmacists. Some participants were concerned that they were put in a situation to sell or recommend CMs that they had little knowledge about or they doubted there was sufficient evidence for efficacy and safety.

*"There is another thing: how we actually stock the medicine. In the big chain pharmacies, the actual pharmacy owner or proprietor don't actually have a say in terms of how to stock the CMs because every single order is made by head office. Unfortunately, pharmacy is retail business so that is the reality. Unless we change the professional identity in it within it as pharmacist and what the consumers' expectations are, pharmacies will continue to sell things that are not necessarily safe or effective."*

Some participants believed that a conflict of interest was likely to exist for pharmacy owners between the business and the practice of pharmacy when CMs were considered.

*"You always have different priorities in your practice. Depending on your position, one of your priorities became the priority. When you are a business owner, it is possible you would tend to disregard the professional concerns."*

Participants were concerned that the combination of the government cutbacks and the current market share by big chain pharmacies who offered cheaper medicines had reduced the profit pharmacies could make from providing professional services. Participants thought that this was likely to be a factor driving complementary medicines sales in the business of community pharmacy.

*"I think it is because the government is cutting down whatever money pharmacists can make. For the government to cut down pharmacies' remuneration, pharmacists try to look for all the innovative ideas. When people cannot make a living, they are stuck to try to innovate. So the profession has to become, you know, innovative."*

Dilemma 3: Discordance between the lack of scientific evidence and witnessing cases where CMs have helped people.

Several participants were concerned that pharmacists might be limiting the potential benefits of some CMs by relying solely on higher levels of evidence including randomized controlled trials and meta-analysis. They questioned whether the evidence base was the only determinant when making recommendation about CMs due to anecdotal reports of CMs benefits in certain situations.

*"Because homeopathy has no evidence-base and is not efficacious pharmacists do not tackle it with the consumers. They only look at clinical trials and clinical papers. For you to just look at those things it is political. It is just like Traditional Chinese Medicine. It has been around for thousands of thousands of years. To me, up till today, I am still sceptical. But certain CMs do work for me and have worked for my customers."*

Dilemma 4: Discordance between a consumer driven CMs market and meeting professional responsibilities.

Some pharmacists argued that the pharmacists' role in assisting consumers make informed decisions about CM use might be limited due to the strong influence of social media and the internet.

*"I have a customer who is on chemo and wants to take some CMs and asks for my opinions. In that scenario, I told her there is not much worth taking. But then for the sake of their comfort, they would still want to buy some. I think most of the time consumers are mainly brain washed by the internet most of the time. They have particular belief in particular products. It is about personal belief."*

Dilemma 5: Discordance between the need to learn about CMs and lack of personal and/or professional interests in CMs.

Participants discussed the need for continuing professional development in CMs regardless of personal interests in the topic.

*"Now, taking CPD on CMs is more of an interest thing, rather than a knowledge issue. While I have no interests in CM, then I will not read about CMs. It should be made a compulsory part of the CPD requirements. It is not like cardiovascular drugs or another other drug we have learnt in university, we were educated about that. But CMs were not in our degree that's why we need that extra push."*

Dilemma 6: Discordance between bearing the responsibility of "gate-keeper" and deferring CM-enquiries to naturopath.

Some of the participants had experience with working in a pharmacy where a naturopath was employed and believed they were trained to deal with CM-related enquiries. They did point out that pharmacists needed to be involved in complex disease states where prescription medicines were involved.

*"In the chain pharmacies, you do get a lot of CM-related enquiries. But they have herbalists or naturopaths who were trained in herbs as well as nutrition so they dealt with a lot of the enquiries. As pharmacist, we direct a lot of the enquiries to them. When dealing with complicated situation like a complicated patient, meaning that the person maybe on multiple drugs or have medical conditions that have potential interactions and there are precautions, I think that's when the pharmacists should work closely with the naturopath maybe."*

However, based on their personal experiences, some participants questioned the competence of the naturopaths they had worked with.

