

University of Technology Sydney

Analysing the capacity of the community pharmacy setting for providing healthcare services

A collaborative stakeholder approach

Thesis

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Graduate School of Health, University of Technology Sydney

Certificate of original authorship

CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as part of the collaborative doctoral degree and/or fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Preface

This thesis is structured as a Masters by publication. Chapter 1 is an overview of the background of the topic. Chapter 2 contains a research overview and general disposition of the thesis. A rationale of the thesis, objectives of the research, a summary of the sub-studies including the methodology and an explanation as to how the sub-studies are interrelated is provided. Chapters 3 and 4 are the results of the thesis. Chapter 3 is a systematic review of qualitative literature that identifies barriers and facilitators (determinants of practice) to the implementation of community pharmacy services, addressing the patient, nurse and general practitioner perspectives. Chapter 4 is a qualitative study that used semi-structured interviews and a stakeholder workshop to identify determinants of practice in one primary health network Australia, and prioritised key determinants that need to be addressed in the first instance. Both chapters have been structured as research articles. All reference lists, figures and tables and appendices related to each research activity are attached in the corresponding chapters. Chapter 5 includes a discussion of the research activities, methodological reflection and limitation of the studies as well as recommendations for future research.

Lutfun N. Hossain is the primary author of both research articles (Chapter 3 and Chapter 4). Each article also has co-authors. Co-authors contributed to conception or design of the work, data collection, data analysis and interpretation, drafting the article, critical revision of the article and final approval of the version to be published.

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List of abbreviations

| | |
|--------------|--|
| CFIR | Consolidated framework for implementation research |
| COM-B | Capability, opportunity, motivation - behaviour |
| CPS | Community pharmacy service |
| ERIC project | A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project |
| GP | General Practitioner |
| IM | Intervention Mapping |
| PHN | Primary Health Network |

Abstract

Background: Primary Health Networks (PHNs) are independent organisations that aim to improve the effectiveness and efficiency of health services at a primary care level. The integration of community pharmacy services (CPSs) into primary care practice can be enhanced by developing suitable implementation programs. Two key steps are implicated in this process: (1) identify determinants of practice that can hinder (i.e., barriers) or enable (i.e., facilitators) CPS implementation (2) prioritise the determinants that should be primarily addressed. These determinants have been widely researched from the perspective of community pharmacists but not from the perspectives of other key stakeholders.

Objectives: To identify the determinants of implementation of CPSs in Australia using a collaborative stakeholder approach, and prioritise the key determinants to be addressed to enhance the implementation of CPSs in a PHN in Australia.

Methods: A systematic review of qualitative studies was conducted to identify determinants of CPS implementation based on the perspectives of key stakeholders i.e., patients, nurses and general practitioners (GPs) (Chapter 3). A qualitative study was conducted in the Western Sydney PHN in two phases. (1) Semi-structured interviews were conducted with ground-level stakeholders i.e., patients, pharmacists, GPs and a practice manager, to identify determinants relevant to this setting. Framework analysis methodology was used to analyse the data. (2) A stakeholder workshop was conducted with ground-level and system-level (i.e., PHN) stakeholders to prioritise key determinants to be addressed, using a four-quadrant priority matrix.

Results: Sixty-three determinants of CPS implementation were identified in the systematic review (Chapter 3) across six ecological levels: (1) the patient; (2) individual healthcare

professionals; (3) relationships between individuals; (4) community pharmacy setting; (5) community pharmacy service; and (6) community and healthcare system. This list of determinants was combined with previous pharmacist-centred literature to create an overarching framework of determinants that was applied in the qualitative study (Chapter 4). Twenty-two key determinants were selected in the qualitative study based on the importance and feasibility of addressing them in practice. The stakeholders agreed upon three determinants to address initially (Chapter 4).

Conclusion: A comprehensive list of determinants of practice that influence the implementation of CPSs in Australia was created by combining the results of the systematic review with previous pharmacist-centred literature. This list can be used to identify determinants of practice to CPS implementation in other settings. To enhance the implementation of CPSs in the Western Sydney PHN, first implementation efforts should be directed towards the twenty-two key determinants of pharmacy practice, focusing initially on the three determinants agreed upon by the stakeholders. Importantly, future research must continue to engage stakeholders in the development evaluation of strategies to enhance CPS implementation.

Chapter 1

Introduction

Development, implementation and evaluation of health services: an existing challenge

The development, implementation and evaluation of health services is a complex process. Many services are ready for uptake but are not integrated into practice (Chaudoir, Dugan et al. 2013), while others that have been shown to be effective in the research setting fail to show these positive results in practice for the population or setting for which they were intended (Damschroder, Aron et al. 2009). These implementation difficulties may be due to the complex characteristics of services, or the health system in which they will be embedded (Plsek and Greenhalgh 2001, Craig, Dieppe et al. 2008). For example, services that are intricate in nature, e.g., requiring complex changes in clinical practice, in the organisation of healthcare or in the collaboration of healthcare professionals across different disciplines, may be less easily adopted than services that are simpler (Grol and Grimshaw 2003). Further, barriers can arise at different levels of health service delivery, at the patient level, at the healthcare provider level, at the organisational level or at the wider community and society level (Damschroder, Aron et al. 2009). Understanding these challenges will lead to improved development, implementation and sustainability of health services and corresponding implementation strategies, and so improved healthcare.

In the last few decades community pharmacists have been evolving from their traditional medicine dispensing and supply role, to providing more professional services, i.e., community pharmacy services (CPSs) (McMillan, Wheeler et al. 2013, Pestka, Frail et al. 2016). CPSs are primary care services that can meet local health needs and gaps. Some have been shown to have a positive impact on health, with proven clinical and cost effectiveness (Jokanovic, Tan et al. 2016). CPSs have been defined as “an action or set of

actions undertaken in or organised by a pharmacy, delivered by a pharmacist or other health practitioner, who applied their specialised health knowledge personally, or via an intermediary, with a patient/client, population or health professional, to optimise the process of care, with the aim to improve health outcomes and the value of healthcare” (Moullin, Sabater-Hernandez et al. 2013). Over time there has been an increase in the awareness of the underutilisation of the pharmacists’ skills and knowledge and the suitability of the pharmacy setting to provide health services to improve healthcare outcomes (Patwardhan, Amin et al. 2014). At the same time there has been an increase in the expectation of community pharmacies to provide such health services (Berbatis, Sunderland et al. 2007) and pharmacists themselves are eager to take on a more active role in providing patient-centred services (Sabater-Hernandez, Moullin et al. 2016). Despite these positive trends, challenges remain in changing the practice of pharmacy to incorporate this new role, and in the implementation and sustainability of CPSs (Mossialos, Courtin et al. 2015).

Consistent with this international trend, Australian community pharmacies are wanting to provide CPSs but are experiencing challenges in the implementation, uptake and sustainability of CPSs (Berbatis, Sunderland et al. 2007, McMillan, Wheeler et al. 2013, Jokanovic, Tan et al. 2016). In Australia since 1990, the Community Pharmacy Agreements, i.e., negotiations between the Pharmacy Guild of Australia (the national peak body representing community pharmacy in Australia) and the Federal Government, have included remuneration not only for the supply of medicines and but also for the provision of quality, evidence-based, patient-centred services (i.e., CPSs). Examples include the Home Medicines Review (HMR), MedsCheck and Diabetes MedsCheck, Residential Medication

Management Review, Dose Administration Aids, Staged Supply and Clinical Interventions. Importantly, as of July 2016 under the sixth Community Pharmacy Agreement, there has been a further increase in the remuneration for CPSs (Australian Government Department of Health 2015). At the same, reforms on the Pharmaceutical Benefits Scheme (e.g., accelerated price disclosure), increased costs (e.g., rent, wages), declining fees for dispensing and increased competition due to the introduction of the “Discount Pharmacy” model have seen reduced profitability in community pharmacies. To enable community pharmacy to remain viable and retain a competitive advantage, it has become imperative to conduct further research to overcome the challenges in implementation and develop and implement policies and programmes that focus on increasing the uptake, provision and sustainability of CPSs (Bebatis, Sunderland et al. 2007, The Pharmacy Guild of Australia 2014).

Comprehensive planning of healthcare services: a potential solution to overcome the implementation challenge

Frameworks for Health Program Planning. To overcome the complexity of implementation, greater consideration should be given to the theoretical approaches for health service planning. These theories and frameworks can assist and guide health service planners to address the challenges that arise during the development, implementation and evaluation of healthcare services in general and CPSs in particular.

Selecting an implementation framework is a challenging task. One systematic review on implementation frameworks found that not all frameworks targeting a particular innovation address all the relevant implementation concepts. For example, some

frameworks, such as the conceptual framework of complex innovation implementation, are solely focussed on the operation stage of implementation. Other frameworks, such as the three-phase implementation model, address the implementation of guidelines in clinical practice and are therefore concerned with the communication and operation of guidelines. The systematic review also found that pre-implementation stages (i.e., development) were included less frequently. (Moullin, Sabater-Hernandez et al. 2015)

When choosing an implementation framework, concepts that should be considered include the innovation to be implemented (in this case a health program i.e., community pharmacy services), the stages and steps related to the process of implementation, the context in which the implementation is to occur and the influencing factors, strategies, and evaluations. (Moullin, Sabater-Hernandez et al. 2015)

Intervention Mapping (IM) (Bartholomew, Parcel et al. 2011) is one such theoretical approach. It is a comprehensive framework that has been utilised by health service planners to address many different problems for various population groups in a wide range of settings. The advantage of IM is that it adopts a holistic approach wherein health service planners concurrently develop services as well as the strategies to implement and evaluate them. IM describes a sequence of six steps, each step clearly outlining a number of relevant tasks, to address the entire process of development, implementation and evaluation of health services. The early groundwork and research (Steps 1, 2 and 3) establish the theoretical foundation of the intervention by analysing the health problem, assessing the capacity of the community, establishing a matrix of objectives for changes required in behaviour and in the environment, and selecting appropriate theory-based methods to promote change. Following on from this, specific program components and material are

produced (Step 4), implemented (Step 5), and evaluated (Step 6). IM has been extensively applied in healthcare settings, and can be applied in the community pharmacy setting in particular, when (1) developing a new service; (2) revising an existing service to improve its effectiveness and/or expand its coverage; or (3) adapting an evidence-based service from another setting (Bartholomew, Parcel et al. 2011, Sabater-Hernandez, Moullin et al. 2016, Durks, Fernandez-Llimos et al. 2017).

The early planning steps and groundwork research conducted increase the chances of developing a service that meets the actual priorities of the population and health system, and enhances subsequent implementation of this service (Bartholomew, Parcel et al. 2011). Two specific approaches of IM enable this to be achieved: (1) a collaborative approach with all relevant stakeholders to be involved in the planning process and (2) an ecological approach, which encourages a comprehensive assessment of the system in which the service will be embedded and the factors that can enable or hinder implementation.

Stakeholder involvement and collaborative planning. As the processes of healthcare delivery, and the interventions that are needed to change these processes, are so complex and diverse, the input of stakeholders is required (Greenhalgh, Robert et al. 2004). IM highlights the engagement of key stakeholders from the outset of service development right through to sustainability. Including relevant stakeholders in the processes of healthcare service research encourages co-creation of culturally appropriate services and increases feelings of ownership, which ultimately contributes to increased perceived value, acceptability, support and use of the service (Bartholomew, Parcel et al. 2011, Sabater-Hernandez, Moullin et al. 2016, Franco-Trigo, Hossain et al. 2017). Involving key stakeholders also contributes to the trustworthiness, credibility and impact of the service

(Huntink, van Lieshout et al. 2014).

Stakeholders consist of those individuals who are interested in, or can be affected by, a service, as well as those who could influence the implementation process (Bartholomew, Parcel et al. 2011, Franco-Trigo, Hossain et al. 2017). This typically includes the end-beneficiaries who will receive the service (e.g., patients) as well as those who will be involved in the delivery of the service (e.g., healthcare professionals). Other stakeholders that must be engaged include people or groups who have a responsibility, influence and/or commitment to the issue that is being addressed. This typically includes governments, funders, policy makers, researchers, professional and scientific organisations, or academic institutions. These stakeholders bring different views, experiences, knowledge, skills and expertise to the table, which enables the identification of major needs and priorities of the community and ensures these needs and priorities remain the focus of the service. They also provide in-depth knowledge of the context in which the service will be implemented as well as the identification of problems and potential solutions (Sabater-Hernandez, Moullin et al. 2016, Franco-Trigo, Hossain et al. 2017). As a result of including stakeholders in healthcare research, the development, adoption, implementation, evaluation and sustainability of the health service is expected to be significantly enhanced.

Involving stakeholders in collaborative approaches to analyse the context has been used successfully to identify determinants of practice. Engaging different stakeholders (e.g., health researchers, academics, healthcare professionals, quality improvement officers, health insurers, patient organisations) can identify a large number of items, with some stakeholders (e.g., health professionals) identifying more determinants than other stakeholder groups, and some stakeholders (i.e., patients) identifying more unique

determinants (Wensing, Huntink et al. 2014). Engaging a variety of stakeholders also enables different determinants to emerge from different stakeholder groups, as well as different insight as to how these determinants are behaving in practice. For example, in a study conducted by Smith et al to identify determinants that influence overweight adolescents' participation in lifestyle programs, it was found that healthcare professionals and researchers uniquely identified the GPs' hesitancy to identify and refer overweight and obese adolescents to such programs (Smith, Straker et al. 2014). Therefore, to ensure a comprehensive analysis is conducted, different stakeholders should be engaged, so that both the maximum number of determinants are detected, and unique determinants are identified.

When planning CPSs stakeholders with a background in pharmacy, such as pharmacy owners/managers, pharmacy practice researchers, professional pharmacy representative bodies, as well as pharmacy employees, e.g., pharmacists, pharmacy assistants, need to be involved. Their ideas, perspectives, experience, actions and/or influence will affect the implementation of CPSs. However, pharmacy-based stakeholders provide only one perspective, and other stakeholders are also able to provide great insight, influence or control the implementation of CPSs (Sabater-Hernandez, Moullin et al. 2016). For example, Franco-Trigo et al identified stakeholders for the development and implementation of a CPS aimed at cardiovascular disease. The study identified a core group of stakeholders perceived to either have control, have influence, or have an interest/concern in the CPS, but who were essential to be involved for the success the project. These stakeholders included the end-beneficiaries of the service, healthcare professionals, leading cardiovascular organisations, health-system managers, and health policy makers and

regulators. The study participants stated that not considering key stakeholders can be a reason why previous services have failed to be successfully implemented (Franco-Trigo, Hossain et al. 2017). Pharmacy-based stakeholders need to work collaboratively with other individuals, groups or organisations who can have interest, influence, or control of the CPS, to create a 'mutually meaningful' service (Sabater-Hernandez, Moullin et al. 2016).

An ecological approach. To address the complexity of the system in which health services will be embedded it is necessary to consider the circumstances, i.e., determinants of practice, that can interact, reinforce or hinder the integration of these health services into the wider system. Determinants of practice are factors that might prevent or enable improvements in that practice, also referred to as influencers, barriers and enablers, barriers and facilitators, problems and needs, or disincentives and incentives or moderators and mediators (Bartholomew, Parcel et al. 2011, Flottorp, Oxman et al. 2013).

IM adopts an ecological approach to comprehensively assessing determinants by considering both individuals and their social environment. The ecological model (Table 1) can be used to guide a comprehensive assessment of determinants by considering all the ecological levels within a given context, and so minimise the risk of overlooking any key determinants. At the individual level, determinants are those factors that influence the behaviour of individuals such as knowledge, beliefs, attitudes, skills, self-efficacy. At the interpersonal level, determinants include relationships between individuals. At the environmental levels, the determinants include policies, regulations, norms, health services, health facilities and organisations. Also important to consider are the environmental agents, i.e., those individuals and/or organisations that make decisions and take actions that influence determinants at any level (e.g., healthcare providers, relatives, policy

makers) (Bartholomew, Parcel et al. 2011, Sabater-Hernandez, Moullin et al. 2016).

| | |
|--|---|
| <p>Table 1. The ecological model where determinants that can influence the implementation of community pharmacy services can exist (adapted from McLeroy, Bibeau et al. 1988).</p> | |
| <p>Individual patient</p> | <p>Determinants related to the personal characteristics and ideas concerning individual patients that can affect their utilisation of community pharmacy services.</p> |
| <p>Interpersonal</p> | <p>Determinants related to the healthcare providers and non-healthcare personnel who are involved with the community pharmacy service and with whom patients associate (e.g., family, friends, pharmacists, pharmacy assistants, GPs, nurses) and the formal and informal relationships between patients and healthcare professionals and healthcare professionals with other healthcare professionals.</p> |
| <p>Organisational</p> | <p>Determinants related to characteristics of the community pharmacy setting and attributes of the community pharmacy service that can influence the success of implementation.</p> |
| <p>Community and system</p> | <p>Determinants related to the larger society, which consists of collectives of people in a geographical location, the relationships between organisations, the political players in the system and the rules, regulations and policies that have the power to control and/or influence the implementation of services.</p> |

The ecological model states that the influences or changes of a determinant at a particular level may have effects on that level, as well as any other level nested within it. Understanding how agents, activities and settings influence and interact with each other helps facilitate an understanding of these effects and so assists with the identification of further determinants. Thus, the ecological model serves as a good guide for a comprehensive context assessment (Bartholomew, Parcel et al. 2011, Sabater-Hernández, Sabater-Galindo et al. 2016). It is important to acknowledge that a context can change over time, and as such the influence of determinants can also change, cease to exist or new determinants can emerge. Furthermore, the impact that a given determinant has on implementation can vary across different contexts, and across different healthcare professionals within a particular context (Flottorp, Oxman et al. 2013). Thus, determinants should be monitored regularly and services adjusted accordingly.

When planning CPSs, pharmacy service planners must consider the environment (i.e., the pharmacy service and pharmacy practice), the agents in the environment (i.e., pharmacists) and the setting (i.e., the community pharmacy) in which necessary changes for implementation are likely to occur. Determinants related to the pharmacy could include the organisation of the pharmacy (e.g., business model that encourages CPS provision, support from the organisational leaders), its culture and network (e.g., presence of teamwork), the availability of facilities and resources, or the capacity the pharmacy staff (e.g., knowledge and skills) and perspectives of pharmacy staff members, including managers and owners (Villeneuve, Lamarre et al. 2009). Beyond the pharmacy setting, it is important to understand the coordination of the health system, the relationship community pharmacies have with other stakeholders, as well as policies, rules and regulations that can impact

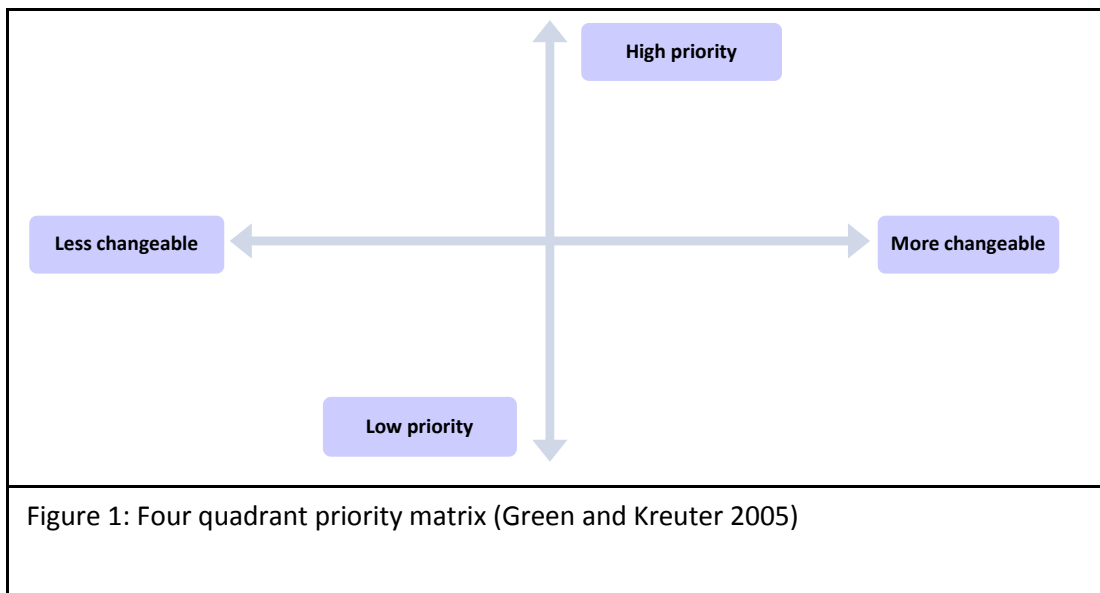
pharmacy services. Additionally, it is necessary to consider other actors, actions and settings that can be affected by, or have an influence on the CPS, as well as the relationships between these different elements. CPSs are integrated into complex systems, and to address this complexity it is necessary to analyse these different elements to identify potential 'action points' that need to be addressed.