*"Depending on what type of naturopaths you are working with. If they are open to working collaboratively with pharmacists and recognize evidence based medicine, it is a good thing. But if they don't and would just recommend everything in anything, like what I experienced in the past, then I won't be comfortable to work with them. We are the pharmacists. If naturopaths sell something wrong, it is our responsibility."*

Dilemma 7: Discordance between pharmacists and doctors related to the provision of CMs in pharmacy.

Many of the participants shared their unpleasant experiences of communicating with doctors about CMs used by their patients. Two participants recalled that doctors were reluctant to get involved in CM-related discussions and were upset by the fact that pharmacies sold CMs which they believed had no evidence base.

*"Collaboration with other health professionals is important. Like we said earlier, if we recommend a CM product or respond to a request from a consumer, these can be all wiped out at the next doctor visit. Sometimes they (the doctor) can be so bitter that they say to their patients not to go back to the same pharmacy. Sometimes you wonder whether the doctors want to know about it. They don't have the open mind. They don't believe in anything we say. It is really hard to have cooperation. We don't have the model in Australia."*

### 3.2. Identify solutions - who needs to do what?

Participants then discussed about the actions needed to resolve these dilemmas and facilitate the integration of CMs into pharmacy practice. The participants decided on who they thought should be responsible for meeting each of their professional needs based on the stakeholders' competencies and credibility. Four major needs were identified: (1) education, (2) evidence base about CM, (3) access to CM information source and (4) a workplace that allows pharmacists practice by the standards as presented in Table 4.

### 3.3. Action 1: education and training

Participants discussed in depth the importance of education and training. They also discussed how the education and training could be designed and delivered for both pharmacy students and pharmacists.

*"If CMs falls under our scope of practice, why isn't it being taught? If you require CM-related professional services from us as a profession, that should be made compulsory with the education at the university degrees. Then we will be on the same ground and not talking different language. The PSA should speak to the university and the university and the PSA should collaborate in providing the ability to do these responsibilities and to approach these products."*

For pharmacy students, participants suggested that the teaching should be evidence-based, comprehensive and condition-based.

*"Grassroots is so important. If we can teach the next generation around evidence-based CMs just like we would around S2, S3, S4 and S8. That would allow them moving forward to be confident, efficient, understand well enough, explain to the consumers thoroughly enough to say that medication works or that one doesn't work very clearly very confidently."*

*"Condition-based, in-depth and in line with pharmacist's' standards. If this is exactly what we have to follow, we need to have same comprehensive understanding as we do with all the other medications. When we go to lectures for cardiovascular, we talk about beta blockers and calcium channel blockers, there should be a session to complement that at the same time. It should all be divided in to conditions and there should be one lecture or a couple of lectures here and there with each condition."*

For pharmacists, participants requested similar teaching material design but less comprehensive.

*"In reality, it is definitely needed i.e. more training and more knowledge around CMs because the older generation was not taught much in regards to CMs. We know all the basic ones, you know the vitamin C, iron, folic acid. All the new ones, we also need to make sure the older generations or the pharmacists who were not taught in the university are clearly made aware that these new ones on the market, there is evidence."*

**Table 4**
Who needs to do What.

| What | Who | How |
|---|---|---|
| 1. Education and training | - Professional pharmacy organizations (PPO)<br>- Universities (U)<br>- Pharmacy owners (PO)<br>- Pharmacists (P) | - PPO to develop practice standards<br>- PPO to develop competence standards based on practice standards<br>- PPO to communicate with PS about the pharmacists' practice standards and competence standards<br>- U to design and incorporate CMs teaching in the pharmacy undergraduate course<br>- PPO and U to provide education and training to pharmacists as part of their continuous education<br>- PPO to provide accreditation for pharmacists with competence in CM area<br>- PO to be flexible about pharmacist working hours so they can attend training courses<br>- P to take the initiative to learn about CM |
| 2. Build CM evidence-base | - Government (G)<br>- Professional pharmacy organizations (PPO)<br>- Universities (U)<br>- Pharmacists (P) | - G to provide funds to support research about CM<br>- G, U and PPO to conduct research about CMs as non-biased institution<br>- P to critically evaluate the available information about CMs |
| 3. CM information resources | - Government (G)<br>- Professional pharmacy organizations (PPO)<br>- Universities (U)<br>- Pharmacy owners (PO)<br>- Pharmacists (P) | - G, U, PPO to develop reputable and reliable information sources specific to pharmacy practice<br>- PPO to encourage the use of such information resources<br>- PO to make such information resources available in the pharmacy<br>- P to use such information resources to support their practice |
| 4. Workplace support for best CM practice | - Government (G)<br>- Professional pharmacy organizations (PPO)<br>- Pharmacy owners (PO)<br>- Pharmacists (P) | - G to reform CM regulation to completely evaluate and safeguard quality, safety and efficacy<br>- G to develop reimbursement scheme for pharmacy which provides professional services regarding CM use<br>- PPO to determine CM-related professional health services and incorporate it into recommended pharmacy business operation models<br>- PPO to develop guidelines and provide pharmacy with necessary resources<br>- PO to operate pharmacy business according to the guidelines<br>- P to get accreditation and provide professional services under the reimbursement scheme. |

*"Continuing education could be system-based following the type of structure we see in the Therapeutic Guidelines but we are looking at constituent as opposed to products because they are turning them out almost on a daily basis, a reinvention of the same thing all the time. And it is also important to know about different versions of each constituents and also the pharmacology of it."*

*"The university has the resources. If the university once a month for 12 months provide brief reading materials in preparation and a little bit of follow-up materials and someone who is entertaining. for example, between 7-9amor 6:30-8:30pm and provide some resources and follow up but not volumes."*

*"Online CPD education that offer flexibility. Better to have accreditation, e.g. 20 hours of online learning which has been assessed."*

### 3.4. Action 2: build evidence base about CM

All participants hoped to have more reliable and reputable information about CMs and thought that the government and other non-biased institutions should take the initiative to support such development.

*"Even when people come in and they have all sorts of wild claims of something, without us finding some evidence, it is very hard for us to dispute the claims. Without evidence, you can't say anything for sure. It would be positive for government to provide incentive to support quality research in CM. The universities should always be the start and be doing more research on CMs to provide more non-biased information."*

Participants also thought that pharmacists should be guided by the evidence to support CMs in specific conditions rather than generic and vague claims.

*"To be able to help patients, pharmacists should be able to tell in which population this CMs might work and in which group it may not work. It is no use just giving a blanket solution for everything. A blanket solution talks about general population and that particular person may not belong to that general population group."*

Participants also commented on the importance of the support pharmacy owners could give which would help enable pharmacists' learning about CM.

*"I think pharmacy owners should support staff learning about CMs. But my experience is that the pharmacy owner would just it 'Do it yourself' and this is the reality. I expect that they would support me to go outside and look for things of my interests and give me the flexibility of equipping myself the knowledge to do a better job and run a better business for them. If it means I have to leave early on Monday night once a month to go to university to go to this course. I am not looking for financial incentive. Just giving me the opportunity to attend to things that I am interested in that I can do a better job is what I want."*

### 3.5. Action 3: CM information resources

Participants discussed their needs and experience regarding the forms of CMs information and resources they required. They discussed their need for current, standardized and easy to search information that could be used in a time efficient manner.

*"If you are saying one thing, and another pharmacist is saying something different, and another pharmacist saying something else about the same product, consumers will get confused. So our information has to be standardized."*

*"Having timely access to evidence-based resources would help you and your practice of pharmacy as it relates to CMs. Now the APF is evidence-based information source but you try to search it. It is hard. The information is scattered about the problem, both adverse effect and what it is used for. It seems to be me that if we had a*

*dependable, searchable, practical information source for CMs, it would make it amazing. Books are very good but they are very old hand. We want to be quick and interactive and patient-related like we do with the MIMS like the e-MIMS that we can go straight into it and see."*

*"I don't find the APF sufficient. It doesn't cover everything. If whatever is in the APF is referenced, it would make it more accessible for the pharmacist who is really interested to look at the actual studies, the pharmacists do not need to go to database to search for that study."*

*"It has to be searchable and available. In the pharmacy, we've got like 60 seconds. If you can't bring it up and find the answer quickly, the patient is not interested. Then, the phone goes and comes other distractions."*

*"I believe a lot in technology. I think clinically evidence-base CMs need to be treated as medicines therefore they should be included in the same database so interactions can be picked up as well in software. There are certain ones in the software system but it is not as prevalent."*

Participants also discussed about who should take the responsibility to develop reliable and reputable information resources to support pharmacy practice.