Methods to identify determinants of practice. There are many methods to identify determinants of practice that influence implementation, such as interviews, simple or complex questionnaires, brainstorming and observations, surveys, focus groups, used alone or in combination (Krause, Van Lieshout et al. 2014, Durks, Fernandez-Llimos et al. 2017). Yet these methods have been poorly described in published research and little research has been conducted to evaluate the validity, feasibility or effectiveness of such methods (Wensing, Oxman et al. 2011, Krause, Van Lieshout et al. 2014). To address this lack of evidence a recent study investigated the different approaches to identify determinants and so better inform health service research. The study aimed to evaluate the extent to which different methods, i.e., interviews, brainstorming, structured group discussion and questionnaires, led to the identification of important determinants, as well the feasibility of use of each method. The study found that brainstorming was a low cost, low intensity method, and along with interviews with healthcare professionals, yielded the greatest number of determinants, and that interviews with patients yielded fewer determinants, but a great proportion of these were classified as unique. The study concluded that brainstorming could be used as it is fast and inexpensive, but if patients and healthcare professionals are particularly affected by the health service, then interviews with these stakeholders should also be conducted. Furthermore, the combination of methods is more

likely to result in the identification of key determinants than one method used alone (Krause, Van Lieshout et al. 2014).

The identification of determinants is an exploratory phase and it is likely that these methods would result in the identification of a large number of determinants. In a practical sense, it would be difficult to develop strategies to plausibly address each and every determinant. Furthermore, some determinants may be perceived as a potential barrier or facilitator when conducting a context analysis, but may not be relevant in real life practice (Craig, Dieppe et al. 2008). Therefore, methods to prioritise and select the most important determinants to be addressed in an implementation strategy are required (Wensing, Huntink et al. 2014). This creates a more manageable list of determinants and identifies those key factors to be addressed to achieve the program objectives. Without this exercise implementation strategies would risk being ineffective (Kreuter, Lezin et al. 2003, Krause, Van Lieshout et al. 2014). This was observed in a recent cluster randomised trial that tested whether the implementation of a tailored strategy consisting of training and provision of guidelines and resources to general practitioners increased the proportion of patients who were offered weight management services compared to no intervention. The study concluded that the tailored strategy did not improve general practitioners providing these services. One explanation given by the authors of this study was that they did not identify the most important determinants to be addressed from the many identified, and as a result, the components of the tailored strategies may have had very little effect on implementation. Prioritising the determinants of practice to be addressed in tailored implementation strategy is therefore necessary to produce successful interventions in practice (Goodfellow, Agarwal et al. 2016).

Qualitative methods can engage stakeholders to prioritise and achieve consensus regarding certain issues. The Nominal Group Technique and Delphi methods are some examples of qualitative methods that use a ranking technique to achieve priorities, however these methods are time consuming and require multiple steps (McMillan, King et al. 2016). Furthermore, to guide the development of suitable interventions that are more likely to be implemented in practice, prioritisation of determinants should be based on the relative importance and/or influence of that determinant in practice, as well as the feasibility of addressing that determinant. Feasibility is related to whether the determinant is within the control of individuals, healthcare professionals and organisation (Craig, Churilov et al. 2017). Green and Kreuter suggest a four-quadrant prioritisation matrix to identify determinants that will have the greatest influence in the outcome of interest. The matrix incorporates two scales (i.e., changeability and importance) on the one graph, and thus four quadrants (Figure 1). This reveals how different factors compare with each other. The factors that are in quadrant 1 are those that are both important and changeable and should be targeted (Green and Kreuter 2005). In the development of improvement strategies based for two nurse-led tailored health programs targeting chronic illnesses in two settings in Australia, the four-quadrant matrix was used to rank determinants according to their perceived importance and changeability. This information was used to set a focus for improvement interventions to address the identified health problem. The authors concluded that adopting this approach will enable the development of strategies that are likely to have the most impact, based on importance and changeability, and increase the chances of the strategy being more realistic and applicable (Phillips, Rolley et al. 2012).



When developing CPSs, all relevant stakeholders must be involved in selecting priorities. Not engaging all stakeholders can result in selection of priorities that are irrelevant as well as lack of interest, understanding, or lack of support by other stakeholders. This can prevent the successful implementation, sustainability and integration of CPSs into the wider health system (Sabater-Hernandez, Moullin et al. 2016).

Chapter 2:

Rationale & Objectives

Rationale

To enhance the implementation of CPSs in Australia a systematic process that begins with a comprehensive assessment of the context in which these services will be implemented must be followed. In order to conduct this necessary first step, pharmacy service planners must first identify and prioritise the determinants that influence the implementation of CPSs. To date considerable attention has been given to investigating determinants focussing specifically on the perspective of the community pharmacist, i.e., the service providers (Gastelurrutia, Fernandez-Llimos et al. 2005, Roberts, Benrimoj et al. 2006, Van, Costa et al. 2012), however this may be considered a narrow approach.

Recent research has been conducted to identify other stakeholders who may be important for the development of CPSs. In this research, healthcare professionals and patients were classified as 'controllers', i.e., they have the ability to control the development of the CPS and can prevent it from progressing or can help make it happen (Franco-Trigo, Hossain et al. 2017). Patients, general practitioners (GPs), and primary care nurses are key stakeholders who interact with, or are affected by, CPSs and may be able to strongly influence the implementation of such services, thus their views must be considered. Gaining the perspectives of these stakeholders, and assessing their views on the service (e.g., willingness to participate, acceptance, value, and expectations) will help to identify determinants of practice.

Patients', nurses' and GPs' views, experiences, perspectives, beliefs etc., regarding CPSs in Australia have been addressed in several qualitative studies (Cvetkovski, Armour et al. 2009, Gilmartin, Marriott et al. 2014, Dhillon, Hattingh et al. 2015), but there is not a systematic review that analyses and synthesises this information to provide clear insight on

determinants influencing implementation (Mohammed, Moles et al. 2016). Qualitative meta-synthesis is particularly informative for understanding barriers and facilitators to implementation of health services in a complex environment with multiple stakeholders by providing a comprehensive interpretation of the findings and new insights that goes beyond the depth and breadth of the original studies (Bondas and Hall 2007). There is a need to synthesise this qualitative research, to obtain a deeper understanding of a broad spectrum of determinants that can influence CPS implementation (Mohammed, Moles et al. 2016) and complement the pharmacist-centred literature.

Stakeholders should be continued to be engaged in methods to prioritise determinants to help set targets and objectives that are relevant and meaningful for all participants and pharmacy practice. This will enable the identification of 'action points' at which implementation efforts should be concentrated. Setting priorities will ultimately guide the development of strategies to address and overcome these circumstances to help CPSs better fit the system in which they are to be integrated.

In Australia, Primary Health Networks (PHNs) are independent organisations that aim to improve the effectiveness and efficiency of health services for patients by supporting and coordinating primary health care at a community level (Booth, Hill et al. 2016). PHNs are predominantly focussed on coordinating medical services for patients, particularly those at risk of poor health outcomes. For example, PHNs fund or provide mental health services, health promotion programs and primary care support (Healthdirect 2016). In the Western Sydney PHN, there is a prevalence of chronic and complex conditions and an identified need to better coordinate primary care to meet the needs and gaps of these patients (WentWest 2017). Current government-funded CPSs at the primary level (e.g., Home

Medicines Review, MedsCheck, Diabetes Medscheck) can target and support people with chronic and complex health conditions, by enhancing adherence to treatment, identifying and managing drug-related problems or fostering patient self-management. Existing data obtained for this thesis show that of the 200 community pharmacies in WentWest a large number of pharmacies do not appear to be providing CPSs, and for those that do, CPS delivery rates are below the national average. Further research is required to identify the determinants of practice that influence CPS implementation in this region to guide the development of implementation strategies based on these determinants and enhance the delivery of government-funded CPSs in WentWest.

Objectives

This thesis identifies, assesses and prioritises determinants of practice that influence the implementation of CPSs in Australia using a collaborative stakeholder approach. Two specific objectives are entailed:

1. Synthesise qualitative literature to describe the broad range of elements that, from the patients', GPs' and nurses' perspectives, can hinder or enable the implementation of CPSs in Australia.
2. Utilise a multi-level stakeholder approach to identify and prioritise key determinants of practice that influence the implementation of CPSs in one primary health care network in Australia.

Research overview

To achieve the specific objectives of this thesis, two research activities were undertaken (chapter 3 and chapter 4).

Chapter 3

Chapter 3 is a systematic review that synthesised the qualitative literature (i.e., qualitative meta-synthesis) to identify determinants of practice that enable or hinder the implementation of CPSs in Australia. This chapter addressed the perspectives of patients, nurses, and GPs. Thematic synthesis of the data was performed to identify barriers and facilitators.

Chapter 4

Chapter 4 is a qualitative study that was conducted in two phases. In phase 1, semi-structured interviews were conducted with ground-level stakeholders (i.e., patients, community pharmacists, GPs and practice manager) to identify the determinants of practice for a specific setting i.e., the Western Sydney PHN. Framework analysis of the data was performed to identify barriers and facilitators. In phase 2, a workshop was conducted with ground-level and PHN stakeholders to select key priority determinants that should be addressed in the first instance to enhance the implementation of CPSs in this region. A four-quadrant priority matrix was used to identify the key determinants.

A qualitative meta-synthesis of barriers and facilitators that influence the implementation of community pharmacy services: perspectives of patients, nurses and general medical practitioners (Chapter 3)

To comprehensively assess the context in which CPSs are implemented, the perspectives of non-CPS providers were analysed. In particular, the perspectives of key stakeholders likely to directly interact with or be affected by CPSs (i.e. patients, nurses and GPs) were sought. As these perspectives have already been explored in several qualitative studies, and there as a need and opportunity to synthesis this information, a qualitative meta-synthesis of the literature was undertaken.

A systematic search was conducted with no time limits in three databases, PubMed, Embase and Informit, to identify relevant Australian papers that addressed the perspectives of patients, nurses and GPs with regards to CPSs. Qualitative meta-synthesis is valuable when analysing the qualitative literature as it can provide a new, more comprehensive interpretation of the findings that goes beyond the depth and breadth of the original studies to broaden the range of concepts identified (Walsh and Downe 2005, Mohammed, Moles et al. 2016). Specifically, thematic analysis of the data was conducted. This particular method was chosen as it is iterative, such that the 'codes' created during the initial stages of analysis, closely reflect the original data, thus minimising the potential for bias (Thomas and Harden 2008). This was appropriate for the systematic review as only one reviewer conducted the data analysis. These codes were later categorised as barriers and facilitators, and then as determinants that can either enable or hinder CPS implementation which was the objective of the study. The ecological model (McLeroy, Bibeau et al. 1988) was used to organise the determinants into different levels (i.e., patient, interpersonal, organisation and

community and society).

Twenty-nine studies were included in the review. Sixty-three determinants of practice that influence the implementation of CPSs were identified in the systematic review. The ecological model was expanded to include two new levels related to community pharmacy practice which demonstrates the specificity of these results for CPS provision. These different ecological levels are: (1) determinants related to the characteristics and behaviours of individual patient (n=14); (2) interpersonal, which was divided into two sub-levels: (a) determinants related to the healthcare providers and non-healthcare personnel who are involved with the community pharmacy service and with whom patients associate (n=17) and (b) formal and informal relationships between individuals (n=7); (3) organisational, which was divided into (a) characteristics related to the community pharmacy setting (n=8); and (b) attributes of the community pharmacy service itself (n=8); and (4) community and healthcare system (n=9).

The systematic review provided valuable insight into the determinants of practice that influence CPS implementation from the patient, nurse, and GP perspectives. While some of these determinants had been identified in the pharmacy-centred literature, the review also added unique determinants identified by these non-pharmacist stakeholders, such as patients' capability to follow the procedures of the service, relationships between GP and pharmacy representative groups, as well as nurses' attitudes towards working with other healthcare professionals. As implementation is a complex process, the views and perspectives of relevant stakeholders must be considered to address this complexity and enhance implementation of services. It was also considered essential to combine the list of determinants identified in this review, with determinants derived from the pharmacy-

centred literature, to create an overarching framework of determinants that can guide a comprehensive context assessment.

A multilevel stakeholder approach for identifying the determinants that influence the implementation of government-funded community pharmacy services at the primary care level (Chapter 4)

To comprehensively identify barriers and facilitators to the implementation of government-funded CPSs in a local setting (i.e., City of Parramatta, Western Sydney PHN), an overarching framework of determinants that is specific for CPS provision and pharmacy practice, and that considered determinants relevant for different stakeholders, was created. This framework of determinants of practice was constructed by combining the list of 63 determinants from the systematic review with determinants identified in the pharmacy-centred literature to create an overarching list of 93 determinants (Moullin, Sabater-Hernandez et al. 2016) (Chapter 4, Appendix 3).

The qualitative study was conducted in two phases. In Phase 1, the framework of determinants was used to develop interview questions and guide analysis of the data. Semi-structured interviews were conducted with ground-level stakeholders i.e., patients, pharmacists, GPs and a practice manager. Interviews were chosen as they are a suitable method for identifying a large number of determinants (Krause, Van Lieshout et al. 2014) that are specific for this setting. Framework analysis was used to analyse the data. This facilitated a comparison of determinants across different levels, as well as across different stakeholders within the same level.

In Phase 2, a workshop was conducted with some of the stakeholders from Phase 1, as well as system-level stakeholders i.e., decision makers and advisers, from the PHN. The workshop was split into three parts. In the first part, a presentation was given to provide a

background to the CPSs, followed by a brief, unstructured group discussion in response to the presentation. This is necessary for engaging stakeholders and encouraging proactive contribution by stakeholders. (Hinchcliff, Greenfield et al. 2014) In a second part, participants were split into two groups and a group exercise took place to arrange determinants using a four-quadrant priority/feasibility matrix. (Green and Kreuter 2005) In a third part of the workshop a whole group discussion took place to discuss and clarify the key determinants identified in the previous exercise.

In Phase 1, sixty-five barriers and facilitators to CPS implementation in this region were identified. As PHNs are similar in their structure, organisation and objectives, this list of determinants may be relevant for other regions within the Western Sydney PHN, as well as other PHNs across the country. In Phase 2, twenty-two key determinants were considered the most important and which can be practically addressed to enhance the implementation of CPSs in this region. Of these, the stakeholders mutually agreed upon three determinants to address in the first instance: (1) Patient understanding of the aims of the service; (2) Commitment of the organisation and its leaders to provide services; (3) Organisation of healthcare system to prompt collaboration between pharmacists and GPs. These determinants will inform the development of tailored implementation strategies to enhance CPS delivery in this region. Moreover, ground and system-level stakeholders should continue to be engaged in future stages of research, as they can provide valuable knowledge into the changes that are required to address these key determinants. This will enable suitable and efficient development of implementation strategies to enhance the implementation of CPSs in this region.

Chapter 3

Qualitative meta-synthesis of barriers and facilitators that influence the implementation of community pharmacy services: perspectives of patients, nurses and general medical practitioners

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BMJ Open Qualitative meta-synthesis of barriers and facilitators that influence the implementation of community pharmacy services: perspectives of patients, nurses and general medical practitioners

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ABSTRACT

Objectives The integration of community pharmacy services (CPSs) into primary care practice can be enhanced by assessing (and further addressing) the elements that enable (ie, facilitators) or hinder (ie, barriers) the implementation of such CPSs. These elements have been widely researched from the perspective of pharmacists but not from the perspectives of other stakeholders who can interact with and influence the implementation of CPSs. The aim of this study was to synthesise the literature on patients', general practitioners' (GPs) and nurses' perspectives of CPSs to identify barriers and facilitators to their implementation in Australia.

Methods A meta-synthesis of qualitative studies was performed. A systematic search in PubMed, Scopus and Informit was conducted to identify studies that explored patients', GPs' or nurses' views about CPSs in Australia. Thematic synthesis was performed to identify elements influencing CPS implementation, which were further classified using an ecological approach.

Results Twenty-nine articles were included in the review, addressing 63 elements influencing CPS implementation. Elements were identified as a barrier, facilitator or both and were related to four ecological levels: individual patient (n=14), interpersonal (n=24), organisational (n=16) and community and healthcare system (n=9). It was found that patients, nurses and GPs identified elements reported in previous pharmacist-informed studies, such as pharmacist's training/education or financial remuneration, but also new elements, such as patients' capability to follow service's procedures, the relationships between GP and pharmacy professional bodies or the availability of multidisciplinary training/education.

Conclusions Patients, GPs and nurses can describe a large number of elements influencing CPS implementation. These elements can be combined with previous findings in pharmacists-informed studies to produce a comprehensive framework to assess barriers and facilitators to CPS implementation. This framework can be used by pharmacy

Strengths and limitations of this study

- The particular method chosen for this review (ie, qualitative meta-synthesis) is aimed at synthesising qualitative literature and so enabled a rich description of the barriers and facilitators perceived by GPs, patients and nurses who can influence the implementation of CPSs in Australia.
- A systematic search was conducted in three comprehensive electronic databases (ie, PubMed, Scopus and Informit), one of which (ie, Informit) is particularly relevant to the specific context where the results will be applied.
- A set of quality appraisal criteria was used to appraise all the studies included in this review to ensure minimal quality.
- Qualitative meta-synthesis was conducted by one researcher according to a three-stage method for thematic synthesis.
- This review was restricted to a specific implementation context (ie, Australia), to which its results are directly relevant and will be immediately applied and actions will be taken.

service planners and policy makers to improve the analysis of the contexts in which CPSs are implemented.

INTRODUCTION

The implementation of new health interventions and services into established healthcare practices and systems has been found to be challenging.^{1–4} The inherent complexity of both health services and healthcare systems may be fundamental to the implementation problem.^{5–6} According to current health planning approaches, the implementation

of health services can be enhanced by comprehensively assessing the context in which they will be delivered. Analysis of the context should consider the stakeholders who can influence or be affected by the health service, as well as the social, physical, economic and policy environments that can enable or hinder the normalisation of the service.²⁻⁷ Early identification of these elements (including how they relate to or interact with each other) is a key step for developing suitable strategies and interventions to enhance health service implementation.

In the implementation science literature, several terms are used to refer to the elements that can influence service implementation and practice change. Some generally known examples, which are commonly used interchangeably in the literature,⁸ are: barriers and facilitators,⁹ determinants of practice,⁷ implementation factors¹⁰ or constructs.² The current use of these terms encloses different concepts. For the purpose of this review and to avoid the terminological debate, we have used the term 'influential element' as a neutral term.

Amid increasing awareness of the uniqueness of the community pharmacy setting and the positive contribution pharmacists can make to healthcare,¹¹ there has been a shift towards pharmacists providing more professional, patient-centred services. However, the implementation and sustainability of community pharmacy services (CPSs) and the integration of community pharmacists into primary healthcare teams remain a challenge worldwide.¹²⁻¹³ In consistence with this international trend, Australian community pharmacies are eager to provide CPSs and receive remuneration from the government for its provision but are experiencing challenges in the implementation, uptake and sustainability of CPSs.¹⁴ Extensive research has been conducted to identify the elements that from the perspective of community pharmacists (ie, service provider) can influence the implementation of CPSs.¹⁴⁻¹⁶ However, considering the view of a single stakeholder group is insufficient to comprehensively analyse the complexity of a particular implementation context. These limited analyses can lead to the development of inadequate implementation strategies and interventions. Patients, general practitioners (GPs) and primary care nurses are key stakeholders who interact with or are affected by CPSs and may be able to strongly influence the implementation of such services. These stakeholders may have their own particular views about CPSs and so can complement the findings from previous pharmacy-informed research.¹⁴⁻¹⁵ Patients', nurses' and GPs' views and experiences regarding CPSs have been explored in several qualitative studies,¹⁷⁻²¹ but no review that collates and analyses such information exists. Qualitative meta-synthesis aims to synthesise qualitative literature to provide a new, more comprehensive interpretation of the findings that goes beyond the depth and breadth of the original studies and to broaden the range of concepts identified.²²⁻²³ Thus, the aim of this study was to synthesise such qualitative literature to describe the broad range of elements that, from the patients', GPs' and nurses'

perspectives, can hinder or enable the implementation of CPSs in Australia.

METHODS

Search strategy, screening and eligibility criteria

A systematic search was conducted in May 2015 in three electronic databases (ie, PubMed, Scopus and Informit), without time limits, to identify qualitative studies addressing patients', nurses' or GPs' views about CPSs in Australia. A CPS was assumed to refer to an action or set of actions delivered in or organised by a community pharmacy to optimise the process of care, with the aim of improving health outcomes and the value of healthcare.²⁴ For the purpose of this review, CPSs are specific health programmes that are implemented in addition to routine professional activities performed by community pharmacists, which do not require any specific or extra implementation effort (ie, they are part of normal community pharmacy practice). Since medicine dispensing is the main routine activity in the community pharmacy, it was not considered as a CPS so it was excluded. Articles that did not address a specific CPS but interprofessional collaboration (ie, between community pharmacists and other healthcare professionals) were included as they can also provide insight into the elements influencing the implementation of CPSs. Full search strategies are available on online supplementary appendix 1. In addition, the references from the included papers were searched manually for additional relevant studies. A two-step process was performed by one researcher to select studies for the analysis. As a first step, titles and abstracts were screened to identify and exclude non-relevant literature. In the second step, full texts of the remaining articles were reviewed to exclude those that: (1) were not related to CPSs; (2) did not address patient, nurse and/or GP perspective; (3) did not use qualitative research methodology²⁵; (4) did not clearly identify the stakeholder (ie, patient, nurse or GP) as the source of the information; and (5) were not accessible in any of the research team university libraries or unattainable following contact with the authors.

All the included articles were checked by the same researcher for 'elementary quality assessment' using the first three criteria delineated by Dixon-Woods *et al.*²⁶ to appraise qualitative research: (1) was the research question clear?; (2) was the research questions suited to qualitative inquiry?; and (3) were (A) sampling, (B) data collection and (C) analysis clearly described? Articles were excluded when no answer, or an unclear answer, was given to at least one of the three questions.