*"We can already purchase CMs books/manuals that show interactions and so forth but again it needs to be a stronger authority behind that because these books are written by certain people. We need to be having one authority behind them."*

### 3.6. Action 4: workplace support for best CM practice

Participants talked about a number of factors that would enable them to fulfil proposed responsibilities. A recurrent topic was product regulation and the recent proposal for regulatory reform by the Therapeutic Goods Administration.

*"The first thing is to standardize the formulation in terms of bioavailability of the products, so we can compare an apple to an apple. There should be a clear line drawn which doesn't mean restricting any products in pharmacy retail space but CMs that are clinically tested and have proper evidence behind them are highlighted to the pharmacists clearly enough for them to be able to use a planogram."*

*"It is great and it facilitates pharmacist in our role to provide better care or make it a lot easier as we are backed up with whatever we say by TGA recognition but in terms of other barriers we mentioned earlier like the time, remuneration, pharmacy owners still stocking things, I don't know if this reform is actually going to make a difference."*

*"With the TGA CM regulation reform, this will mean the price will go up too and the costs will then pass on to consumers. Even with the manufacturers who are already doing the tests, they still need to resubmit and present the data. For them to be registered again, the government will ask them to resubmit the data. Maybe it is easier for them than other companies as they already have existing data. But they still need to go through the process which will mean added costs."*

Participants also expected more support from the pharmacy owners in terms of providing information resources and support for training.

*"They should get the resources available for pharmacy staff to use to give advice. But in my pharmacy, we don't have the resources. I truly believe what is really needed in that evidence-based CM information sources need to be highlighted to owners. And it (the list of recommended references) should be marketed as well."*

*"I think for the sake of pharmacy, the pharmacy owner should ensure the pharmacy staff like the pharmacy assistants are properly trained in CMs because the owner is responsibility for what the pharmacy is selling. You are running a responsibility business in the community."*

Participants also believed that remuneration by pharmacy owners for the time spent providing professional CMs advice by pharmacists would be an incentive for assuming greater responsibility in this area.

*"With respect to reimbursement, as most pharmacy owners would say, if you are spending time with somebody providing consultation, they would want to be reimbursed for that. They would want to be paid for that time."*

*"It could always be a part of the MedsCheck we are having now. Just essentially put in a criterion that includes the use of CMs into that criteria of patient recruitment of MedsCheck. I think many people would find this service beneficial to better manage their use of CMs in terms of providing quality use of medicine."*

Participants discussed the importance of having a standardized practice when considering the integration of CMs into pharmacy practice that might include CMs that were specifically endorsed by pharmacy organizations.

*"There are no standardized practice standards to say whether it is ethical to do that whether they are trying to do companion sale. The Guild is very serious and if you can get the Guild on board, you can say that to be part of the QCPP, you are only allowed to stock these list of CM. All the pharmacies that want QCPP will follow that restriction. It will help with our professional identity because at the moment, we have been tarnished by consumer groups for selling stuff that doesn't work …. Consumers will also know better what they can expect when they walk into a certain pharmacy. You need to have a system. So, for the big pharmacies where you have a few pharmacists, you need to have a system to tick of the box. And you know with the number of training hours, like the S2 and S3 refresher course, maybe QCPP should require a number of CM refresher course each year or every 2 years."*

## 4. Discussion

While TM and CM products have been integrated into the business of pharmacy some 20 years ago, these products have not fully integrated in a professionally standardized manner to the practice of pharmacy.[12–14] The findings of this study suggest that pharmacists are aware of the shortcomings at the interface between CMs and pharmacy practice. They have a clear understanding of their needs and what they should do, who can help them to fulfil their professional obligations, and the actions needed to fulfil these responsibilities. As presented in Table 5 and illustrated in Figure, this study has identified that a collaboration between professional pharmacy organizations, universities, government, pharmacy owners and pharmacists to develop education, information

**Table 5**
The pharmacists' perspective on the collaborative efforts that are needed to manage the integration of CMs into pharmacy practice.

| Actions | Collaborative efforts | | | | |
|---|---|---|---|---|---|
| | Government | Universities | Professional pharmacy organizations | Pharmacists | Pharmacy owners |
| | Non-biased key stakeholders | | | Other key stakeholders | |
| 1. Education and training | | YES | YES | YES | YES |
| 2. Build CM evidence-base | YES | YES | YES | YES | |
| 3. CM information resources | YES | YES | YES | YES | YES |
| 4. Workplace support for best CM practice | YES | | YES | YES | YES |

resources, workplace practice standards and the evidence base would support pharmacists meet the responsibilities that have been previously proposed.

The open discussion highlighted that pharmacists are generally positive about their extended role in CMs. They trust in and rely on non-biased institutions to guide and support their profession. In addition, they understand the importance of the pharmacy owners in any further developments related to the integration of CMs into the practice of pharmacy. While pharmacists' positive attitude towards developing a more professional role related to CMs has been reported previously, the relationship between the pharmacist and the pharmacy owner has seldom been explored. This study proposes that all non-biased key stakeholders play a role in a collaborative effort. However, these findings would suggest that the professional pharmacy organizations would be required to play the leading role in initiating, facilitating, following up and reviewing any developments. Equally importantly, this study highlights that pharmacists themselves consider they are a major player in all four of the actions they have proposed. The relevance of the pharmacy owners in this partnership helps to explain the constraints arising between professional roles and business interests in community pharmacies. Notably, CM manufacturers were not identified by pharmacists as collaborators in these developments which might reflect pharmacists' sensitivity to the potential conflict of interests that CM manufacturers might have in being involved in the developments in this area. Whether this finding would be supported by a study with a larger cohort would be of interest to any further developments of the proposed model.

As illustrated in Figure, any developments in education and training, building the CM evidence base, the development of CM information resources and workplace support for the best CM practice need to be synchronised with a view to standardizing professional services related to CMs and pharmacy practice.

### 4.1. Action development 1: education and training

This study reinforced the findings of others regarding the lack of standardized CMs teaching in Australian pharmacy schools.[52–55] The pharmacists' perspective that professional pharmacy organizations should take the initiative to make recommendations about the practice standards in CMs could potentially resolve this lack of standardization by initiating a coordinated effort between stakeholders in providing the resources needed. However, whether all the ancillary and ongoing needs of pharmacists outlined in this study can be met by professional organizations and education providers requires further discussion and a 'right to respond' by such stakeholders.

Importantly, practising pharmacists clearly value the quality of non-biased training provided by the universities. The pharmacists' reliance on both undergraduate and post-graduate university education as a source of non-biased CM resources expressed in this study, would require significant support from all stakeholders to act on such developments. Interestingly, the Australian Pharmacy Council 2014 list complementary therapies with the learning domains of the Accreditation Standards for Pharmacy Programs in Australia and New Zealand.[56] However, to what degree complementary therapies are included in pharmacy programs across all universities is largely unknown and needs evaluating.

The expectations of, and respect for professional pharmacy organizations in meeting the educational and training needs of pharmacists was equally matched with that of universities in this study. This further supports an incorporation of CM-related elements in the design of ongoing continuing professional development programs for pharmacists that ensure competence and best practice in this area.

### 4.2. Action development 2: build CM evidence-base

The need to build the evidence base is not a new finding.[57] The urge to support CM research informs and is firmly positioned within the strategic model for integrating CMs into pharmacy practice established in this study. Similar to previous findings, pharmacists are concerned not only about that the quality of research conducted by CM manufacturers, but also the potential bias associated with manufacturer-generated product information.[58–60] Despite these concerns, the allocation of government research funds to build the evidence-base is significantly less than that allocated to supporting pharmaceutical medicines research.[61] In response to such concerns, CM research supported by government in a coordinated effort with pharmacy organizations and universities is critical to answer any request for building the evidence base. The findings from such research are integral to developing CM information resources.