Synthesis

Qualitative meta-synthesis was conducted by one researcher according to the three-stage method for thematic synthesis described by Thomas *et al.*²⁷ The first stage of the analysis involved free line-by-line coding of the original data (study participants' quotes) and the

Table 1 Levels where elements that can influence the implementation of community pharmacy services can exist (adapted from McLeroy *et al*.²⁶)

| | |
|----------------------|---|
| Individual patient | Influential elements related to the personal characteristics and ideas concerning individual patients (ie, individual determinants), such as their knowledge, beliefs and skills, that can affect their utilisation of community pharmacy services. |
| Interpersonal | Influential elements related to the healthcare providers and non-healthcare personnel (ie, individual determinants) who are involved with the community pharmacy service and with whom patients associate (eg, family, friends, pharmacists, pharmacy assistants, GPs and nurses) and the formal and informal relationships between patients and healthcare professionals and healthcare professionals with other healthcare professionals. |
| Organisational | Influential elements related to characteristics of the community pharmacy setting and their decision processes, and attributes of the community pharmacy service that can influence the success of implementation. |
| Community and system | Influential elements related to the larger society (ie, environmental determinants), which consists of collectives of people in a geographical location, the relationships between organisations, the political players in the system and the rules, regulations and policies that have the power to control and/or influence the implementation of services. |

study authors' interpretation of the original data. The process of coding involves summarising text from the results and discussion sections of each article into one or more descriptive issues (ie, codes) to capture meaning. The second stage of the process involved grouping codes into one or more descriptive themes. Subsequent articles were coded into pre-existing themes, and new themes were created when considered necessary. To simplify the terminology throughout this article, themes were interpreted as elements (ie, influential elements) that could positively (ie, facilitators) or negatively (ie, barriers) influence CPS implementation or practice change. A barrier was defined as '*any type of obstacle (material or immaterial) which can impede the dissemination, implementation and/or sustainability of a CPS*', while a facilitator was defined as '*any type of element (material or immaterial) which can help to overcome barriers and/or accelerate the dissemination or implementation*' of a CPS.¹⁶ Themes that were related to similar issues were further grouped to create one broad barrier or facilitator. The identified influential elements were reviewed by a second researcher to assess clarity, consistency and understanding. At the third stage, barriers and facilitators were organised using an adapted version of the Ecological Model (table 1),²⁸ which classified them into four different levels: patient, interpersonal, organisational and community/system. The four levels defined in table 1 were used as an overarching structure, with further subheadings created during analysis, for appropriate allocation and organisation of the influential elements into the levels. The ecological model has been widely and successfully used for planning services in a variety of settings, targeting different populations and problems.^{29,30} Coding of papers that were identified manually was conducted last. NVivo V.10 software (QSR International Pty; Doncaster, Victoria, Australia) was used to help manage and analyse the data. Once all the influential elements were identified, a second round of analysis was conducted to identify where a connection or relationship was mentioned between two or more elements.

Again, both study participants' quotes and study authors' data interpretation were reviewed for this purpose. A network representing the identified relationships was generated using a ForceAtlas2 layout³¹ with Gephi V.0.8. This article has been written following existing guidelines for reporting the synthesis of qualitative research (the Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ Statement).³²

RESULTS

The systematic and manual search identified 243 articles once duplicates were removed. After title and abstract screening, 124 full-text articles were assessed for eligibility of which 29 articles were included in the qualitative meta-synthesis (all of them fulfilled the appraisal criteria) (figure 1). A description of the papers included in the review can be found in table 2. Of the 29 included papers, 15 addressed patients' perspectives only, 2 addressed nurses' perspectives only, 6 addressed GPs' perspectives only, 2 addressed nurses' and GPs' perspectives together, 3 addressed patients' and GPs' perspectives together and 1 addressed the views of all three participants. Twenty-three articles were related to a specific CPS, two were related specifically to interprofessional collaboration, three were related to both CPSs and interprofessional collaboration and one addressed concordance-based healthcare. The articles employed semistructured interviews (n=23) and/or focus groups (n=11) as methods of data collection.

During the first stage of data extraction, 181 patient, 30 nurse and 91 GP codes were created. At the completion of the coding process, 63 influential elements were identified (table 3). These elements were found to exist as a barrier, facilitator or both. In several studies patients, nurses and GPs were able to describe approaches or strategies to overcome specific barriers.^{17-20,33-43} These strategies have been reported in table 3 as additional facilitators (marked with an asterisk). During coding of the manually identified papers, it seemed that conceptual

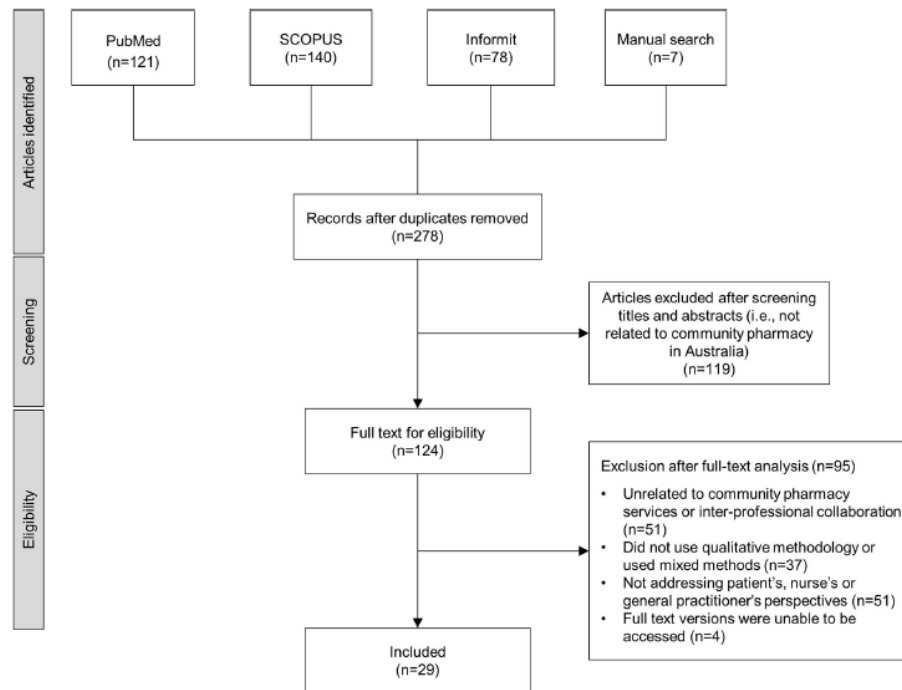


Figure 1 PRISMA flow diagram. PRISMA, Preferred Reporting Items for Systematic Review and Meta-Analysis.

saturation may have been reached, since no new barriers or facilitators were identified.

Individual patient level

All the 16 elements at the patient level were identified by patients. GPs and nurses did not identify any additional patient-related barriers and facilitators. Influential elements at this level were related to the patients' needs, preferences, perceptions and expectations, capabilities or previous experiences with community pharmacists and services. Patients' health-related concerns, understanding or perception of their health problems are important elements that influence patients' need for healthcare and so their decisions to use CPSs. Most patients held positive views about CPSs and the role of the pharmacist in providing such services.^{38 40 44} Some articles highlighted that positive experiences were related to the patient feeling comfortable and welcomed in the pharmacy.⁴⁴⁻⁴⁶ When CPSs required a formal referral from the GP, some patients deterred from requesting the services. These patients perceived that by requesting a CPS they would be bothering the GP³⁶ or offending and compromising their relationship with the GP.^{18 40 47} Patients also reported that having a negative experience with a CPS also deterred them from accessing and using such CPSs in the future.⁴⁶

Interpersonal level

Influential elements at the interpersonal level were related to two categories or sublevels: (1) *individual healthcare*

professionals (which also includes professional pharmacy staff) and (2) *relationships (or interactions) between individuals* (which includes both the relationships between healthcare professionals and between those professionals and patients).

Individual healthcare professionals

Seven elements were identified and related to characteristics of the community pharmacists (n=4), nurses (n=4) and GPs (n=4) and characteristics of non-provider personnel (ie, other community pharmacy staff members, eg, pharmacy assistant) (n=5). Articles reported that GPs' and nurses' service support varied depending on their perceptions or understanding of CPSs and the role of pharmacists. Home medicine review services had a great deal of approval and support from the GP perspective.^{40 42} On the other side, pharmacists providing immunisations raised some conflicting views among GPs since they believed this was the role of the GP or nurse practitioner.⁴² Some studies highlighted that GPs had a limited understanding of the capabilities of the pharmacist as service providers with pharmacists perceived as drug sellers in a retail environment.^{34-36 48 49} Both patients and GPs implied the need for pharmacists to undergo upskilling and training to be qualified to provide some CPSs.^{34 37 47}

Relationships (or interactions) between individuals

Articles reported that well-established relationships between the pharmacist and the nurse or the GP,

Note: In reference to Figure 1, the box labelled *records after duplicated removed*, should read n = 243. Journal has been contacted to release an erratum.

Table 2 General description of the articles included in the qualitative meta-synthesis

| Study | Description of participants | | | Pt | N | GP | Service explored/assessed topic | Method |
|---------------------------------------|--|--|---|----|---|----|---|--------|
| | (n) | | | | | | | |
| McMillan <i>et al</i> ³³ | Patients with a chronic condition, diverse culture and socioeconomic background from three geographical locations in Queensland (Logan-Beaudesert and Mount Isa), New South Wales (Northern Rivers) and Western Australia (Greater Perth) (n=89) | | | X | | | Disease management and medication management (ie, chronic management service) | SSI |
| Rieck and Pettigrew ³⁴ | GPs working in practices in low, medium or high socioeconomic status suburbs across Perth (Western Australia) (n=22) | | | | | X | Disease management (ie, chronic disease management service) and interprofessional collaboration | SSI |
| Barbara and Krass ³⁵ | Patients who are immigrants of Maltese ethnicity, residing in Australia, with a confirmed diagnosis of T2DM, >50 years of age, able to adequately communicate verbally in English or Maltese, located in Sydney (n=24) | | X | | | | Disease management and medication management (ie, diabetes self-management service) | SSI |
| Bereznicki <i>et al</i> ³⁶ | Patients (n=6) and GPs (n=10) previously involved in a community pharmacy-based asthma intervention in Tasmania | | X | | X | | Disease management (ie, asthma management service) | SSI |
| Ovetkovski <i>et al</i> ¹⁷ | Patients >18 years of age with a diagnosis of asthma (n=10) and GPs in small rural centres (n=8) from different locations based on the Australian Standard Geographical Classification | | X | | X | | Disease management (ie, asthma management service) | SSI |
| Saba <i>et al</i> ⁶⁷ | Patients >18 years of age, English speaking, current smoker, medical diagnosis of asthma and/or any other condition alongside asthma in Sydney Central Business District and South Western suburbs (n=24) | | X | | | | Disease management (ie, smoking cessation service for patients with asthma) | SSI |
| Shoukry <i>et al</i> ⁴⁵ | Patients who had bought/hired/trialed a continuous positive airway pressure machine (or accessories) through their pharmacy in the previous 12 months in the greater Sydney region (n=20) | | X | | | | Disease management (ie, obstructive sleep apnoea services) | SSI |
| Um <i>et al</i> ⁶⁷ | GPs with large expertise in weight management (n=3) | | | | X | | Disease management (ie, weight management service) | SSI |
| Snell and White ⁴⁴ | Patients >18 years of age, English speaking, enrolled in a specific weight loss programme for >2 weeks from different urban and regional suburbs in Sydney (n=20) | | X | | | | Disease management (ie, weight management service) | SSI |
| Maher <i>et al</i> ³⁸ | Women who have at least one child <5 years old are able to read and speak English from different locations based on Australian Standard Geographical Classification (n=28) | | X | | | | Condition management (ie, maternal nutrition service) | SSI |
| Mey <i>et al</i> ⁴⁵ | Patients living independently, experiencing a mild to moderate mental illness (and carers) in Queensland, New South Wales and Western Australia (n=74*) | | X | | | | Medication management (ie, service for patients with mental health conditions) | FG/SSI |
| Hattingh <i>et al</i> ³⁹ | Patients with a mental health condition (and carers) (n=74*) and healthcare professionals (n=13) located in urban, regional, rural and remote regions in Queensland, New South Wales and Western Australia | | X | | | | Disease management (ie, service for patients with mental health conditions) | FG/SSI |

Continued

Table 2 Continued

| Study | Description of participants | | | Pt | N | GP | Service explored/assessed topic | Method |
|--------------------------------------|--|---|---|----|---|----|---|--------|
| | (n) | | | | | | | |
| Clark <i>et al</i> ⁶² | Refugee women (n=38) [†] | X | | | | | Medication management (ie, primary healthcare service) | FG |
| O'Connor <i>et al</i> ⁶⁸ | Palliative care nurses working in community-based palliative care, residential aged care adopting a palliative approach or working in a dedicated hospice or palliative care unit in a hospital (n=44) and practising GPs (n=10) in Australian metropolitan and regional areas | | | X | X | X | Disease management and medication management (ie, services to community-based palliative care patients) | FG/SSI |
| Carter <i>et al</i> ⁶¹ | Patients who are English, Mandarin or Arabic speaking, who had received a home medicines review service within the last 6 months or had not received such a service but were eligible for it in metropolitan or rural areas in Australia (n=80) | X | | | | | Medication management (ie, home medicines review) | FG |
| Lee <i>et al</i> ⁴⁰ | Patients living in retirement villages in Victoria who were using prescribed medicines (n=25); GPs (n=9) and nurses (n=1) with experience with home medicines review services and/or providing care to retirement village residents. | X | X | X | X | X | Medication management (ie, home medicines review) | FG/SSI |
| White and Klinner ⁴⁷ | Patients of Chinese or Vietnamese origin who had never received a home medicines review service but were eligible for it in two suburban areas in Sydney (n=17) | X | | | | | Medication management (ie, home medicines review) | FG |
| White <i>et al</i> ¹⁸ | Patients who had received a home medicines review service in the past 6 months or who had never received such a service but were eligible for it in New South Wales, Victoria, Queensland and South Australia (n=77) | X | | | | | Medication management (ie, home medicines review) | FG |
| Dhillon <i>et al</i> ⁶⁰ | GPs practising in metropolitan medical centres in Perth (n=24) | | | | | X | Medication management (ie, home medicines review) | SSI |
| Swain and Barclay ⁶⁹ | Patients taking multiple medications, with a reasonable understanding of English and linked to an Aboriginal Health Service in urban, regional, rural and remote settings in Queensland, Northern Territory, South Australia, New South Wales and Victoria (n=101) | | X | | | | Medication management (ie, service aimed at enhance the quality use of medicines) | FG |
| Du Pasquier and Aslani ⁷⁰ | Patients >18 years of age, fluent in English, taking one prescription medication on a daily basis in Sydney (n=22) | X | | | | | Medication management (ie, adherence support service) | SSI |
| Gilmartin <i>et al</i> ¹⁹ | Nurses who worked at residential aged care facilities and used dose administration aids in Victoria (n=5) | | | | | X | Medication management (ie, dose administration aids service) | FG |
| Bui <i>et al</i> ⁴¹ | Nurses working in public, opioid substitution therapy clinics in New South Wales (n=9) | | | | | X | Disease management (ie, opioid substitution therapy services) | SSI |
| Van <i>et al</i> ⁴² | GPs practising in private/medical/specialised settings in rural/suburban/city areas in Sydney (n=23) | | | | | X | Interprofessional collaboration in the context of disease management and medication management (ie, professional pharmacy services) | SSI |

Continued

| Study | Description of participants | | | | GP | Method |
|---------------------------------------|---|----|---|---------------------------------|---|--------|
| | (n) | Pt | N | Service explored/assessed topic | | |
| Van <i>et al</i> ⁴⁸ | GPs in metropolitan and rural areas in New South Wales (n=15)† | | | X | Interprofessional collaboration in the context of a disease management (ie, diabetes medication assistance service) and medication management (ie, home medicines review service) | SSI |
| Dey <i>et al</i> ⁶⁰ | GPs working in Western Sydney (n=7)† | | | X | Interprofessional collaboration in the context of disease management (ie, asthma management services) | SSI |
| Chong <i>et al</i> ⁵³ | GPs (n=4) and nurses (n=7) working with mental health consumers in a healthcare setting in New South Wales | | X | X | Interprofessional collaboration in the context of disease management (ie, mental health services) | SSI |
| Cheong <i>et al</i> ⁴⁹ | Patients >18 years of age, English speaking, with a diagnosis of asthma in inner-west Sydney metropolitan region (n=16) | X | | | Interprofessional collaboration in the context of disease management (ie, asthma management service) | SSI |
| Bajramovic <i>et al</i> ⁴³ | Patients >18 years of age, taking at least one medication (n=7) and GPs (n=10) in Brisbane | X | X | X | Medication management (ie, concordance based healthcare services) | FG/SSI |

*Total number of patients and carers. Opinions of carers were clearly differentiated in the article and excluded from this review.

†No further description of participants was provided in the paper.

FG, focus group; GP, general practitioner; N, nurse; Pt, patient; SSI, semistructured interview; T2DM, type 2 diabetes mellitus.

Table 3 Elements that can hinder (ie, barrier) or enable (ie, facilitator) the implementation of CPSs as identified by patients, general practitioners and nurses

| | Effect on implementation and source of information (ie, stakeholder) | |
|--|---|---|
| | Barrier* | Facilitator† |
| <i>Elements at the individual patient level</i> | | |
| 1. Patients' real or perceived need for healthcare (according to patients' individual concerns, understanding or perception of their health problems). | Pt ^{18 40 49 51 53} , GP ¹⁷ | Pt ^{18 33 35 36 38 43 47 49 51} ; N ⁴¹ ; GP ¹⁷ |
| 2. Patients' awareness of the availability of CPS | Pt ^{33 40 47} ; GP ^{20 40} | |
| 3. Patient personal desire or preference for CPSs | | Pt ^{38 47 49 51} |
| 4. Patients' understanding, perceptions and expectations of their own role in the CPS | Pt ^{36 49 70} | Pt ^{17 36 49} |
| 5. Patients' understanding, perceptions and expectations of the role of community pharmacists in healthcare | Pt ^{17 18 35 36 38 46 49} , N ⁴¹ ; GP ²⁰ | Pt ^{35 38 45 46 49 67 70} |
| 6. Patients' understanding, perceptions and expectations of the role of the GP associated to the CPS | Pt ^{35 36 40 47 49 51 69 70} | |
| 7. Patients' understanding, perceptions and expectations of collaboration between healthcare professionals | Pt ⁴⁹ | Pt ⁴⁹ |
| 8. Patients' availability, time to participate in CPSs | Pt ^{33 44} | Pt ^{44 49} |
| 9. Patients' previous/background experiences with CPSs and multidisciplinary care | Pt ^{38 40 46 49} | Pt ^{40 45 46 49 51 69} |
| 10. Patient abilities; that is, to follow the procedures of the CPS or to self-manage their health problems | Pt ^{44 49} ; GP ^{36 42 50} | Pt ^{44 47 67} |
| 11. Patients' satisfaction with the delivered CPSs and multidisciplinary care | | Pt ^{36 44-46 51} ; N ⁴¹ |
| 12. Patients' motivation towards CPSs | Pt ⁵¹ | Pt ^{44 51 67} |
| 13. Patients' level of emotional intelligence; that is, ability to cope with negative experiences. | Pt ⁴⁴ | Pt ⁴⁴ |
| 14. Patients' language, communication and cultural issues | Pt ^{47 52} ; GP ²⁰ | |
| <i>Elements at interpersonal level</i> | | |
| <i>a. Individual healthcare professionals (sublevel)</i> | | |
| <i>a.1. Community pharmacist</i> | | |
| 15. Knowledge, expertise, clinical and non-clinical skills (eg, cultural competency) to adequately provide CPSs | Pt ⁴⁶ ; GP ^{34 42} | Pt ^{18*} , 20, 38, 40, 41*, 42, 44, 48, GP ^{37 50} |
| 16. Communication skills, including the capacity to speak other languages | Pt ^{47 69} ; N ⁶⁸ | Pt ^{18 33 35 38 47 67 69 70} |
| 17. Humanistic attributes (eg, being respectful, caring, non-judgemental, friendly, empathetic, supportive and approachable) | Pt ⁴⁴ | Pt ^{33 35 36 38 39 44-46 49 51} |
| 18. Willingness, interest and motivation to provide CPSs and/or participate in multidisciplinary collaboration | N ^{33 41 49 67} ; GP ⁴⁰ | Pt ³⁵ |
| <i>a.2. Other community pharmacy staff members (eg, pharmacy assistants)</i> | | |
| 19. Technical knowledge (eg, about a product) | Pt ^{38 46} | Pt ³⁸ |
| 20. Communication skills | Pt ⁴⁶ | Pt ³⁸ |
| 21. Humanistic attributes | | Pt ³⁸ |
| 22. Ability to work professionally (eg, uphold patient confidentiality) | Pt ^{39 46} | |
| 23. Experience working in the pharmacy | Pt ^{38 46} | Pt ³⁸ |
| <i>a.3. GP</i> | | |
| 24. Understanding, perceptions and expectations of their individual role with regard CPSs | GP ^{42 50} | |
| 25. Understanding, perceptions and expectations of pharmacist's capabilities and role in healthcare | GP ^{34 36 42 46 50} | GP ^{17 34 36 37 43 50} |
| 26. Awareness of the availability of CPS | GP ²⁰ | |
| 27. Willingness, interest, motivation to collaborate with CPSs | GP ²⁰ | GP ^{20 50} |