### 4.3. Action development 3: CM information resources.

Closely related to building the evidence base is the perceived need for non-biased information resources to be developed by independent organizations and supported by pharmacy owners and/or pharmacy organizations through making such resources available to pharmacists. Interestingly, CMs information resources were evaluated by National Prescribing Service funded study in 2009, where three tier one resources were identified and are available by subscription.[62] Despite this, it appears that some pharmacists are unaware of such resources and acknowledge that subscription fees restrict and discourage access.[62,63] Pharmacists emphasize their preference for easily accessible information resources that allow quick and easy access and is integrated into the pharmacy dispensing system for easy identification of possible drug interactions.

### 4.4. Action development 4: workplace support for best CM practice

To the authors' best knowledge, the proposed role for professional organizations in developing standards that guide the health services related to CMs provide by pharmacy is new. However, the concept that CM-related services in pharmacy could be incorporated into pharmacy business operation models has been suggested by others.[64] Pharmacists believed that this would will help to standardise professional services in relation to the integration of complementary medicines in the pharmacies.

To further incentivize all stakeholders including pharmacy owners, an evaluation conducted by professional organizations and/or universities that evaluates the actual impact of integrating such professional services into existing pharmacy services has on the safe and appropriate use of CMs by consumers and eventually health outcomes would be required. Should the integration result in positive outcomes related to the use of such medicines, strategies for reimbursing such services could be considered by government. Pharmacists hoped that pharmacy owners would be more supportive of them spending more time caring for consumers who use CMs if the time could be economically justified by a reasonable reimbursement system. With the pharmacy owners' support, pharmacists would be in a better position to undertake appropriate CM education, which will in turn support the accreditation and the quality of the pharmacy service.

Recently, some of the actions identified in this study are already underway.[65] The Therapeutic Goods Administration (TGA) has launched a consultation paper about CMs regulatory process reform. Among the numerous recommendations, the TGA proposed a new assessment process to evaluate and identify CMs with evidence base for efficacy. CMs which have been fully assessed by the TGA for efficacy would be placed in a new class of medicine for easy identification. Some universities are already teaching CMs to pharmacy students and are testing and validating the teaching model.[66] It is anticipated that such scholarly evaluation will inform and contribute to the standardization of CMs teaching in undergraduate pharmacy courses. However, the development of CM-related practice and competency standards and professional services and business operation models have not been initiated.

#### 4.4.1. Study limitations

A limitation of the study is an over-representation of pharmacists working in the independent pharmacies, as well as an absence of community pharmacists from urban areas. In addition, as participants are snow-balled, self-selected, it is possible they had particular interests in issues around the rational use of CM, and were therefore more proactive in this area of practice.

## 5. Conclusion

The barriers and solutions to pharmacists contributing to the quality use of CMs have been discussed in depth. A strategic model has been developed to inform a transition from CMs as a pharmacy retail item to be considered as a group of medicines that requiring professional guidance. Pharmacists' trust in and reliance on the non-biased institutions was highlighted by their requests for a need to improve the quality of education and the professional and regulatory policies related to CMs. The proposed model can be used to inform further research efforts and developments that move beyond identifying barriers to developments that contribute towards the appropriate and successful integration of TM/CM products into pharmacy practice.

## Competing interests

The authors declare that they have no conflicts of interest relevant to the content of the manuscript.