Continued

Table 3 Continued

| | Effect on implementation and source of information (ie, stakeholder) | |
|--|---|--|
| | Barrier* | Facilitator† |
| <i>a.4. Nurse</i> | | |
| 28. Understanding, perceptions and expectations of their individual role within, or in regards to, CPSs | N ¹⁹ | |
| 29. Knowledge and skills to adequately participate in the delivery of CPS | N ¹⁹ | N ^{19*} |
| 30. Attitude towards other healthcare professionals and their roles | | N ¹⁹ |
| 31. Willingness, interest and motivation to collaborate with CPSs | N ¹⁹ | N ¹⁹ |
| <i>b. Relationships (or interactions) between individuals (sublevel)</i> | | |
| 32. Influence of friends and family on patients utilising CPSs (ie, they may provide support, affect patient's adherence or patient's enthusiasm with CPSs) | Pt ^{38 44 47} | Pt ^{17*, 35*, 41} |
| 33. Previous relationship between the patient and the pharmacist and its nature (eg, trusting relationship) | Pt ¹⁸ ; GP ²⁰ | Pt ^{18 33 36 38 44-46 51} ; GP ⁴² |
| 34. Collaborative relationships between the pharmacist and other healthcare providers (eg, GPs) and their nature | Pt ⁴³ ; N ⁴¹ ; GP ^{34 40 42 43 48 68} | Pt ^{35 49} ; N ^{19 41} ; GP ^{17*, 20, 52-54, 57} |
| 35. Communication channels and modes between pharmacists and other healthcare providers (eg, GPs) | N ^{19 68} ; GP ^{36 42 50 53} | Pt ^{17 18 35} ; N ⁴¹ ; GP ^{17 42 48 50} |
| 36. Existence of referral mechanisms between healthcare professionals, including also those between pharmacy support staff and pharmacists (ie, care coordination and transition) | Pt ⁴⁶ ; GP ^{36 42} ; N ⁴¹ | Pt ^{38 45} ; GP ^{17 20 36 37 40 42 50} ; N ⁴¹ |
| 37. Consistency in the information provided by the pharmacist with regards to the GP's recommendations | GP ^{42 43 48 68} | GP ^{42 43} |
| 38. Availability of multidisciplinary education, training and meetings for pharmacists and GPs that enhance integrated, collaborative care | | Pt ^{52*, 56*} ; N ⁴¹ ; GP ^{17 34 42 48} |
| <i>Elements at the organisational level</i> | | |
| <i>a. Community pharmacy setting (sublevel)</i> | | |
| 39. Accessibility of the pharmacy setting (eg, convenient location, colocation, no appointments required and opening hours) | Pt ^{17 69} ; N ⁴¹ | Pt ^{17, 33, 35, 37, 38, 40, 41, 56*, 57} ; N ⁴¹ ; GP ^{47*, 52*, 53} |
| 40. Structural characteristics of the pharmacy setting, that is, size, provision of counselling rooms, use of visual space for posters and child-friendly area | Pt ³⁹ | Pt ^{40, 41, 43*} |
| 41. Privacy of the setting, including the availability of a private consultation area and limited involvement of multiple staff members who would be aware of the patients' personal matters | Pt ^{18 38 39 46 49 69} ; GP ²⁰ ; N ⁶⁸ | Pt ^{39 44 45} |
| 42. Availability of suitable material resources to support the service (eg, educational material for patients, medical devices, patient data management system and so on) | | Pt ^{38 46 52} |
| 43. Sufficient qualified staff to perform CPS | Pt ⁵² ; GP ^{20 40 43} | Pt ⁴⁷ |
| 44. Organisation of the pharmacist's workload and time to deliver CPSs | Pt ^{38 47 49 69} ; N ⁴¹ ; GP ^{33 40} | Pt ^{38 43} |
| 45. Organisational commitment to implement a CPS | Pt ^{33 38} ; N ⁴¹ | |
| 46. Promotion of the CPS to facilitate its uptake | | Pt ^{33*, 35*, 47} ; GP ²⁰ |
| <i>b. CPS</i> | | |
| 47. Extent to which the CPS meets and is tailored to fit individual patient's needs or fills existing gaps in healthcare practice (this enhances the value of the service for patients and healthcare professionals) | Pt ^{18 35 36 40 46 49 51} ; GP ^{42 50} | Pt ^{18 33 35 38 40 45-47 49 51 69} ; N ⁴⁰ ; GP ^{20 37 40 42 43 48 50 53} |
| 48. Quality of the CPS (eg, validity, accuracy of the materials and tools used, CPSs provided in a timely manner, provision of both verbal and written information, professional advice and education and so on) | Pt ⁵¹ ; GP ^{40 43} ; N ¹⁹ | Pt ^{18 38 44 45} ; GP ²⁰ |
| 49. Complexity of the CPS for use by healthcare professionals | GP ²⁰ ; N ^{19 41} | |

Continued

Table 3 Continued

| | Effect on implementation and source of information (ie, stakeholder) | |
|---|--|--|
| | Barrier* | Facilitator† |
| 50. Extent to which CPSs provide ongoing support, follow-up and feedback to patients | GP ⁴² | Pt ^{18 33 39 40 44-46} |
| 51. Flexibility to use different communication channels (eg, telephone and website) to interact with patients and healthcare providers | | Pt ^{38, 40, 43*} |
| 52. Consistency in the community pharmacist delivering the CPS | | Pt, ^{38 45 51} N ^{19*} |
| 53. Involvement of other healthcare providers in delivering the CPS | | Pt ³⁸ ; N ^{19*} ; GP ^{20*} |
| 54. Costs and duration of the CPS consultation for the patient | Pt ^{43 49} ; N ⁴¹ | Pt ^{43 45} ; GP ^{17 20} ; N ^{51*} |
| <i>Elements at the community and health system level</i> | | |
| 55. General consumer education about healthcare; promotion of CPS by the media | Pt ⁴³ ; GP ⁴³ | Pt ^{43 47} ; GP ^{47*, 57} |
| 56. Collaboration, influences, conflicts between GP and pharmacist professional bodies | | GP ^{34*} |
| 57. Organisation of GPs' workload and time to collaborate with CPSs | GP ^{20 40 42 50 53} | |
| 58. Complexity of system-level administrative processes (eg, tedious paperwork) associated to the delivery of CPS; that is, complying with the requirements of the department of health | GP ^{17 20 40 43 48} | |
| 59. Availability of an electronic system for sharing information | Pt ^{18 49} | Pt ^{17*, 57} ; N ^{19*} ; GP ^{17, 20*, 36*, 50, 52*, 53} |
| 60. Presence of agreed healthcare protocols, regulations, rules and policies to facilitate the delivery of CPSs | Pt ⁵² ; N ⁴¹ | Pt ⁵² ; GP ^{20*, 52, 53} |
| 61. Limits on the healthcare budget; that is, funding allocated to support CPS delivery | GP ^{17 40 43 50} | Pt ^{44, 56*} ; GP ^{17 42 43} |
| 62. Availability of financial incentives for service provision and inter-professional collaboration | | Pt ^{56*} ; N ^{51*} |
| 63. Organisation of the healthcare system | Pt ⁴⁹ ; GP ⁴³ | |

*Barrier: the element was mentioned to act as a BARRIER or hinder to the implementation of CPSs.

†Facilitator: the element was mentioned to act as a FACILITATOR or enabler to the implementation of CPSs.

(*) This element was reported as a potential strategy to overcome a barrier (ie, facilitator).

CPSs, community pharmacy services; GP, general practitioner; N, nurse; Pt, patient.

including collaborative relationships, were essential for the success of a CPS.^{17 19 20 35 41 50} Multidisciplinary education and training for healthcare professionals was suggested as a way to improve healthcare professional competence.⁴⁹ Similarly, characteristics of the relationship between the patient and the pharmacist (eg, trust) was a key element that influenced pharmacy choice, contributed to the patient adhering to the CPS, and accepting the intervention.^{18 33 36 38 44-46 51} Some articles reported the influence of family and friends on patient utilisation of CPSs (eg, providing support and influencing motivation),^{35 49} and others commented on the integration of partners into the CPS (eg, provision of group sessions with partners).^{35 45}

Organisational level

Also at the organisational level, influential elements were divided into two sublevels: (1) *the community pharmacy setting* (n=8) and (2) *the service itself* (n=8).

The community pharmacy setting

Some articles identified the accessibility of the pharmacy facilitated interprofessional relationships between GPs and pharmacists^{42 48} and influenced patient^{17 38 45} and nurse⁴¹ participation in CPS. In some articles, non-English speaking patients reported that the lack of multilingual staff limited their awareness and access to CPSs.^{47 52} Other articles noted GP and nurse concerns regarding the lack of pharmacies that provide CPSs⁴¹ and insufficient accredited pharmacists to perform CPSs.^{40 43}

The community pharmacy service

Concerns regarding the validity and accuracy of the tools and instruments used (eg, medical devices and medication charts) were raised by GPs and nurses.^{19 42} Patients and nurses commented that having the same service provider at each encounter facilitated rapport building between the patient and the pharmacist^{38 45 51} and caused fewer errors when it came to preparing dose administration aids.¹⁹ Furthermore, patients, nurses and GPs reported



on the involvement/participation of healthcare professionals other than pharmacists in the provision of CPSs,³⁸ or to act as a point of liaison,²⁰ to improve the quality and efficiency of the service. The cost of the service was a key element, mentioned by all stakeholders, that could either discourage^{41 49} or motivate⁴⁵ patients to use services. In particular, it was mentioned that smaller, manageable cost payments for patients could facilitate CPS use.⁴¹

Community and healthcare system level

Nine influential elements were identified at this level. Several articles identified the need for adequate remuneration for GPs and pharmacists for participating in and providing CPSs^{17 42 50 52} as well as the implementation of an electronic system of information sharing between these two healthcare professionals.^{19 20 36 43} GPs also cited the availability of competing, government-funded health programmes and their high level of workload and lack of time as contributing to their low participation in CPSs.⁴⁰ Where services were available, remunerated and widely supported by GPs and patients, such as home medicine reviews (ie, a medication review service), GPs mentioned complex bureaucratic procedures (eg, completing tedious documents) may discourage their use.^{17 20 40 43 48} Despite this, the home medicine review service was generally considered successful by GPs and a frequently reported reason for this was the presence of a clear protocol guiding service delivery.^{20 42 48} GPs also suggested increased and improved collaboration between pharmacy and GP professional representative bodies may improve awareness of the services and encourage participation. The media was perceived to have an important role in improving awareness of and promoting CPSs. Finally, some broad comments suggesting some additional issues at the higher levels of the healthcare system were mentioned, such as 'better and more responsible organisation of the healthcare system'.⁴³

With regards to the interactions between the identified influential elements, 12 articles out of 29 mentioned some form of a relationship between certain elements.^{20 33 41 42 44 46–48 50 51 53 54} As shown in online supplementary appendix 2, a total of 27 relationships between 25 elements were found, with 10 elements presenting two or more relationships with others (two elements showed five or more interactions). As a result of the limited, unsystematic information reported in the articles, a sparse network disclosing the recognised relationships between elements was obtained (see online supplementary appendix 2).

DISCUSSION

To the best of our knowledge, this is the first review that summarises comprehensive information on the elements that, according to patients, nurses and GPs, can enable or hinder the implementation of CPSs. Patients, GPs and nurses are key members of the primary healthcare team and their support and expectations for CPSs can highly influence their implementation.^{1 19 42 54–57} Thus,

by synthesising and organising the influential elements identified by these key stakeholders, this review can optimise future analyses of barriers and facilitators to the implementation of CPSs and so potentially enhance their integration into primary practice. Importantly, this work was intentionally restricted to a specific implementation context (ie, Australia), to which its results are directly relevant and will be immediately applied. Focusing only on Australia is not considered a limitation of the study, rather it is a sensible decision that allows knowledge about a particular context of interest to be gained. Including studies conducted in contexts or healthcare systems other than Australia (eg, UK, USA and so on), where barriers and facilitators to CPS implementation can be dissimilar in nature and expressed differently, may have brought irrelevant or inappropriate information to this analysis, and so hinder the understanding of the context of interest. However, it should be noted that Australia is a country with a large experience in CPS implementation and where significant research has been conducted in this regard compared with other countries worldwide. Therefore, it is expected that the comprehensive list of influential elements identified in this context may be relevant to start investigating barriers and facilitators to CPS implementation in countries with less experience. Furthermore, the elements identified in this review can provide insight to pharmacy service planners in other countries to guess and avoid some problems in the implementation of CPSs beforehand.

Barriers and facilitators to the implementation of CPSs in Australia have been well researched and reported from the perspective of community pharmacists.^{14 15 56 58} In this regard, the results of this review confirms that patients, nurses and GPs also recognise some of the influential elements reported in previous pharmacist-informed studies, such as the pharmacist's education and training, collaboration between the pharmacist and the GP, accessibility of the pharmacy setting and financial remuneration. However, this study provides additional insight into further barriers and facilitators, across different ecological levels, that are relevant to other key stakeholders and so are less likely to be reported by pharmacists, for example, patients' capability to follow the procedures of the service, GPs' workload, nurses' attitudes towards other healthcare professionals/services, the actual relationships between GP and pharmacy professional bodies or the availability of multidisciplinary training and education. These results highlight the importance of engaging key stakeholders other than pharmacists to better understand the contexts in which CPSs are implemented. In other words, disregarding the input of these stakeholders (or considering only the views of pharmacists) may lead to an incomplete and biased understanding of the implementation context which, in turn, can result in service underutilisation, unsuccessful implementation and limited service impact.⁵⁹ Generally, involving relevant stakeholders throughout the development, implementation and evaluation of health programmes is crucial

to increase the chances of any of those initiatives being effective and successfully implemented.^{6 29 30 60} Indeed, this is equally relevant to CPS planning.^{61 62}

Semistructured interviews and/or focus group with healthcare professionals and patients appear to be appropriate methods to identify a large number of unique influential elements.⁶³ Thus, pharmacy service planners can continue to use these methods to identify determinants of pharmacy practice in their own context. Although, the type of qualitative method used may affect the type of barriers/facilitators identified, it is more likely that the aims of the studies included in this review, their target population and/or the specific service/topic addressed by the study may have had a stronger influence in the type of barriers or facilitator identified.

The results of this review can assist pharmacy service planners and researchers to better identify the elements that may be enabling or hindering the implementation of existing CPSs. By combining the list of influential elements generated in this review with previous findings in pharmacists-informed studies, a comprehensive framework to assess barriers and facilitators to CPS implementation can be produced. Assessing and understanding the elements influencing pharmacy practice and service implementation must be a key early step in developing appropriate, multilevel programmes (ie, including interventions targeting elements at different levels) aimed at enhancing the integration of CPSs into the healthcare system.^{29 30 62 64}

Also, influential elements should be prompted and assessed when designing new CPSs. Identifying elements prior to designing a new CPS may guide both the early adaptation of the service to the context, as well as the early development of tailored implementation programmes to better fit (or change) the implementation context. As an analysis of influential elements is likely to yield a large number of items, it would not be feasible to address each and every one of those elements. Thus, once elements have been identified for a specific context, further efforts are required to prioritise those elements that are most relevant and can be practically addressed.^{8 65} In this regard, McMillan *et al*⁶⁶ provide a summary of methods used to determine priorities and how they have been used in pharmacy practice research, which can guide pharmacy service planners in this regard.

The analysis conducted in this review revealed three concerns that must be considered to improve future studies aimed at identifying influential elements. On the one hand, some influential elements at the community and healthcare system level were too broadly described (ie, 'organisation of the health system') and further exploration is needed to clearly understand the specific 'items' that they encompass. Presumably, the list of determinants of practice described by Flottorp *et al*⁷ (ie, Tailored Implementation in Chronic Disease checklist) can provide more detail regarding influential elements at the higher community and healthcare system level and so can initially assist to better frame future analysis of barriers and facilitators to CPS implementation.

Particularly, the determinants under the domains 'Incentives and resources', 'Capacity for organisational change' and 'Social political and legal factors' seem particularly relevant for this purpose. Importantly, to bring further insight on the elements at the community and healthcare system level, it would be important to include and explore the perspectives of other potential key stakeholders, such as other healthcare providers (eg, specialists), caregivers, representatives of healthcare organisations and professional bodies, policy makers and so on. Furthermore, future studies aimed at identifying barriers and facilitators to CPS implementation must better describe and understand the relationships between elements.^{2 7} This may help to understand how elements influence each other and which elements are more suitable to be addressed (based on the overall effect that they can produce on other elements) when designing implementation efforts.

Limitations

The network analysis intended in this study was strongly constrained by the limited and unsystematically reported information about the relationships between influential elements. As a result, it was decided not to report further results of the network analysis beyond its pictorial representation. The potential of a full network analysis should be considered in future studies aimed at analysing elements that influence the implementation of CPSs. A suitable network analysis can help to better understand the complex relationships between these elements, detect the core elements that may primarily explain the implementation challenge and provide insight on the key leverage points that should be targeted within the network to enhance service implementation. Ideally, accurate information on relevant attributes of the influential elements (and the interactions between them) should be collected by the authors of the primary studies to increase the potential of a network analysis, for example, the frequency of occurrence, the direction of the relationships, the domain or level where the element is located (ie, patients, healthcare professionals, professional interactions and so on), the relative relevance of each element or the effect on implementation outcomes (ie, performance as barrier or facilitator).

Following the particular method chosen for this review (ie, qualitative meta-synthesis),^{22 23} only primary research articles that used qualitative methods were included. Meta-synthesis enabled a rich description of elements perceived by GPs, patients and nurses to influence implementation of CPSs in Australia. Future reviews that synthesise the quantitative literature on this topic are encouraged. Appraising qualitative research is controversial because of the difficulty of using information about quality to inform syntheses (eg, even studies with flaws in methodology can provide valuable information).²⁶ Furthermore, there is no gold standard on appraising qualitative studies.³² The elementary quality assessment conducted in the current review was aimed at ensuring minimal quality while identifying a broad

range of elements that might influence CPS implementation. Lastly, the papers included in this review were not restricted by the time at which they were published, since the aim of the study was to include all relevant papers that can inform about any influential element that has been noted in practice. It is important to acknowledge that as contexts can change over time, the effect of influential elements can also change, cease to exist or new elements can emerge. It is therefore important to regularly monitor elements and prioritise those that must be addressed.

CONCLUSION

This qualitative meta-synthesis identified a broad range of elements that, according to patients, GPs and nurses, can enable (ie, facilitators) or hinder (ie, barriers) the implementation of CPSs. These influential elements are located at different ecological levels and should be considered together with those previously identified in pharmacy-informed studies to comprehensively analyse the barriers and facilitators to the implementation of CPSs. Future studies aimed at that purpose must involve multiple stakeholder groups (ie, others than only pharmacists) and better understand the relationships between influential elements to increase the usefulness and interest of their findings. Further to the identification of the influential elements, key stakeholders should keep involved in developing suitable, multilevel programmes aimed at enhancing CPS implementation.

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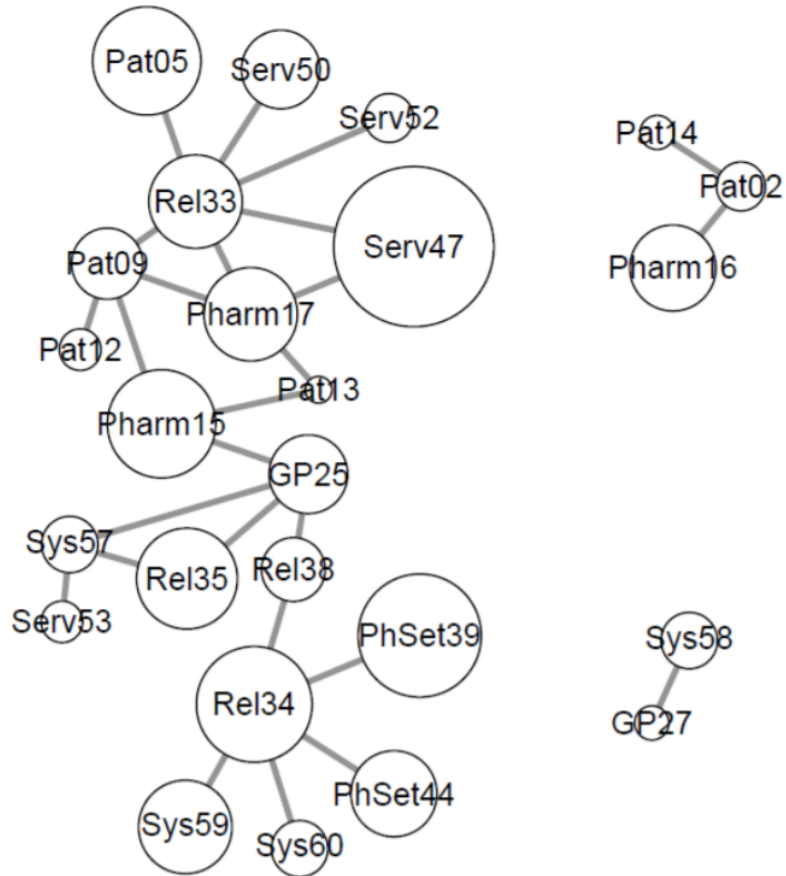
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| Appendix 1. Search strategy and key words used in database search | |
|---|--|
| Database | Search strategy and keywords |
| PubMed | ((opinion OR opinions) OR (view or views) OR (attitude or attitudes) OR (experience OR experiences) OR satisfaction OR (motivation or motivations) OR (perception OR perceptions) OR (preference OR preferences) OR "Attitude to Health"[MH] OR awareness[TW] OR (barrier OR barriers) OR (facilitator or facilitators)) AND (pharmacy OR pharmacies OR pharmacist OR pharmacists) AND ("Interviews as Topic"[MH] OR "Empirical Research"[MH] OR semi-structured OR qualitative OR ("Focus Groups"[TW] OR "focus group")) AND Australia[TIAB] |
| Scopus | ((TITLE-ABS-KEY (opinion OR opinions)) OR (TITLE-ABS-KEY (view OR views)) OR (TITLE-ABS-KEY (attitude OR attitudes)) OR (TITLE-ABS-KEY (experience OR experiences)) OR (TITLE-ABS-KEY (satisfaction)) OR (TITLE-ABS-KEY (motivation OR motivations)) OR (TITLE-ABS-KEY (perception OR perceptions)) OR (TITLE-ABS-KEY (preference OR preferences))) OR ((TITLE-ABS-KEY (awareness)) OR (TITLE-ABS-KEY (barrier OR barriers)) OR (TITLE-ABS-KEY (facilitator OR facilitators)) OR (KEY (patient attitude)) OR (KEY (patient satisfaction)) OR (KEY (health personnel attitude)) OR (KEY (patient preference)))) AND ((TITLE-ABS-KEY (pharmacy OR pharmacies)) OR (TITLE-ABS-KEY (pharmacist OR pharmacists))) AND ((KEY (semi structured interview)) OR (TITLE-ABS-KEY (qualitative)) OR (KEY (qualitative research))) AND (TITLE-ABS-KEY (Australia)) |
| Informit | Pharmacy AND qualitative |

Appendix 2. Relationships between influential elements and resulted network*



* Elements' numbers in the figure match with the elements' numbers on table 3 where a full description of each element can be found. The size of the nodes is determined by the number of times (i.e., articles) that each element was reported.

Pat: element at the patient level; Pharm: element at the healthcare professional level (i.e., pharmacist); GP: element at the at the healthcare professional level (i.e., general practitioner); Rel: element related to the relationships (or interactions) between individuals; PhSet: element related to the community pharmacy setting; Serv: element related to the community pharmacy service; Sys: influential element at the community and healthcare system level.

| Related elements | | Description of the relationship |
|------------------|---------|---|
| Pat09 | Pat12 | Patients who did not have a positive experience with CPSs were not motivated to receive future ones ¹ |
| Pat14 | Pat02 | Patients' language issues prevented them from becoming more aware of CPSs ² |
| Pat09 | Pharm15 | Patients' previous positive experiences of CPS were related to a suitable knowledge of the pharmacist ³ |
| Pat09 | Pharm17 | Patients' previous positive experiences of CPS were related to positive humanistic attributes of the community pharmacist (i.e. friendly) ³ |
| Pat09 | Rel33 | Patients' previous positive experiences in the pharmacy contributed to the formation of a closer relationship between the patient and the pharmacist ³ |
| Pat13 | Pharm15 | Patients with higher levels of emotional intelligence valued the knowledge and competency of community pharmacists ⁴ |
| Pat13 | Pharm17 | Patients with lower levels of emotional intelligence valued the humanistic attributes of the community pharmacist in CPS ⁴ |
| Pharm16 | Pat02 | Lack of multilingual community pharmacists prevented awareness of the availability of CPS in some ethnic patients ² |
| Pharm17 | Rel33 | The humanistic attributes of the pharmacist (e.g., approachability, sensitivity) shaped the relationships between the patient and the pharmacist ³ |
| Pharm17 | Serv47 | The humanistic attributes of the pharmacist (e.g., approachability) created an environment in which patients could ask questions, seek advice and better address their needs ⁵ |
| GP25 | Sys57 | GPs can see a higher value in CPSs when they address their time limitations ⁶ |
| GP25 | Pharm15 | GPs' perceptions and understanding of the role of community |

| | | |
|---------|--------|---|
| | | pharmacists depends on whether pharmacists have received appropriate training and demonstrate suitable health-related knowledge and skills ⁷ |
| Rel38 | Rel34 | GP-Pharmacist combined meetings and training can promote collaborative relationships between the pharmacist and GP ⁸ |
| Rel33 | Pat05 | Patients who had an on-going relationship with community pharmacists were more likely to see the value of pharmacists providing health services ³ |
| Rel33 | Serv50 | The existence of a relationship between the patient and the pharmacist can determine the success of follow-up mechanisms in the CPS ⁴ |
| Rel35 | GP25 | GPs who experienced a high level of communication with pharmacists saw value in the input pharmacists can make to their practice ⁸ |
| Rel38 | GP25 | Developing multidisciplinary training with pharmacists and GPs could enhance GPs' understanding and perception of pharmacists' capabilities and role in healthcare ⁸ |
| PhSet39 | Rel34 | Physical accessibility and co-location of the pharmacy to the GP medical centre can promote collaborative relationships between the pharmacists and GPs ^{8,9} |
| PhSet44 | Rel34 | Time constraints of the pharmacist limited the collaboration between the pharmacists and the nurse ¹⁰ |
| Serv47 | Pat09 | When patients perceived that CPS were not patient-centred, they reported negative experiences ³ |
| Serv47 | Rel33 | CPSs which are patient-centred can contribute to the development of a relationship between the patient and the pharmacist ^{3,11} |
| Serv52 | Rel33 | Having the same pharmacist delivering the CPS each time can contribute to the development of a relationship between the patient and the pharmacist ¹ |

| | | |
|--------|-------|--|
| Serv53 | Sys57 | Involving healthcare providers other than pharmacists (e.g., practice nurses) in the provision/coordination of CPS and related processes can positively influence GP time and workload constraints ¹² |
| Sys57 | Rel35 | The workload and time of GPs influence the mode through which they interact and communicate with community pharmacists ⁹ |
| Sys58 | GP27 | Complex administrative processes (e.g., tedious paperwork to refer patients to CPS) that require extra time from the GP (Sys57) may affect GPs' willingness to collaborate with CPSs ¹² |
| Sys59 | Rel34 | A system for sharing information can promote collaborative relationships between the pharmacist and GP ⁸ |
| Sys60 | Rel34 | The presence of protocols to guide CPS delivery can contribute to improved GP–pharmacist relationships ⁹ |

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Chapter 4

A multilevel stakeholder approach for identifying the determinants of implementation of government-funded community pharmacy services at the primary care level

Hossain, L. N., J. Tudball, L. Franco-Trigo, D. Durks, S. I. Benrimoj and D. Sabater-Hernández "A multilevel stakeholder approach for identifying the determinants of implementation of government-funded community pharmacy services at the primary care level." *Res Social Adm Pharm* (accepted), 2017.

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A multilevel stakeholder approach for identifying the determinants of implementation of government-funded community pharmacy services at the primary care level

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ABSTRACT

Background: A key early step to enhance the integration of community pharmacy services (CPSs) into primary care practice is identifying key determinants of practice (i.e., critical circumstances that influence the implementation of such services). Involving relevant stakeholders in identifying key determinants enables findings to be more relevant to the context in which CPSs will be implemented.

Objective: To identify key determinants of practice that can influence the implementation of government-funded CPSs in a primary health network in Australia.

Methods: A stakeholder collaborative approach was used, encompassing two phases. In the first phase, semi-structured interviews were conducted with ground-level stakeholders in Western Sydney between August 2016 to October 2016. Framework analysis was used to code and analyse the data from the interviews into determinants of pharmacy practice. In the second phase, a workshop was conducted with a mixed-group of ground-level and system-level stakeholders from the primary health network to identify key determinants. A four-quadrant prioritization matrix was employed in the workshop to classify determinants based on their importance and feasibility.

Results: Sixty-five determinants of practice that can influence CPS implementation were identified in Phase 1. These determinants were allocated at different levels of the healthcare system, and can exist as a barrier or facilitator or both. Twenty-two key determinants were selected in Phase 2, of which three were agreed to be addressed initially: (1) Patient understanding of the aims of the service; (2) Commitment of the organization and its leaders to provide services; (3) Coordination of the healthcare system to prompt collaboration between pharmacists and GPs.

Conclusions: This collaborative stakeholder approach identified a set of key determinants of pharmacy practice in this Australian primary care setting. To enhance the implementation of CPSs in this region, initial efforts should be aimed at developing implementation strategies based on these key determinants of practice.

1. Introduction

The implementation and integration of new health services into established healthcare practices and systems is a complex and challenging process.^{1–4} Several services that have been shown to be effective in a research setting fail to translate their positive outcomes into actual practice. Many are not implemented at all.^{1–3} To enhance the

uptake, integration and sustainability of health services in specific contexts, it is vital to identify and understand the circumstances that can affect their implementation. These circumstances exist in the social, physical and policy environments surrounding the service. Flottorp and colleagues termed such circumstances 'determinants of practice', defined as: "factors that might prevent or enable improvements in that practice ... also referred to as barriers and enablers, barriers and

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facilitators, problems and needs, or disincentives and incentives".^{5,6} A large number of determinants are likely to exist in any given context and exist at all levels of healthcare: service users, healthcare providers and the healthcare system as a whole. The impact that a given determinant has on implementation can also vary across different contexts and healthcare professionals within a particular context.⁵

Identifying determinants of practice is considered a strategic early step to inform the development of suitable implementation programs to improve service delivery and integration.^{5,7,8} In order to comprehensively assess determinants, systematic processes are required to identify and then define the critical circumstances that can be practically addressed. Moreover, processes to identify determinants should involve relevant stakeholders from across different levels of the healthcare system.^{6,9–11} These include those who have the power to control or influence services, as well as stakeholders with an interest or concern in the service.¹² Multi-level stakeholder involvement brings different views, experiences, background, knowledge, skills and expertise to the table. This enables findings to be more relevant to the needs and wants of the stakeholders and the community in which health services are to be implemented, as well as identifying suitable solutions.¹²

The use of participatory approaches that involve multiple stakeholders to identify determinants of practice, and develop tailored interventions to address these determinants, have been widely used in health research.¹³ For example, Meurer and colleagues used a healthcare professional stakeholder approach to identify determinants that influence treatment in stroke patients. This approach identified new determinants that were not captured in previous research conducted at the patient and hospital levels.¹⁴ Also, Peiris-John and colleagues utilised a stakeholder approach with researchers and health workers to identify factors that influence health service engagement by young New Zealanders of Asian background. The stakeholders identified issues that were not mentioned by the Asian youth, but which are important to acknowledge and address. These studies confirm the need to integrate different stakeholders in co-design approaches to develop more responsive services that meets the needs of the community.¹⁵ Existing health program planning frameworks also outline the need to test components of a program on a small scale before full implementation and dissemination. This enables further refining and optimising of the program before the next implementation phase and thus increases the chances of successful implementation.^{6,12}

In Australia, Primary Health Networks (PHNs) are independent organizations that aim to improve the effectiveness and efficiency of health services for patients by supporting and coordinating primary health care at a community level.¹⁶ Community pharmacy services (CPSs) are health facilities at the primary care level. CPSs can make a valuable contribution in improving patients' healthcare, particularly in the management of chronic disease^{8,17} which is a strategic health priority area for the Australian government.^{18,19} Since 1990 the Community pharmacy agreements, i.e., negotiations between the Pharmacy Guild of Australia (the national peak body representing community pharmacy in Australia) and the Federal Government, have included remuneration not only for the supply of medicines and but also for the provision of quality, evidence-based, patient-centred CPSs.²⁰ At the same time, Australian community pharmacies have expressed a strong desire to provide CPSs, yet challenges remain in the implementation, uptake and sustainability of CPSs in practice.^{18,19,21} It has been suggested that insufficient knowledge regarding implementation, and lack of holistic implementation programs may be an influencing factor.²² A recent systematic review highlighted the importance of including the views of relevant ground-level stakeholders, such as patients, general practitioners (GPs) and nurses²³ to complement and extend the pharmacist-centred literature on CPS implementation factors.²⁴ All of these key stakeholders can strongly influence the implementation of CPSs at the primary care level. Therefore, they must be included alongside other stakeholders to navigate the complex healthcare system in which CPSs are to operate and thus facilitate their implementation.¹²

The aim of this study is to utilize a multi-level stakeholder approach to identify key determinants of practice that influence the implementation of CPSs in one primary health care network in Australia. This is the first step toward developing a tailored implementation strategy aimed at enhancing the implementation of CPSs in this region.

2. Methods

This study was conducted between August and September 2016 in a specific region Parramatta of one of the 31 PHNs in Australia, Western Sydney or WentWest. WentWest encompasses 906,605 individuals, a total of 200 community pharmacies, 300 general practices and a population with high rates of chronic diseases.²⁵

2.1. Study design

A two-phase design employing qualitative methods was undertaken to identify determinants of practice that can influence the implementation of CPSs. In the first phase, the views of ground-level stakeholders (i.e., patients, pharmacists, general practitioners (GPs) and a dual role pharmacist/practice manager) were obtained to identify the range of determinants that can affect the implementation of current CPSs.²⁰ In the second phase, a combined workshop between ground-level stakeholders and PHN stakeholders (i.e., decision makers, healthcare system managers, etc.) was conducted to identify the key determinants that can be primarily targeted to enhance implementation of CPSs.

Approval for this study was obtained by the Human Research Ethics Committee at the University of Technology Sydney. All participants provided written consent to the research process and to the interviews being audio-taped. Participants in both phases were reimbursed financially for their time.

2.2. Data collection

(1) *Phase 1: Exploring the views of ground level stakeholders to identify the determinants of pharmacy practice.* Semi-structured interviews were conducted with patients, community pharmacists, GPs and a dual role practice manager/community pharmacist. These participants included those who had previous experience with CPSs as well as those who had not. Interviews were chosen as they are a suitable method for identifying a large number of determinants.²⁶ An interview guide (Appendix 1) was developed to: (1) explore stakeholders' experiences and views of CPSs; (2) prompt determinants of pharmacy practice at different levels (individual patient, individual healthcare provider, relationships or interactions between individuals, community pharmacy setting, community pharmacy service and community & health system level); and (3) identify potential health needs and gaps in healthcare in which CPSs could play a role. Home Medicines Review (HMR), MedsCheck, Diabetes MedsCheck, Dose Administration Aid (DAA), Clinical Intervention and Staged Supply were the predominant CPSs that were explored, as they are currently funded by the federal government of Australia under the Community Pharmacy Agreements.²⁰ (A brief outline of these services is provided in Appendix 2). The interview topic guide was designed following a framework derived from a previous systematic review of patients', nurses and GPs' views and experiences of CPSs in Australia²³ as well as pharmacist-centred qualitative research in the area.²⁴ This ensured maximum local relevance compared to data collection frameworks developed overseas. Local concepts and language of the topic guide was also informed by the first stage of the project that was conducted with pharmacists, consumers and GPs from the same local area.

Community pharmacists in the Parramatta district of WentWest were contacted by email through a national professional organization.

All of the pharmacists interested in participating contacted the research team and were recruited into the study. Patients and GPs were recruited through the participating pharmacists. The pharmacists approached patients during their professional practice in the community pharmacy and forwarded their contact details (i.e., name, consent given to be contacted by research team, contact number and email address) to the research team if they wished to participate. They also provided GP contact details (i.e., name of GP and medical practice) to the research team as potential participants to be invited to participate in the study.

Two researchers conducted the interviews according to participants' preferences, by face-to-face at a location selected by the participant, or via telephone. Participants were provided with a document that outlined community pharmacy services to refer to throughout the interview (Appendix 2).

(2) *Phase 2: Identifying key determinants of pharmacy practice.* A 3-h workshop with patients, community pharmacists, GPs and decision makers and advisers from the PHN was conducted in October 2016. In the first half of the workshop a brief introduction, providing detail on community pharmacy in the PHN, current government-funded CPSs and the processes by which they work, project aims and methods as well as a description of the levels at which determinants exist was provided. For the next 30 min a brief, unstructured group discussion took place in response to the presentation. In the last hour of the workshop participants were split into two groups. A group exercise took place (0.5 h) to stimulate thought and discussion regarding key determinants that influence CPS implementation. During this exercise, the stakeholders were split into two groups such that each group consisted of a combination of different participants; patient, pharmacist, GP and PHN stakeholders. Determinants that were identified in phase 1 were presented to the participants on cards (Fig. 1). Participants were asked to arrange determinants using a four quadrant priority/feasibility matrix (Fig. 2).²⁷ In the last half hour, a whole group discussion took place to discuss and clarify the key determinants identified in the prioritization exercise. Any disagreements between participants regarding key determinants were deliberated and settled through discussion to reach mutual consensus.

All participants from Phase 1 were invited to attend the workshop during their interview. In their invitation the participants were advised that they would receive a financial incentive for attending the workshop. The PHN suggested internal stakeholders to invite to participate in the workshop and liaised with the researchers regarding whom they wished to invite. It was determined that these candidates represented an adequate range of senior administrative, clinical, managerial and executive functions in the PHN and would be sufficiently indicative of the factors relevant to the limited geographical area. An experienced facilitator conducted the workshop which took place in a PHN office in Western Sydney. All interviews and the workshop were audiotaped and transcribed.

2.3. Data analysis

Data and analysis were managed in Microsoft Excel (2007). For phase 1, two researchers initially read through the transcripts to

Issue related to the patient

Patient awareness of the availability of the service

Identified by Pt, Ph, GP

Examples:

Patients had low awareness of all services (Pt, Ph)

Fig. 1. Example of one determinant presented to the workshop participants.



Fig. 2. Four quadrant priority matrix utilised in the workshop (Green and Kreuter 2005²⁷).

familiarise themselves with the raw data and made notes regarding key and recurring themes. Data were then coded using framework analysis methodology.²⁸ For this study a framework of determinants was created by combining an existing list of implementation factors for community pharmacy²⁴ and a list of determinants derived from the results of a previous qualitative meta-synthesis.²³ The former created a list of barriers and facilitators based on pharmacy research and adjusted for the consolidated framework for implementation research (CFIR). The latter assessed the views of non-pharmacist stakeholders and identified several new determinants previously not mentioned in the pharmacist-centred literature. As a result, the framework in this study includes determinants that are specific to CPS implementation and rooted in empirical evidence, which can help to explain how the service actually occurs and is used in practice.²⁹ The developed framework (Appendix 3) grouped determinants in themes under 6 levels: the individual patient level; individual healthcare provider level; interpersonal level (i.e., the relationships or interactions between individuals); the community pharmacy setting level; the community pharmacy service level; community & health system levels.

Framework analysis methodology allowed for comparison of the data across the different interview participants as well as within each level. Data were charted into the framework matrix under themes that were created under each level. Data entered under each theme was then further thematically analysed to identify specific determinants. Determinants were further analysed into barriers and facilitators, where a barrier can negatively influence, and a facilitator can positively influence, CPS implementation or practice change. A barrier was defined as "any type of obstacle (material or immaterial) which can impede the dissemination, implementation and/or sustainability of a CPS"; while a facilitator was defined as "any type of element (material or immaterial) which can help to overcome barriers and/or accelerate the dissemination or implementation" of a CPS.³⁰ Data that could not be coded were identified and analysed later to determine whether they represent a new code or a sub-category of an existing code. Researchers would meet to discuss the progress of analysis, including the 'fit' of data to the framework.³¹

For phase 2, two researchers reviewed the transcripts and noted where findings intersected with themes identified in Phase 1 and when new themes were evident. These were clarified through discussion. New determinants not identified during Phase 1 were added to the framework. For the prioritization exercise, all of the determinants placed in the upper right quadrant (i.e., most important and most feasibly addressed) were considered to be the key determinants of pharmacy practice.

3. Results

Phase 1: Exploring the views of ground level stakeholders to identify the determinants of pharmacy practice. A total of 16 semi-structured interviews were conducted with 5 community pharmacists, 4 GPs and 6 patients and 1 with a dual role practice manager/community pharmacist. Each interview was approximately 30–45 min long. (See Table 1 for participants' characteristics).

Table 1
Participant characteristics.

| Phase 1. Semi-structured interview participants | |
|--|--|
| ● Pharmacists (n = 5): male: 40%; all with previous experience with CPSs; position: pharmacists in charge (60%), pharmacy manager (20%), employee pharmacist (20%). | |
| ● General practitioners (n = 4): male: 50%; all with previous experience with CPSs | |
| ● Practice Manager (n = 1), male | |
| ● Patients (n = 6): male: 50%; previous experience with CPSs: 50%; co-morbidities*: hypertension, hypercholesterolemia, diabetes, all with at least one chronic condition. | |
| Phase 2. Workshop participants | |
| ● Pharmacists (n = 2): male: 50%; all pharmacists in charge with previous experience with CPSs | |
| ● Patient (n = 1): male with previous experience with CPS | |
| ● Primary Health Network (n = 7)**: decision maker/advisor/system managers: 100%; previous experience with CPS: 29% | |

* indicates those co-morbidities that were present in \geq a third of the interviewed patients.

**all these participants either worked at or heavily liaised with the primary health network (i.e., as advisors, system manager, decision makers or involved in the organization of primary care. This group also included 3 ground-level stakeholders: 2 general practitioners and 1 pharmacist).

CPS: Community pharmacy service.

Participants identified 65 determinants across the different levels of the framework (Table 2). Some determinants were identified as a barrier, facilitator or both, and for some determinants more than one barrier and/or facilitator was mentioned. The main findings for each level, with supporting quotes (see Table 3), are summarised below.