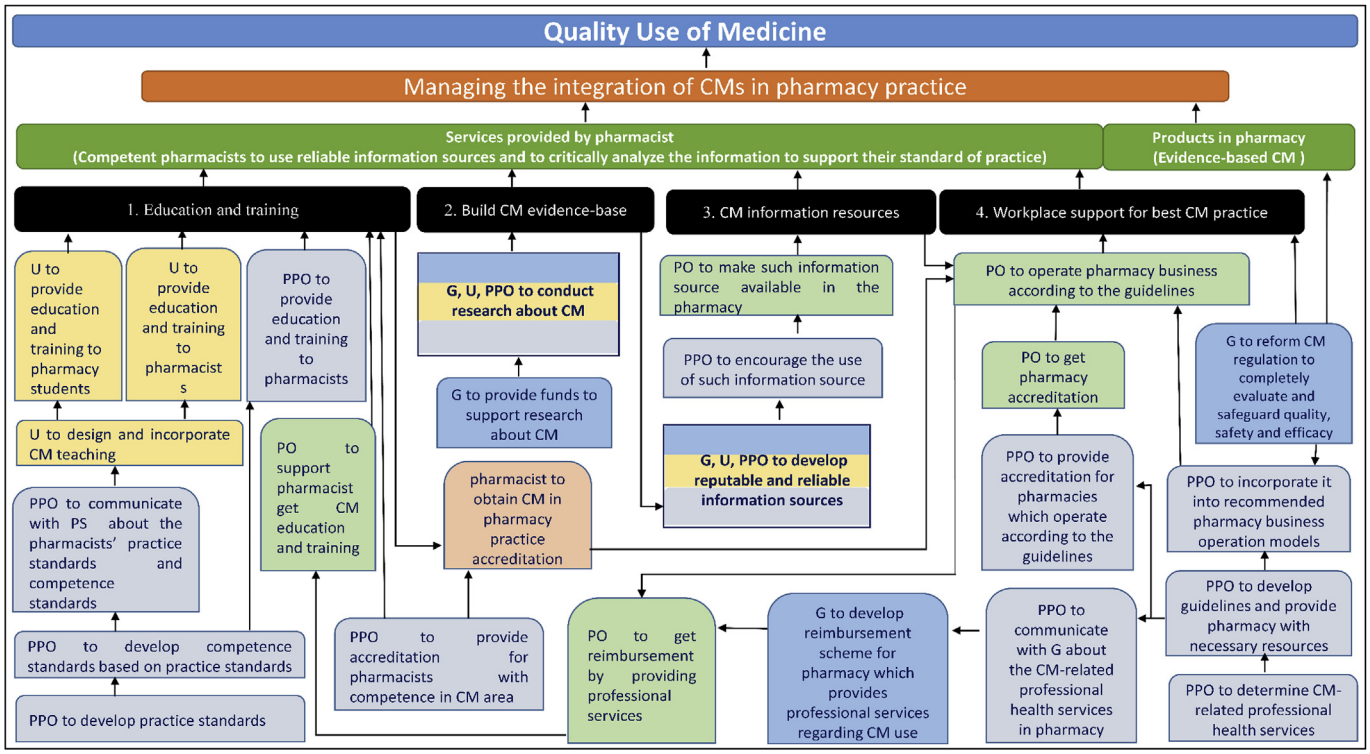


**Figure. A strategic model for integrating of CMs in pharmacy practice to support the quality use of medicine.** (Government (G); professional pharmacy organizations (PPO); universities (U); pharmacy owners (PO)).

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## Annex 1. List of responsibilities that had been proposed for pharmacists to assume related to the safe and appropriate use of complementary medicines

Responsibility 1:

Pharmacists should ensure the complementary medicines stock in the pharmacy are safe and effective based on the consideration of the available evidence.

Responsibility 2:

Pharmacists should assist consumers in making informed decisions regarding the use and the choice of complementary medicines.

Responsibility 3:

While respecting the autonomy and rights of the consumer to actively participate in decision making, pharmacists should always balance this with the health and well-being of the consumer.

Responsibility 4:

When a consumer chooses to use a product with limited evidence, pharmacists should advise the consumer on the risks of rejecting or delaying treatments for which there is good evidence for safety and effectiveness.

Responsibility 5:

Pharmacists should provide the best available information about the current evidence for efficacy when discussing the use of complementary medicines with consumers.

Responsibility 6:

Pharmacists should provide information on any potential side effects, drug interactions and risks of harm when discussing the use of complementary medicines with consumers.

Responsibility 7:

Pharmacists should provide professional service about the use of complementary medicines the same way as they would with other over-the-counter products.

Responsibility 8:

Pharmacists should collaborate with other health care professionals to help ensure consumers' safe and appropriate use of complementary medicines.

Responsibility 9:

Pharmacists should document the use of complementary medicines for each consumer electronically in the health record with consumers' consent.

Responsibility 10:

Pharmacists should report any suspected adverse reactions in relation to complementary medicines to the competent authority.

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