3.1. Individual patient level

Low awareness of the availability of CPSs was commonly mentioned by patients, pharmacists and GPs and was described by some as a major reason for under-utilisation of current CPSs. Both pharmacists and patients mentioned a lack of patients' time to participate in CPSs. Some patients were described as having limited understanding of the CPS, with a perception that the CPS was a 'test' or 'assessment' of their capabilities, rather than something of benefit to them. However, when patients were given more information, and could recognise the value in receiving a CPS, they were willing to make time for it. (Quote 1) Some patients did not see the benefit of current CPS for themselves, but could envisage a need for one in the future, while others were able to see the benefits of CPS provision for specific population groups (e.g. the elderly). (Quote 2).

3.2. Individual healthcare professionals

Pharmacists, patients and GPs perceived pharmacists to have adequate knowledge and communication skills to provide CPSs. However, one barrier to the provision of CPSs that was mentioned by pharmacists and GPs was the lack of pharmacists who were professionally accredited to provide a CPS (i.e., HMRs). Low GP awareness of some services (e.g. MedsCheck, Diabetes MedsCheck and Clinical Interventions) was reported by all GPs, and one pharmacist commented that GPs had a poor understanding of how to request a CPS for a patient. (Quote 3).

3.3. Relationships (or interactions) between individuals

Communication between the GP and the pharmacist was a relevant determinant mentioned by patients, GPs and pharmacists. Pharmacists mentioned that communication with the GP occurred frequently when it was relevant to contact the GP regarding a patient issue. (Quote 4) All three participants also mentioned the importance of feedback from the pharmacist to the GP following CPS provision and one patient also suggested that patients should be notified when feedback from the pharmacist to the GP had occurred. Patients and pharmacists also

commented that if the GP referred the patient to the pharmacist for a CPS, it would greatly increase CPS use. (Quote 5). It was mentioned by a GP that when pharmacists took the initiative to contact GPs regarding a CPS, it led to the development of a positive, collaborative and trustful relationship between the two healthcare professionals. However, one pharmacist explained the challenges of communication with some GPs due to time constraints, for example, when it was necessary to contact the GP to verify patient therapy. Consequently, alternative modes of communication to facilitate direct interaction between pharmacists and GPs were suggested, such as face-to-face consultations and real-time video chat. (Quote 6).

3.4. Community pharmacy setting

All the pharmacists mentioned their time as a key barrier for the implementation of CPSs, which included the time required to provide the CPS to the patient, complete the administrative tasks and paperwork of the CPS and submit a claim. (Quote 7) The presence of sufficient pharmacy staff to deliver the service was mentioned by pharmacists and GPs. The pharmacists mentioned having at least two pharmacists on duty at the same time enabled them to work in the dispensary as well as provide CPSs, while one GP mentioned the presence of dispensary technicians to ease the pharmacists' workload and enable time for CPS provision. Pharmacists mentioned that commitment from the organizational leaders (i.e., pharmacy owners, pharmacy managers, and banner group managers), and presence of teamwork between all the pharmacy staff facilitated CPS provision however they also explained that maintaining sufficient and high-quality staff, in addition to other costs, was challenging. (Quote 8) Patients and pharmacists described the close location of the pharmacy relative to a patient's home, extended trading hours and the ability to see a healthcare professional without an appointment facilitated service use. (Quote 9).

3.5. Community pharmacy service

Both GPs and pharmacists mentioned that for CPSs provided at the patient's home (i.e., HMR) patients may be concerned about their privacy and home security. One GP suggested that an in-pharmacy consultation could be an alternative for patients who felt this way. All four stakeholders mentioned that when CPSs delivered a benefit/advantage to the patient (e.g., improved health, quality of life, adherence, knowledge, confidence, support etc.) it promoted CPS provision and/or use. For the only CPS that required a payment by the patient (i.e., DAA), all four stakeholders mentioned this cost as a reason for non-use, due to the low-socioeconomic status of the Western Sydney residents. Both pharmacists and GPs considered CPS provision that was tailored to fit individual patient needs was more beneficial for the patient, and one GP mentioned that it enabled better therapeutic decision making by the GP. (Quote 10) Provision of the CPS by the pharmacist in the general practice setting was suggested by one GP and a practice manager as a means to provide more holistic care to the patient whilst encouraging collaboration as both GPs and pharmacists benefit from this arrangement. (Quote 11).

3.6. Community & healthcare system

Some GPs and pharmacists mentioned that GPs do not have sufficient time to engage in CPSs, yet other GPs and a practice manager were of the opinion that CPSs (e.g. HMRs) can reduce the workload of the GP, as the pharmacist can act as a 'gatekeeper', filling in the gaps that the GP may have missed. (Quote 12) The pharmacists mentioned complex bureaucratic processes, such as the submission of a claim for CPS provision, were challenging. Reasons cited included the number of steps and complexity of paperwork involved, time required to submit a claim and time restrictions within which claims have to be submitted. (Quote 13) Pharmacists also mentioned that current reforms to the provision of

Table 2
Determinants identified in phase 1.

| Determinant | Identified as a Barrier (B) or Facilitator (F) by patients (Pt), general practitioners (GP), community pharmacists (CP), practice manager (PM) or Primary Health Network participant (PHN) |
|--|---|
| The individual patient level | |
| Perception of the role of the pharmacist | B: Patients perceive that some CPSs are part of the Doctor's job rather than of the pharmacists' (Pt) F: Patients perceive that the pharmacist is an alternative to the GP as a source of information or for monitoring health conditions (GP, CP) |
| Real or perceived need for a CPS | B: Patients do not need a CPS (Pt, CP) |
| Understanding of the CPS | B: Patients have a poor understanding of the CPS (Pt, CP) F: Patients understand that the CPS is helpful and/or of value (Pt, CP) |
| Awareness of the availability of the CPS | B: Patients are unaware of the availability of the service (Pt, GP, CP) |
| Appreciation of the pharmacist for providing a CPS | B: Patients' lack of appreciation for the pharmacist in providing the CPS (CP) |
| Acceptance of the service | F: Patients' acceptance to receive the service and acceptance of the characteristics of the CPS (Pt, GP, CP) |
| Willingness and interest to receive a service | B: Patients are not interested in receiving a service (Pt) |
| Previous experiences of using a CPS | B: Patients' previous positive experience of using a CPS was a motivator for future use (Pt) |
| Abilities i.e., to adhere to the rules and protocols of the CPS | B: Patients' inability to adhere to the rules and protocols of the CPS makes CPS provision challenging for the pharmacist (CP) B: Patients' inability to adhere to the rules and protocols of the CPS makes it challenging to measure outcomes of the CPS provision (CP) F: Patients have the ability to correctly follow the rules and protocols of the CPS (CP) |
| Language and communication issues | B: Patient's inability to fluently speak or understand English makes CPS provision difficult for the pharmacist (CP) |
| Time to participate in a CPS | B: Patients do not have time to participate in the service and its procedures (Pt, CP) F: Patients will make time for a CPS if they perceive a benefit for themselves (CP) |
| Other healthcare costs to the patient | B: Other healthcare costs to the patient (PM) |
| Individual healthcare providers | |
| <i>Community pharmacists</i> | |
| Humanistic attributes | F: Pharmacists' humanistic attributes such as expressing concern, being nice and friendly (Pt) |
| Cultural competency | F: Pharmacists' ability to interact with people of different cultures (CP) |
| Communication skills | F: Pharmacists' ability to communicate well with the patient (Pt, GP, CP) |
| Knowledge | F: Pharmacists have adequate and appropriate knowledge of medicines (Pt, GP, CP) |
| Additional qualifications to provide CPS | B: Pharmacists are not accredited to provide CPS (GP, CP) |
| Perceptions of the GP | B: Pharmacists perceive that the GP is too busy to participate in a CPS (GP) |
| Experience and familiarity in performing the tasks of the CPS | B: Pharmacists who are not familiar or inexperienced with CPS and its tasks may find it difficult or may not provide CPS (CP) F: Pharmacists are willing to provide CPS (Pt, GP) |
| Willingness and interest to provide CPS | |
| <i>General Practitioner (GP)</i> | |
| Perceptions of pharmacists and CPS | B: GPs have a narrow perception of the role of the pharmacist (CP) B: GPs perceive pharmacists are taking on the role of the GP (GP, CP, PM) F: GPs identify a role and importance of pharmacists in patient healthcare (GP) |
| Understanding of CPS | B: GPs have a poor understanding of how to request a CPS for a patient (CP) |
| Awareness of the availability of CPS | B: GPs have low awareness of the availability of CPSs (GP, CP) |
| Willingness and interest to participate in CPS and/or collaborate with pharmacists | B: GPs are unwilling or uninterested to participate in CPS (CP, PM) F: When the GP initiates the CPS they are more open to liaising with the pharmacist (CP) |
| GPs' willingness and interest to have pharmacists as part of their team | F: GPs' willingness and interest to have pharmacists as part of their team (PHN) |
| Relationships (or interactions) between individuals | |
| Previous relationship between the patient and the pharmacist and its nature | F: Presence of a positive relationship between the patient and the pharmacist (e.g. trusting relationship) facilitates the patients' use of CPS (Pt, GP, CP) |
| Communication between the GP and the pharmacist | F: Presence of communication between the GP and the pharmacist (GP, CP, Pt) F: Communication in the form of documentation from the GP to the pharmacist (CP) B: Lack of communication between the GP and the pharmacist regarding a CPS (GP, CP) F: Availability of a suitable mode of communication between the GP and the pharmacist (GP, CP) F: Existence of a GP referral of a patient to the CPS (Pt, CP) F: The pharmacist provides feedback to the GP following the CPS provision (Pt, GP, CP) F: The pharmacist provides feedback to the GP regarding the CPS provision via a suitable mode of communication (GP) |
| Existence of suitable and appropriate feedback processes from the pharmacist to the GP following CPS provision | F: The pharmacist notifies the patient that feedback to the GP has occurred (Pt) F: Pharmacists have access to adequate level of patient information to provide CPS (PHN) |
| Pharmacists having access to adequate level of patient information to provide CPS | F: Presence of communication between the GP and the patient regarding the CPS (GP) |
| Communication between the GP and the patient | F: Presence of a good relationship between the GP and the pharmacist (CP) |
| Relationship between the GP and the pharmacist | B: Lack of a good relationship between the GP and the pharmacist (GP) |
| The community pharmacy setting level | |
| Presence of sufficient and qualified staff in the pharmacy | B: Maintaining high quality staff in the pharmacy is challenging (CP) F: Presence of sufficient staff at the pharmacy enables the pharmacist to perform CPS (GP, CP) |

(continued on next page)

Table 2 (continued)

| Determinant | Identified as a Barrier (B) or Facilitator (F) by patients (Pt), general practitioners (GP), community pharmacists (CP), practice manager (PM) or Primary Health Network participant (PHN) |
|--|---|
| Organization of the pharmacist's workload and time to deliver CPSs | B: Pharmacists do not have sufficient time to provide CPS and/or complete administrative tasks of the CPS (CP) B: Pharmacists do not have time to liaise with GPs as part of CPS provision (Pt, GP, CP) B: Pharmacists do not have time to promote the CPS to the GP (CP) F: Pharmacists can manage their time to make time for CPS provision (CP) B: Presence of other competing costs in the pharmacy (CP) B: Presence of other work demands/competing tasks in the pharmacy (CP) B: Insufficient space and storage in the pharmacy (CP) B: Unavailability of a private consultation room in the pharmacy (CP) F: Presence of a private consultation room in the pharmacy (CP) F: Internal layout of the pharmacy that is sensible and practical (Pt) F: Internal layout of the pharmacy that allows for privacy (Pt) F: Presence of teamwork in the pharmacy enables the pharmacist to devote time to the CPS (CP) |
| Other costs of the organization | F: Promotion of the CPS to create awareness amongst patient groups (Pt) |
| Balance between the work environment with regards to competing demands | F: Promotion of the pharmacy as a healthcare destination (CP) |
| Structural characteristics of the pharmacy setting | F: Presence of commitment from the organizational leaders with regards to the CPS (CP) F: Presence of support provided by the organizational group or head office (e.g., presence of multilingual staff) (CP) F: Support and commitment from pharmacy staff with regards to CPS provision (CP) B: Location of the pharmacy setting in a hospital versus a community (CP) F: Accessibility of the pharmacy setting characterised by distance from the patients' home and suitable trading hours (Pt, CP) |
| Presence of teamwork in the pharmacy | B: The home visit consultation makes patients concerned about their home privacy (GP, CP) F: In-pharmacy consultation is an alternative to the home visit consultation for patients concerned with privacy (GP) F: Presence of research and data to confirm that the CPS has a positive health outcome (CP) F: CPS can be provided by the pharmacist in the general practice setting (GP, PM) F: Integration of others (e.g. family and friends) in the CPS as group sessions (Pt) F: The CPS can meet a future health/need or gap (Pt) F: CPS provision that is tailored to meet individual patient needs is more beneficial for the patient (GP, CP) B: CPS provision that is not tailored to meet individual patient needs is not useful for the GP (GP) F: CPS provision that is tailored to fit individual patient needs is more clinically useful for the GP (CP) B: Presence of a cost of the CPS for the patient (Pt, GP, PM, CP) F: No cost of the CPS to the patient (GP) B: Cost of employing extra staff (CP) B: Other costs of implementation e.g. private consultation room (CP) F: CPSs that require less time to complete are easier to implement (CP) B: Presence of additional administrative tasks of CPS provision e.g. documenting, obtaining prescriptions etc., (CP) B: System for recording CPSs is not conducive (CP) F: Patient benefits such as improved health, quality of life, adherence, knowledge, confidence, support etc. (Pt, GP, CP, PM) F: Pharmacist professional/personal benefits such as professional or personal reward, increased satisfaction or motivation (GP, CP) F: GP benefits such as ability to make better therapeutic decisions and improved practice (Pt, GP, PM) B: Lack of financial benefit to the organization such as remuneration (CP) F: Presence of organizational benefit such as financial remuneration, increased patient loyalty (CP) F: Benefits to the healthcare system such as reduced re-admissions to hospital, reduced healthcare costs F: Availability of a system to assess the outcomes of CPS provision to improve the quality of the CPS provision (CP) |
| Promotion of the pharmacy and of the CPS | |
| Commitment from the organizational leaders with regards to CPS | |
| Presence of support provided by the organizational group or head office | |
| Implementation climate i.e. the shared receptivity of the involved individuals to a CPS | |
| Accessibility of the pharmacy setting and its location | |
| The community pharmacy service level | |
| Privacy of the CPS consultation | |
| Evidence supporting the belief that the CPS will have the desired outcome | |
| CPS being provided in an alternative setting | |
| Provision of the CPS as a group session | |
| Extent to which the CPS meets and is tailored to fit individual patient's needs or fills existing gaps in healthcare practice (this enhances the value of the service for patients and healthcare professionals) | |
| Cost of the CPS for the patient | |
| Cost of CPS implementation | |
| Difficulty implementing the CPS reflected by length of time required to implement | |
| Difficulty implementing the CPS reflected by number of steps involved or processes involved | |
| Relative advantage of the CPS provision to the patient | |
| Relative advantage of CPS provision to the healthcare provider | |
| Relative advantage of CPS provision to the pharmacy organization | |
| Relative advantage of CPS provision to the healthcare system | |
| Systems to assess quality of the service's implementation and provision | |
| Community and health system level | |
| GPs' education that enforces multidisciplinary approach to healthcare | F: GPs' university education that enforce multidisciplinary approach to healthcare promotes collaboration with pharmacists (CP) |
| Organization of GPs' workload and time to collaborate with CPSs | B: GPs do not have sufficient time to engage in CPS (GP, CP) F: CPSs can reduce the workload of the GP (GP, PM) B: Collaboration with other stakeholders to implement CPSs is timely (CP) B: Lack of interest of other stakeholders in collaborating with pharmacists and CPSs (CP) F: Presence of interest of other stakeholders in collaborating with pharmacists and in CPSs (CP) F: Involvement of other stakeholders in creating awareness of CPSs amongst patients (Pt) |
| Other stakeholders in the healthcare system and their acceptance of the service, identifying opportunities for CPS, demand or interest in the CPS | |

(continued on next page)

Table 2 (continued)

| Determinant | Identified as a Barrier (B) or Facilitator (F) by patients (Pt), general practitioners (GP), community pharmacists (CP), practice manager (PM) or Primary Health Network participant (PHN) |
|---|---|
| Promotion of the CPS through media Support from professional organizations Complexity of the system-level processes for CPS | F: Promotion of the CPS through media such as television or internet (Pt) F: Lobbying by Pharmacy professional bodies for financial remuneration of CPSs (GP) B: Claiming, paperwork and complying with system level requirements make CPS provision challenging (CP) F: Ease of claiming and paperwork submission for CPSs (CP) B: System level rules and requirements that restrict CPS provision (CP) |
| Laws, policies and regulations (governmental or other central entity), external mandates, recommendations, guidelines The degree to which the profession is networked with other healthcare professionals and their organization Availability and allocation of funding | F: Coordination of the healthcare system to prompt collaboration between pharmacists and other healthcare professionals (CP) B: Lack of remuneration for pharmacists for CPS provision (CP) F: Available remuneration for the pharmacist for CPS provision (GP, CP) B: Lack of sufficient remuneration for the GP as part of CPS provision (CP) F: Available remuneration for the GP as part of CPS provision (GP) F: Availability of financial support to patients (CP) B: Current payment schemes for CPS provision do not correctly reflect the work involved (CP) |

CP: Community pharmacists; CPS: Community pharmacy service; GP: General practitioners; Pt: patients; B: barrier; F: facilitator; PM: practice managers.

CPSs, such as a cap on the total number of services that can be provided within a time period (i.e., MedsCheck, Diabetes MedsCheck) was a disincentive for CPS provision. For CPSs that are currently only remunerated for pharmacists, both pharmacists and GPs mentioned the need for sufficient remuneration for GPs for partaking in activities related to these CPSs (i.e., for referral, administrative work etc.) The pharmacists also mentioned that while remuneration was available for some CPSs, current payment did not match the level of time, effort or work behind CPS provision. (Quote 14) Alternative modes of remuneration, such as the availability of Government funding for CPSs for both GPs and pharmacists, was suggested by both healthcare professionals.

Phase 2. Selecting key determinants of pharmacy practice. A total of 10 stakeholders participated in the workshop: 2 pharmacists and 1 patient from the previous phase and 7 stakeholders linked to the PHN (see Table 1 for participants' characteristics).

3.7. Determinants of practice

During the two discussion segments of the workshop, the stakeholders discussed and provided further insight into several determinants that were identified during the interview phase, including patients' awareness and understanding of CPSs, and the communication between pharmacists and GPs. It was mentioned that current publicity, promotion and marketing of CPSs occurred only for material developed by the national pharmacy representative group (i.e., the Pharmacy Guild) and government agencies and was limited to the pharmacy setting or via social media, which may not reach the population in need of these services. Participants agreed that the current system lacks collaboration between healthcare professionals, resulting in many silos of care. (Quote 15) Electronic systems such as electronic scripting and online, integrated patient records were perceived as an excellent method to facilitate communication and collaboration, but limited by the system in which it is to be implemented. (Quote 16).

Participants mentioned the importance of reimbursing the pharmacist for providing CPSs, but mentioned that current payment schemes for certain CPSs (i.e., clinical interventions), in which reimbursement varies per quarter, could be a disincentive for pharmacists as the ultimate reimbursement value for this CPS is unknown at the time of service provision. The lack of financial reimbursement for the GP, other than for HMRS, was also mentioned as a potential barrier. (Quote 17).

The stakeholders also mentioned additional determinants not identified in Phase 1. The pharmacist having access to an adequate level of patient information, such as a well-reconciled medication list, was

perceived as a requirement to appropriately provide CPSs. The stakeholders also suggested a revision to the determinant 'GP's willingness and interest to refer patients to a CPS', which was described as a facilitator for CPS implementation in Phase 1. However, when the workshop participants discussed this determinant, they believed it should be changed to "GP's willingness and interest to have pharmacists as part of their team", explaining the need for GPs to accept new and extended roles of pharmacists.

3.8. Suggestions to enhance CPS implementation

The stakeholders also provided some supplementary information regarding suggestions to enhance the implementation of CPSs, which are listed in Table 5. The participants suggested a systematic process of communication between GPs and pharmacists (Quote 18). Face-to-face and real-time communication between the two healthcare professionals was proposed to facilitate communication, which was also mentioned in Phase 1. The re-location of the pharmacist to the general practice setting to provide CPSs was mentioned by some participants to overcome issues related to communication and information sharing between the two healthcare professionals due to the availability of a common records system and ease of direct communication.

3.9. Prioritization exercise

When the stakeholders used the four-quadrant priority/feasibility matrix in the small group exercise, 22 determinants in total were identified to have high priority and be highly feasible (Table 4). Among the 22, three determinants were common in both stakeholder groups and mutually agreed upon during the whole group discussion as those which should be initially addressed: (1) Patient understanding of the aims of the service; (2) Commitment of the organization and its leaders to provide services; and (3) Coordination of healthcare system to prompt collaboration between pharmacists and GPs.

4. Discussion

This study demonstrated a multilevel stakeholder participatory approach that identified a list of determinants across different levels of the healthcare system that acted as barriers or facilitators to the implementation of current CPSs in a PHN in Western Sydney. The study was restricted to one context in Western Sydney, Australia in the district of Parramatta. This is not considered a limitation of the study, rather it is an essential decision, as the results are directly relevant for this context and will be immediately applied to inform CPS implementation

in the area in an upcoming pilot study. As all PHNs are similar in their structure and processes, the comprehensive list of determinants identified in this region may be applicable to other regions in this area and to other PHNs. As Australia has extensive experience and research in CPS implementation, it is likely that the comprehensive list of determinants identified in this study can be used to guide the assessment of determinants in other contexts.

The participatory approach in this study was conducted over two phases with the participation of different stakeholders and use of different qualitative methods. This increased the chances of identifying more determinants that were meaningful for all stakeholders and ultimately enabled a deeper understanding of the context. More importantly, a prioritization exercise took place to uncover from the large number of determinants identified, which are most important and can

be practically addressed. Twenty-two determinants of high priority and feasibility were identified by the stakeholders. Of these, three determinants were mutually agreed upon by both stakeholder groups to guide the development of an implementation program in the first instance. Ground and system-level stakeholders should continue to be engaged in future stages of research, to suitably and efficiently develop implementation programs to enhance the implementation of CPSs.

This study provided further insight into how determinants that have been previously identified can act in practice. Previous studies have emphasised that promotion of the role of pharmacists, and marketing of CPSs, may improve patient awareness of the availability of CPSs and so facilitate their use.^{32,33} Yet, the stakeholders in this study indicated that promotion and marketing of CPSs in Australia exists, but it is limited and does not reach the audience for which CPSs are generally intended.

Table 3
Selected quotes to support the main findings.

| Selected quotes from the interviews with ground-level stakeholders | |
|--|---|
| The individual patient | Quote 1: "If they realise that you're trying to help them, or you have a particular reason that you're trying to help them and they're quite happy to wait for it." – CP2 Quote 2: "...when you get to the older people, would probably lead to an increased reliance on Pharmacists ... when you're dealing with the elderly group, probably all of these will be valuable." – Pt2 |
| Individual healthcare providers | Quote 3: "I don't think they realise that if they want a person initiated on a DAA (Dose Administration Aid), they can just go ahead and request it" – CP3 |
| Interpersonal relationships | Quote 4: "...we have a team of pharmacists where collaboration with a GP is something that's always at the forefront anyway ... if we know that the GP needs to be informed, we do" – CP3 Quote 5: "I think that the biggest support you could have to increasing this, would be for the GPs to point the patients in your direction ... And it's really up to the GP to, if they can't help the patient in certain things, to say go to the Pharmacist and get this help." – Pt1 Quote 6: "I think that ... if there was ... a streamline process for that, that would be really good ... I suppose email communication or sort of a chat communication, where I'm sort of direct and live with the pharmacist if I need to be and I can just type in saying - and then they actually have a record of me typing that and so they're medico-legally covered." – GP3 |
| Community pharmacy setting | Quote 7: "Time is an issue. You know if you've got a pharmacy full of people waiting for their script, it's very hard." – GP3 Quote 8: "...our pharmacy assistants, the requirements that we now hold with them ... and having their knowledge updated ... we don't object to having to do it, it's just that they're expensive ... the costs for us to run our IT systems is phenomenal ... Our insurances And our commitment, and our requirement for continuous education for all our pharmacists ... to maintain the quality and the standards of what you would want your pharmacists to be is a, it is a big challenge to do." – CP3 & CP4 Quote 9: "...we're accessible because we're open long hours. You don't need an appointment generally to speak to a pharmacist. And we have the knowledge in front of them, and we've got a lot of medicines knowledge and support, so that we're very easily accessible ... they can just walk in our front door and we're approachable and have good knowledge." – CP4 |
| Community pharmacy service | Quote 10: "I think some pharmacists are very good ... they'll go through all of the patient's details and previous background and come up with a suitable plan, which is suited to the patient's co-morbidities as well as functionality ... I like it when there's a discussion of the benefit/risk ratio versus oh there's an interaction there, because I'm like well I was aware of that interaction too, but let's look at what's practical and what's functional." – GP3 Quote 11: "I think, so what we're trying to obviously set up here in the longer run is a very comprehensive pharmacy, doctor, work together and achieve results which are totally directed and in the best interest of your patient without that whole ego and territorial thing of - are you encroaching on my patient? ... if it was all under one roof everyone is across it knowing that we're collaborating to achieve what is specifically the best for the patient. If you can do it in a setting where all parties know that well it's this business that benefits from it at the end of the day. We're all part of the same business. So as a result we all benefit. Then it's going to be the one that's going to get you the least amount of issues and concerns and probably the best results." – PM1 |
| Community & healthcare system level | Quote 12: "I think what it (the CPS) does is basically takes a load off the doctors. Where the doctors have got the added benefit of knowing that there is another gatekeeper in case ... It's good for the doctor to know that there is someone else that's going to fill in the blanks in terms of the patient or come back and report if there are any issues or concerns that the patient hasn't made aware." – PM1 Quote 13: "The issue is for example, I did it (MedsCheck) a couple of times and I didn't submit it, because you have a month to submit it. Otherwise it's considered void ... You've done the work, whether you submit it in 30 days or 40 days" – CP5 Quote 14: "The Pharmacy is being squeezed, so any financial reward is definitely welcome. But not at the expense of, to make an additional \$100 I have to spend 3 h filling paperwork. So it needs to somehow fit in, in an already cramped workload." – CP5 |

(continued on next page)

Table 3 (continued)

| Selected quotes from the interviews with ground-level stakeholders | |
|--|---|
| Selected quotes from the key stakeholder workshop | <p>Quote 15: "People want to know that people are in the loop, people want to know that their care is not just provided one bit over here, one bit over there, one bit over there, all disconnected. In fact, the biggest problem we have in our system is that there are so many silos of care." – PHN1</p> <p>Quote 16: "the best system in the world is not going to work unless you have a model of care that works. So you have to be able to apply the technology to a good model of care to accentuate that model of care, as opposed to trying to implement technology to change a model of care." – PHN1</p> <p>Quote 17: "if you're looking at it from a pure financial element ... the CPA funding ... That's the win for the pharmacist who's involved - or the pharmacy which is involved. Potentially I can imagine there's got to be some commercial benefit to that pharmacy in terms of retaining patients as well. There's a benefit to the patient, there's a benefit to the system. Where we're not seeing the win in that so far is the win to the practice in that there is no win to the GP practice" – PHN6</p> <p>Quote 18: "if pharmacy's doing a MedsCheck, or diabetes MedsCheck, does the doctor want to know what happened and what do they want to know? Does the pharmacist know the kind of information the doctor wants to get out of it?... if we're going to be working together to try to integrate it we need the GP to know that the pharmacy can provide this information, and the pharmacy needs to know what it is they're trying to get out of the patient and what information they want to transfer back to the GP. I think that communication is crucial." – PHN7</p> |

CP: Community pharmacists; CPS: Community pharmacy service; GP: General practitioners; Pt: patients; B: barrier; F: facilitator; PM: practice manager; PHN: primary health network person.

This indicates that this determinant is not acting as a facilitator as would be expected and more work beyond producing advertising material is needed to reach potential users. Importantly, the stakeholders identified some new determinants that, to the best of our knowledge, have not been previously reported. The first of these include: (1) provision of the CPS as a small group session to integrate family and friends. It was perceived by the stakeholders that including family and friends at the point of provision of the CPS would encourage patients to utilize the CPS. The second new determinants is (2) advantage (i.e.,

benefit) of CPS provision to the healthcare system. The stakeholders believed that if the pharmacist could recognise that a benefit to the healthcare system could be achieved as a result of CPS provision (e.g. reduced financial costs of healthcare), they would be more motivated to provide them.

The determinants identified in this study are the starting point to developing practical and suitable implementation programs aimed at enhancing the delivery of CPS in the WentWest PHN. The supplementary results include suggestions made by the stakeholders in this study, to enhance the implementation of CPSs and can provide some guidance in this regard. For example, the stakeholders envisioned pharmacist-provided CPSs in GP clinics would overcome barriers such as lack of pharmacist access to patient data (e.g. medical history, pathology, specialist correspondence and previous medicines) and incorporate facilitators such as direct GP-pharmacist communication, which can promote inter-professional collaboration. Improved inter-professional collaboration is also related to, and has been shown to impact, other determinants such as patients' acceptance of the CPS, GP accessibility to the pharmacist (which can improve inter-professional relationships), decrease the GPs' workload, improve GPs' narrow perceptions regarding the role of the pharmacist and increase GPs' willingness to work with pharmacists.^{34,35} All of this information is relevant to developing implementation strategies that are tailored to address determinants that

Table 4
List of key determinants selected by workshop participants.

| |
|---|
| <i>Individual patient level</i> |
| - Patient understanding of the service* |
| - Patient awareness of the availability of the service |
| - Patients' acceptance of the service |
| - Patients' perceptions of the role of the pharmacist |
| <i>Individual healthcare providers</i> |
| - GP perceptions of pharmacists and understanding of the service |
| - GPs' willingness and interest to have pharmacists as part of their team |
| <i>Relationships (interactions) between individuals</i> |
| - Referral and feedback processes from the GP to the service and vice versa |
| - Relationships between the patient and the pharmacist and its nature |
| - Relationship between the GP and the pharmacist |
| - Communication between the GP and the pharmacist |
| <i>The community pharmacy setting</i> |
| - Presence of teamwork within the pharmacy |
| - Structural characteristics of the pharmacy setting |
| - Commitment from the organizational leaders with regards to CPS* |
| - Balance between the work environment with regards to competing demands |
| <i>The community pharmacy service</i> |
| - Privacy of the CPS consultation |
| - Extent to which the CPS meets and is tailored to fit individual patient's needs or fills existing gaps in healthcare practice |
| - Relative advantage of the CPS provision to the patient |
| - Relative advantage of CPS provision to the pharmacy organization |
| - Relative advantage of CPS provision to the healthcare system |
| <i>The community & healthcare system</i> |
| - The degree to which the profession is networked with other healthcare professionals and their organization (i.e., coordination of healthcare system to prompt collaboration between pharmacists and GPs)* |
| - Other stakeholders in the healthcare system and their acceptance of the service, identifying opportunities for CPS, demand or interest in the CPS |
| - Availability and allocation of funding |

* indicates those determinants that were considered by both groups to be crucial to be targeted.

CPS: Community pharmacy service; GP: General practitioners.

Table 5
Suggestions to improve CPS implementation in Western Sydney as identified by workshop stakeholders.

- Raise the current limit on MedsCheck provision from 10 per pharmacy to 10 per pharmacist
- Relocate the pharmacist to provide CPSs in the general practice setting
- Conduct the MedsCheck first to determine whether a HMR is needed
- Provide MedsChecks to patients who do not want a HMR due to concerns regarding home privacy
- Implement a systematic process of communication between GPs and Pharmacists, in which the GP is aware of what information is available from the pharmacist, and the pharmacist is aware of what information is of value to GPs, gathers this information during a patient consultation and transfers it to the GP
- Include referral to community pharmacist for a CPS as part of the Chronic Disease Management Care Plan
- Allocate some of the government funding specifically allocated for CPSs to GPs
- Undertake a processes mapping activity to outline ideal pharmacy practice and CPS provision and compare this information to what is currently occurring in practice to identify key gaps

CPS: Community pharmacy service; GP: General practitioners.

are relevant for this particular region in WentWest, and also improves the ability to predict the impact and adequacy of implementation strategies in other areas.²⁶ Once implementation strategies have been developed and implemented, research should focus on assessing and quantifying the impact of these key determinants on CPS implementation, and evaluating whether strategies that address these determinants actually enhance implementation of CPSs in practice.

Importantly, as the key determinants exist across different levels of the healthcare system, processes to design strategies should engage stakeholders from across these different levels.^{6, 9, 11} The supplementary results (Table 5) demonstrates that stakeholders can conceptualize approaches to enhance CPS implementation. Powell and colleagues compiled a generic list of strategies that have been utilised in health and mental health care³⁶ and Flottorp and colleagues created a checklist of determinants linked to strategies,⁵ which can alert stakeholders to the options that are available and/or have been previously implemented to address certain determinants, and provide a starting point for this step. Group-based brain-storming methods can be utilised to generate and link strategies,³⁷ and should also involve specifying the fundamental components of strategies which are necessary information to adequately replicate and operationalise them in the future.³⁸

5. Strengths and limitations

Based on two previous works,^{23,24} this study created a framework of determinants that influence the implementation of CPSs in Australia as identified by patients, GPs, nurses and pharmacists. The framework created in this study is specific for pharmacy practice as it takes into account all the relevant ground-level stakeholders involved in the implementation of CPSs and broadens the range of determinants identified in the pharmacist-centred literature. This framework may therefore be applied in future pharmacy practice research. Additionally, qualitative methodology and a multi-level stakeholder approach successfully achieved the aims of the study, and so pharmacy practice researchers may also adopt this approach in their own research.

This study was limited by the time available to coordinate stakeholders (i.e., manage individual agendas, competing priorities and differential time commitments by the participants) to conduct the research. These challenges have been commonly reported when working with stakeholders.³⁹ This required delaying the date of the workshop to allow sufficient time for Phase 1, as well as modification of the workshop time schedule on the day, reducing the time available for the key determinant exercise. Additionally, only three ground-level stakeholders participated in Phase 2 of the study. Due to the time constraints experienced in this study, further research may be required to explore and clarify key determinants in the future. Furthermore, a large number of participants had previous experience with CPSs which may have influenced their opinions. Future research may consider capturing the views of individuals with less or no previous experience of CPSs. Nonetheless, the extensive list of determinants identified demonstrates a deep understanding of the context was obtained.

6. Conclusion

The participatory approach in this study engaged a number of stakeholders from different levels of the healthcare system to identify and provide further insight into determinants of practice and how they influence the implementation of CPSs in the Western Sydney Region. The priority matrix was a suitable method to choose key determinants in group exercises between different stakeholders, and should continue to be used in future research. The 'key determinants' that were identified by the stakeholders will be used to direct the development of implementation strategies to enhance the implementation of CPSs in an upcoming pilot program. Future research must continue to engage stakeholders across different levels of the healthcare system in the development, implementation and evaluation of such implementation

strategies. Importantly, this study demonstrated the challenges with time when working with stakeholders. Pharmacy practice researchers must be mindful of these constraints and allow for sufficient time in future research steps.

Conflict of interest

None.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.sapharm.2017.10.001>.

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Appendix 1: Interview Guides

Patients

| A. Interview guide for PATIENTS | |
|--|--|
| Theme | Questions |
| Perception of pharmacists, community pharmacy and experiences with services | 1. Can you describe a typical experience you have when you go to the community pharmacy? |
| | (You were provided with some examples and descriptions of community pharmacy services)... |
| | 2. Have you ever received a community pharmacy service like the ones described or any others? |
| | <u>If YES,</u> 2a. Can you please tell me a little about your experience of having this service, or any others, when you go to the pharmacy? 2b. What reasons make you interested in receiving one? |
| | <u>If NO,</u> 2a. Would you be interested in receiving any of these services in the future? 2b. What are the reasons that can make you (1) interested in receiving a service in the future; (2) not interested to receive a service in the future? |
| Barriers and facilitators | (The use of these community pharmacy services by patients is less than what they could be. We would like to know why.) 3. What do you think are some reasons why patients are not using or requesting CPSs? |
| | 4. What are some issues/things could assist/support/improve your use of community pharmacy services? |
| Needs and gaps in healthcare and opportunities for CPS and | 5. Can you suggest some other situations where receiving a CPS would have been useful for you? |
| End | That concludes the interview. Thank you for participating and the time you have taken to complete this interview. |

Pharmacists

| B. Interview guide for PHARMACISTS | |
|--|---|
| Theme | Questions |
| Perception of pharmacists, community pharmacy and experiences with services | 1. What do you think is the role or responsibility of the pharmacists in providing healthcare? |
| | (Here is a list of current government funded community pharmacy services)... 2. Do you provide any of these CPSs in your pharmacy? |
| Barriers and facilitators | If YES, 2a. Which CPSs do you provide? How many? 2b. Describe your experiences of providing these CPSs? 2c. What are some reasons that drive you to provide CPS? 2d. What are some issues that make it difficult for you to provide CPSs in your pharmacy? |
| | If NO, 2a. What are your thoughts and opinions of CPS? 2b. What are the reasons that made you decide not to provide CPS? 2c. What could be some factors that would drive you to provide CPS? |
| Needs and gaps in healthcare and opportunities for CPS | 3. Thinking about your community, can you suggest a health area, concern or situation in which patient care could be improved if they received a CPS? |
| End | That concludes the interview. Thank you for participating and the time you have taken to complete this interview. |

GPs

| C. Interview guide for GENERAL PRACTITIONERS | |
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| Theme | Questions |
| Perception of pharmacists, community pharmacy and experiences with services | 1. What contribution can pharmacists make to improve patient healthcare? |
| | (You were provided with a list and description of some common community pharmacy services. There are others that community pharmacists may provide)... 2. Have you ever referred a patient to a CPS or has a patient or pharmacist ever contacted you about a community pharmacy service? |
| Barriers and facilitators | If YES, 2a. Can you describe your experiences with these CPSs? 2b. What are some reasons that drive you to refer patients to a CPS? 2c. What are some issues that make it difficult for you to refer patients to CPSs? |
| | If NO, 2a. What are your thoughts and opinions of CPS? 2b. What are the reasons that made you decide not to refer patients to CPS? 2c. What could be some factors that would drive you to refer patients CPS? |
| Needs and gaps in healthcare and opportunities for CPS | 3. Thinking about your community, can you suggest a health area, concern or situation in which a CPS could support your practice? |
| End | That concludes the interview. Thank you for participating and the time you have taken to complete this interview. |

Practice Manager

| Theme | Questions |
|--|---|
| Perception of pharmacists, community pharmacy and experiences with services | 1. What contribution can pharmacists make to improve patient healthcare? |
| | (You were provided with a list and description of some common community pharmacy services. There are others that community pharmacists may provide)... 2. Are you aware of any patients at your practice receiving a community pharmacy service? |
| Barriers and facilitators | <u>If YES,</u> 2a. Can you describe your experiences with these CPSs? 2b. What are some reasons that drive you to refer patients to a CPS? 2c. What are some issues that make it difficult for you to refer patients to CPSs? |
| | <u>If NO,</u> 2a. What are your thoughts and opinions of CPS? 2b. What are the reasons that can explain why patients at your practice don't get referred for CPS? 2c. What could be some factors that would drive your practice to refer patients for a CPS? |
| Needs and gaps in healthcare and opportunities for CPS and | 3. Thinking about your community, can you suggest a health area, concern or situation in which a CPS could support your practice? |
| End | That concludes the interview. Thank you for participating and the time you have taken to complete this interview. |

Appendix 2 Overview of Community Pharmacy Services

Community pharmacy services are primary healthcare resources funded by the Australian government. All community pharmacy services are provided by accredited pharmacists with the general aim of enhancing the use of medicines (i.e., achieving a safe, appropriate and effective use of medicines) and improving patients' health.

What government-funded health services are available to the community?

- 1 Home Medicines Review**
An at-home comprehensive medication review that assists patients to better understand and manage their medicines and provides medical information to other healthcare professionals involved in patient care. For more information [click here](#).
- 2 MedsCheck**
An in-pharmacy medication review that identifies any problems that the patient may be experiencing with their medicines, helps patients learn more about medicines, and improves patient self-management of their condition. For more information [click here](#).
- 3 Diabetes MedsCheck**
An in-pharmacy medication review that educates patients with diabetes about their medicines, promotes self-management and optimizes patients' use of blood glucose monitoring devices and blood glucose control. For more information [click here](#).
- 4 Residential Medication Management Review**
A comprehensive medication management review that enhances the quality use of medicines for patients in residential aged care facilities, by assisting patients and their carers to better manage their medicines. For more information [click here](#).
- 5 Dose Administration Aid**
A well-sealed device that allows medicine doses to be organized according to the doctor's prescribed medicine schedule at a small cost to the patient. For more information [click here](#).
- 6 Staged Supply**
An in-pharmacy program in which medicines are supplied in instalments as requested by the prescriber, assisting patients to adhere and safely manage their medicines. For more information [click here](#).
- 7 Clinical Intervention**
An activity that aims to identify drug-related issues and results in a recommendation for a change in the patient's medication therapy, means of administration or medication-taking behavior. For more information [click here](#).

Some key features of community pharmacy services

| | Who can receive the service? | Where is it provided? | Referral by a GP | Available remuneration |
|--|---|---|-----------------------------------|--|
| Home Medicines Review | Patients living in a community setting who are at risk of experiencing medication misadventure | At the patients' home by an accredited pharmacist | Patients must be referred by a GP | \$213.67 for General practitioners & pharmacists |
| MedsCheck | Patients taking five or more prescription medicines or have had a recent significant medical event* | In the pharmacy | Not necessarily required | \$63.81 for pharmacists |
| Diabetes MedsCheck | Patients who have recently been diagnosed with type 2 diabetes (in the last 12 months) or have less than ideally controlled type 2 diabetes and are unable to gain timely access to existing diabetes education/health services in their community* | In the pharmacy | Not necessarily required | \$95.71 for pharmacists |
| Residential Medication Management Review | Permanent resident of an Australian Government funded aged care facility | In residential aged care facilities | Patients must be referred by a GP | \$108.05 for pharmacists |
| Dose Administration Aid | Any patient experiencing problems with their medicine | In the pharmacy | Not necessarily required | Variable |
| Staged Supply | Patients with a mental illness, drug dependency or who are unable to manage their medicines safely | In the pharmacy | Not necessarily required | \$1300 per year for a community pharmacy |
| Clinical Intervention | Any patient experiencing medication related problems | In the pharmacy | Not necessarily required | Variable |

This document has been developed by a research team at the University of Technology Sydney for the purposes of the project "Improving the delivery and integration of community pharmacy services to achieve better outcomes for patients with chronic and complex conditions in Western Sydney Primary Health Network". The aim of the document is to provide a brief overview of the government-funded services that can be provided by community pharmacists to improve patients' health outcomes. If you would like further information please call (02) 9514 7189, (02) 9514 7201.

* A cap on the number of MedsCheck/Diabetes MedsCheck services that can be delivered by a community pharmacy, to a combined total of 10 per calendar month

Appendix 3: Framework for Analysis

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| A. The individual patient |
| Patients' role perceptions and expectations |
| 1. Patients' perceptions and expectations of the role of community pharmacists and CPS in the provision of healthcare (e.g., as an alternative to GPs) |
| 2. Patients' perceptions and expectations of their role in the CPS |
| 3. Patients' perceptions and expectations of the role of the GP as a healthcare professional and in CPS |
| 4. Patients' perceptions and expectations of collaboration between healthcare professionals |
| Patients' needs and wants for CPS |
| 5. Patients' personal desire for CPS |
| 6. Patients' need for CPS and multidisciplinary care |
| Patients' understanding and awareness of CPS and their health |
| 7. Patients' understanding of CPS and awareness of its availability |
| 8. Patients' understanding of their health e.g. worry about health, confusion about health, perception of severity |
| Patients' experiences and satisfaction with CPS and multidisciplinary care |
| 9. Patients' satisfaction with the characteristics of CPS and multidisciplinary collaboration e.g. feeling comfortable in the pharmacy and while interacting with the pharmacist |
| 10. Patients' previous experiences of CPS and multidisciplinary care |

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| Patients' abilities |
| 11. Patients' capability to self-manage their condition and/or follow the procedures of the CPS |
| 12. Patients' level of emotional intelligence i.e. their ability to cope with negative experiences |
| 13. Patients' will power and motivation |
| Patients' language, communication and cultural issues |
| 14. Patients' language, communication and cultural issues |
| Patients' time to participate in CPS |
| 15. Patients' availability and time to participate in CPS |
| B. Individual healthcare providers – community pharmacists, other community pharmacy staff (e.g. pharmacy assistants, GPs and nurses) |
| Understanding, perceptions, beliefs, and awareness of CPS |
| 16. Perception and understanding of <ul style="list-style-type: none"> a) their individual role in the primary healthcare team and in CPS b) understanding and attitude towards the role of other healthcare professionals in the primary healthcare team and in CPS |
| 17. Beliefs about the CPS and their agreement with the CPS in terms of their attitude towards it, placed and expected outcomes or consequences |
| 18. Awareness of CPS |
| Knowledge and skills and attributes |
| 19. Communication skills and ability to interact with patients, colleagues and other |

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| healthcare professionals, including capacity to speak other languages |
| 20. Knowledge to adequately provide CPS and participation in training to obtain this knowledge |
| 21. Knowledge about the CPS and their understanding of the facts, truths, principles, and practices related to the CPS |
| 22. Memory, attention and decision process such as the ability to remember and retain information, focus selectivity on aspects of the environment and choose between two or more alternatives |
| 23. Leadership skills and ability to inspire and motivate others as well as make sound decisions |
| 24. Humanistic attributes (e.g. being respectful, caring, non-judgmental, friendly, empathetic, supportive and approachable) and personal attributes (e.g. intellectual ability, learning style, coping strategies) |
| 25. Clinical and non-clinical skills (e.g. cultural competency) to adequately provide CPS |
| 26. Ability to uphold patient confidentiality |
| 27. Individual belief in their self-efficacy and capability to execute courses of action to achieve implementation goals |
| Ability to participate in or deliver CPS |
| 28. Experience, familiarity, ability and expertise in performing the tasks involved in CPS provision including interpretation of results |
| 29. Individual state of change |
| 30. Willingness, interest and motivation to participate in and provide CPS and/or participate in multidisciplinary collaboration |

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| 31. Workload and time to participate in and provide CPS |
| C. Relationships (interactions) between individuals |
| Relationships between the pharmacist and patients |
| 32. Presence and nature of a relationship between the patient and the pharmacist (e.g. trusting relationship) |
| Relationships between the pharmacist and other healthcare professionals |
| 33. Communication between pharmacists and GPs/nurses (e.g. regarding patient's health issues), and the use of convenient communication modes |
| 34. Presence and nature of the relationship between pharmacists, nurses and GPs, including collaborative relationship and previous experience with CPS |
| 35. Availability/presence of multidisciplinary education, training and meetings, including training that emphasizes multidisciplinary approach to care, for pharmacists and GPs |
| Sharing of information regarding the patient |
| 36. Consistency in the information provided by the pharmacist with regards to the GP's recommendations |
| 37. Availability of a system for sharing information regarding the patient (e.g. electronic database) |
| 38. Pharmacists having access to adequate level of patient information to provide CPS |
| Social networks, communication and relationships between pharmacy staff |
| 39. The nature and quality of the social networks and the formal and informal internal communications within the pharmacy e.g. referral mechanisms between |

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| pharmacy support staff and pharmacists |
| Influence of family and friends |
| 40. Influence of friends and family on the patient utilizing CPS (as they affect adherence, provide support and influence motivation) and integration of family and friends in the CPS e.g. through group sessions |
| D. Community pharmacy setting |
| Resources |
| 41. Availability of suitable resources (e.g. facilities such as weighing scales, educational material, medical devices, translated consumer medication information sheets) |
| 42. Presence and implementation of practice standards and protocols to guide CPS delivery |
| 43. Sufficient and qualified staff to perform CPS |
| 44. Use of a data management system (e.g. patient medication history register) |
| 45. Costs of the business |
| Characteristics of the pharmacy setting |
| 46. Accessibility of the pharmacy setting (e.g. convenient location, co-location, no appointments required, opening hours) |
| 47. Structural characteristics of the pharmacy i.e. size, provision of counselling rooms, use of visual space for posters, child-friendly area, space |
| 48. Privacy of the setting (e.g. involvement of multiple staff members who are aware of the patients' personal matters, or presence of other consumers in the pharmacy who can overhear private conversations) |

49. Norms, values and basic assumptions of a given organization including organizational direction and vision

50. Organizational commitment to implement a CPS and capacity of the pharmacy to provide CPSs

- a) commitment, involvement and accountability of leaders and managers with the implementation of the CPS
- b) ease of access to information regarding the CPS and how to incorporate it into work tasks

51. Implementation climate i.e. the shared receptivity of the involved individuals to a CPS and the extent to which the provision of the CPS will be rewarded, supported and expected within the organization

- a) The tension for change i.e., the degree to which the stakeholders perceive the current situation as intolerable or needing change
- b) Compatibility i.e., the degree of fit between the meaning and values attached to the CPS, the individual's norms, values and perceived risks and needs, and how the CPS fits in with existing work flows and systems
- c) Relative priority i.e., individual's shared perception of the importance of the implementation within the organization
- d) Organizational incentives and rewards for providing the CPS e.g. promotions, raises in salary, increased stature in respect
- e) Establishing goals, objectives and targets for the CPS
- f) The degree to which goals are clearly communicated, acted upon and fed back to staff and alignment of that feedback with the goals
- g) A learning climate in which a) leaders express their own fallibility and need for team members' assistance and input; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation

52. Promotion of the extended roles of pharmacists and of the CPS to facilitate its

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| uptake |
| 53. Presence of teamwork in the organization |
| 54. Previous experience in participating with the CPS or other similar CPSs |
| 55. Balance between the work environment with regards to competing demands, conflicting roles and/or time |
| 56. Presence of support provided by the organizational group or head office such as advertising, training, monitoring etc. |
| 57. The right of the organization to self-regulate, work and make decisions independently |
| Processes |
| 58. Methods or activities to assess quality of the CPS implementation and/or provision |
| E. Community pharmacy service |
| Appearance and characteristics of the CPS |
| 59. How well the service is bundled, presented and assembled |
| 60. Source of the CPS as being developed a) externally (by a professional body, university, pharmaceutical company or government) or b) internally (by a pharmacy or pharmacy group) |
| 61. Quality and validity of the evidence supporting the belief that the CPS will have the desired outcome |
| 62. Relative advantage of the CPS versus an alternative e.g. <ul style="list-style-type: none"> a) Direct financial benefits such as compensation for the patient or healthcare professional b) Organizational benefits such as increased patient loyalty, return rates, |

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| <p>community rapport, sales, efficiency</p> <p>c) Patient benefits such as improved health, quality of life, adherence, knowledge, confidence etc.</p> <p>d) Professional/personal benefits for healthcare professionals such as professional or personal reward, increased satisfaction or motivation</p> |
| <p>63. Nature of the innovation in terms of the</p> <p>a) degree of change from a previous habit</p> <p>b) difficulty of the CPS for use</p> |
| <p>64. Duration of the CPS consultation and frequency of follow-up and consistency throughout the year</p> |
| <p>65. Privacy of the CPS consultation</p> |
| <p>66. Provision of CPSs in a timely manner</p> |
| <p>Activities of the CPS</p> |
| <p>67. Use of different communication channels (e.g. telephone, website) to interact with the patient</p> |
| <p>68. Extent to which the CPS provides individualized or patient-centered care (e.g. tailoring the CPS to fit a patient's particular circumstances) or empowering care</p> |
| <p>69. Extent to which the CPS is aligned with and meeting patient needs and filling health gaps or can be adapted, tailored, refined or re-invented to meet local needs and gaps</p> |
| <p>70. Provision of ongoing support, follow-up and feedback to patients</p> |
| <p>71. Provision of verbal and written information and professional advice and education</p> |
| <p>72. Existence of referral processes and feedback mechanisms from the CPS to other healthcare professionals and vice versa.</p> |

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| Costs involved with the CPS |
| 73. Costs associated with the CPS for the patient including standardization of costs or cost adjustments |
| 74. Costs of the service and its implementation such as investment, supply and opportunity costs |
| Resources for the CPS, their characteristics and how they are used |
| 75. Quality of the CPS (e.g. validity or accuracy of the tests or tools provided) |
| 76. Consistency in the healthcare provider (e.g., community pharmacist) delivering the CPS |
| 77. Involvement of other healthcare providers in providing the CPS and its processes |
| Implementation issues |
| 78. Difficulty of implementing the CPS, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement |
| 79. The ability to test the innovation on a small scale in the organization and to be able to reverse course (undo implementation) if warranted |
| 80. Quality assurance systems to assess quality of the CPS's implementation and provision |
| F. Community and health system |
| Other stakeholders and organizations |
| 81. Perspectives of stakeholders in the healthcare system with respect to CPS (e.g. their acceptance of the service, in identifying opportunities for CPS, demand or interest in the CPS) |

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| 82. Promotion of the CPS by other organizations in the healthcare system |
| 83. Consumer education about healthcare and promotion of CPS by the media |
| 84. Degree of inter-professional network and communication within the profession and their professional organization |
| 85. The relationship, social networks and profile the pharmacy has with other local healthcare professionals and organizations |
| 86. The degree to which the profession is networked with other healthcare professionals and their organization e.g. relationship between GP and pharmacist professional bodies |
| 87. Competitive pressure to implement a CPS, typically because most or other key peer or competing organizations have already implemented |
| Organization of the healthcare system and the processes in place |
| 88. Complexity of the system-level processes for CPS (e.g. tedious paperwork, complying with Medicare requirements) |
| 89. Laws, policies and regulations (governmental or other central entity), external mandates, recommendations, guidelines |
| 90. Organization of the healthcare system including healthcare budget and contracts |
| Support and incentives |
| 91. Availability of resources or incentives for inter-professional collaboration (e.g. professional development points) |
| 92. Support from professional organizations, companies or government in terms of materials, software, guidelines, training |
| 93. Availability and allocation of funding (e.g. subsidies to patients, remuneration for |

pharmacists, funding for multidisciplinary collaboration, availability of competing government subsidized services)

Appendix 4.



Human Ethics Application

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| Application ID : | ETH16-0597 |
| Application Title : | Improving the delivery and integration of community pharmacy services to achieve better outcomes for patients with chronic and complex conditions in Western Sydney Primary Health Network (WentWest) |
| Date of Submission : | N/A |
| Primary Investigator : | Dr Daniel Sabater Hernandez |
| Other Investigators : | Miss Lutfun Nahar Hossain Prof Charlie Isaac Benrimoj |

Chapter 5

Discussion

Discussion

This thesis investigated determinants that influence the implementation of CPSs (i.e., determinants of practice) from the perspective of key stakeholders (i.e., patients, GPs and nurses). This information was synthesised with previous research that investigated determinants from the perspective of the service provider (i.e., pharmacists), and a multi-level stakeholder, participatory approach was adopted to understand the specific circumstances that affect government-funded services in a particular PHN in Australia. This facilitated a deeper understanding of this context in which CPSs are embedded. Key determinants were prioritised for this region, which can guide the development of strategies to enhanced CPS implementation in this PHN.

As analysing the views of a single stakeholder group (i.e., pharmacists) is insufficient to comprehensively assess the complexity of a particular implementation context, the views of other key stakeholders (i.e., patients, nurses and pharmacists) were considered in the systematic review (Chapter 3). The list of determinants was summarised under six ecological levels: (1) individual patient, (2) individual healthcare provider, (3) relationships (or interactions) between individuals, (4) community pharmacy setting, (5) community pharmacy service and (6) community and health system level. By using this structure, the results of this systematic review could be merged with a list of determinants identified from the pharmacist-centred literature (Moullin, Sabater-Hernandez et al. 2016) to create a comprehensive framework of determinants that influence CPS implementation (See Chapter 4, Appendix 3).

The comprehensive list of determinants developed in this thesis is a practical base for pharmacy service planners to holistically identify determinants of practice for CPSs

implementation in a range of contexts. While other checklists and frameworks for identifying determinants of practice exist, (Damschroder, Aron et al. 2009, Flottorp, Oxman et al. 2013) the framework created in this thesis is valuable for pharmacy service planners for a number of reasons. Firstly, the framework is based on the theories underpinning the socioecological model but takes into account key stakeholders in CPS implementation (i.e., patients, pharmacists, nurses, GPs and practice manager) and draws from their real experiences to identify determinants that are relevant to pharmacy practice, thus producing an evolved framework rooted in empirical evidence. Empirical evidence helps to understand how the service actually occurs and is used in practice (Harvey, Fitzgerald et al. 2011).

Secondly, the framework in this thesis (Chapter 4, Appendix 3) goes beyond other frameworks to further include determinants that are specific to CPS implementation. Other comprehensive frameworks may contain determinants that are less relevant for CPS implementation. For example, in their checklist for identifying determinants, Flottorp & colleagues identified a range of determinants related to clinical practice guidelines, (Flottorp, Oxman et al. 2013) which is less important when implementing CPSs. Also other comprehensive frameworks may not allow for an investigation of determinants to an extent that is necessary for CPS implementation. For example, in the CFIR, determinants related to the patient are restricted to “patients’ needs and resources” including elements such as patient satisfaction and patient costs (Damschroder, Aron et al. 2009). However, the framework in this thesis includes more elements related to the patient such as: patient awareness of the availability of CPSs, or patients’ understanding, perceptions and expectations of the role of community pharmacists in healthcare, which have been shown to have an impact on CPS implementation (McMillan, Wheeler et al. 2013). The framework

in this thesis includes determinants that are specific for community pharmacy practice and are therefore necessary to be considered.

Lastly, the framework in this thesis stratified determinants into different levels that are relevant to CPS implementation. For example, the individual healthcare provider level was further subdivided into determinants related to the community pharmacist and the general practitioner, as both healthcare professionals can influence CPS implementation. Stratification of determinants into different levels helps to set the focus of future implementation strategies by identifying where these strategies should be targeted. As implementation is a complex process in which determinants can interact and influence each other at different levels (Damschroder, Aron et al. 2009, Flottorp, Oxman et al. 2013), understanding the interactions between determinants is equally important to design suitable implementation strategies. If relationships between determinants at different levels are identified, additional targets for implementation strategies at different levels can also be established.

The framework of determinants for CPS implementation was subsequently applied in a qualitative study. At this point it is important to note the change in terminology from Chapter 3 to Chapter 4. In the qualitative meta-synthesis, the neutral term 'influential elements' was adopted to describe a barrier/facilitator. However, in the qualitative study the term 'determinants of practice that influence the implementation of CPSs' was adopted and retained in this thesis. This was an intentional decision of the research team, as the latter term is more meaningful, more specific to the aim of the study, and provided context for the participants in the qualitative study. Additionally, this term is also well understood amongst researchers. (Flottorp, Oxman et al. 2013)

Through semi-structured interviews, the practical experiences of key stakeholders (i.e., patients, pharmacists, GPs and a practice manager) were used to refine the list of determinants and tailor it for this specific setting (i.e., Western Sydney PHN). Specifically, the framework was used to construct and guide the interview questions and subsequent analysis which demonstrates how the framework can be applied in practice. The twenty-two key determinants selected by the stakeholders should guide the development of implementation strategies to enhance CPS implementation in this region. Specifically, three key determinants which were mutually agreed upon by the stakeholders as those which should be initially addressed: (1) Patient understanding of the aims of the service; (2) Commitment of the organisation and its leaders to provide services; (3) Coordination of the healthcare system to prompt collaboration between pharmacists and GPs. In addition, the stakeholders described suggestions to (See Chapter 4, Table 5) to enhance implementation. This information can be used to shape future implementation strategies.

At this point it is necessary to define and describe an implementation strategy. Strategies facilitate implementation by supporting the uptake, integration and sustainability of a service in a particular context (Mendel, Meredith et al. 2008). They are the efforts (method, technique or activity) designed to enhance the movement of an innovation into use and being integrated into routine practice (Curran, Bauer et al. 2012, Flottorp, Oxman et al. 2013). Implementation strategies are 'inherently complex social interventions, as they address multifaceted and complicated processes within interpersonal, organisational, and community contexts' (Proctor, Powell et al. 2013).

A multitude of strategies have been defined in the literature. They can be passive (e.g., written guidelines, lectures, and conferences) or active (e.g., outreach visits or active self-study). Additionally, strategies can target different levels of the healthcare system. There

are those that target health professionals (e.g., decision support tools, staff training), target patients (e.g., questionnaires to improve quality of services), target the organisation (e.g., human resources management (i.e., delegation of dispensing and administrative tasks to dispensing technicians), target the service (e.g., marketing and promotion of the service) or are financial in nature (e.g., financial incentives for patients, reimbursement for care providers) (Patwardhan, Amin et al. 2014, Wensing, Huntink et al. 2014, Pestka, Frail et al. 2016, MacKeigan, Ijaz et al. 2017). As strategies can target different levels of the healthcare system, processes to design implementation strategies should continue to involve stakeholders from across these different levels (Craig, Dieppe et al. 2008, Bartholomew, Parcel et al. 2011, Palinkas, Aarons et al. 2011).

Methods to design strategies to address the three key determinants should be evidence-based, theory-based and context-based. Using all three approaches will enable sufficient planning and tailoring of the strategy for the particular circumstances and situation in which it will take place (Harvey, Fitzgerald et al. 2011). In the first instance, pharmacy service planners can look towards the work of Flottorp & colleagues which links determinants of practice with strategies (Flottorp, Oxman et al. 2013). For instance, to develop a strategy that addresses the commitment of the organisation and its leaders to provide CPSs, Flottorp & colleagues suggest enhancing capable leadership by engaging leaders or managers in designing and implementing the implementation strategy, shifting or allocating certain leadership or management responsibilities, and providing external support or training for managers and leaders. Pharmacy service planners can then consult Powell & colleagues refined compilation of implementation strategies (i.e., the ERIC project) (Powell, Waltz et al. 2015) to identify relative strategies that have been derived from the health literature that may be appropriate for them. In continuing the above

example, one strategy that Powell & colleagues suggest is conducting outreach visits in which a trained person meet with providers in their practice settings to educate providers about the service with the intent of changing the provider's practice, or providing ongoing consultation with one or more experts in the strategies to support implementing the service. Evidence consistently shows that outreach visits can promote behaviour change amongst healthcare professionals (Grindrod, Patel et al. 2006).

Theoretical approaches to developing strategies should initially be chosen based on the determinant and the level to be targeted (Bartholomew, Parcel et al. 2011, Sabater-Hernandez, Moullin et al. 2016, Durks, Fernandez-Llimos et al. 2017). Theoretical approaches link determinants to theories and guide the selection of strategies to support changes in these determinants (Eccles, Grimshaw et al. 2005). Theories can target individuals, organisations or the healthcare system. For instance, to plan changes in the behaviours of pharmacists or leaders within the organisation, pharmacy service planners can use the Behaviour Change Wheel, which is a theoretical approach that maps determinants and change interventions to the COM-B model. The COM-B model (i.e., (capability, opportunity, motivation – behaviour) determines whether greater capability, increased opportunity, or stronger motivation is required to drive the identified changes in behaviour (Michie, van Stralen et al. 2011), in this instance, increase the pharmacists' commitment to provide services. For example, if greater capability is identified as a planned change, possible strategies to improve capability could include role modelling (i.e., providing an example for people to aspire to) or environmental restriction (i.e., changing the physical or social context).It is important to note that one component of the COM-B model can influence another such that capability and opportunity can influence motivation (Michie, van Stralen et al. 2011).

As implementation is heavily context dependent, further research would be required to tailor and adapt strategies to local situations and contexts (Powell, Waltz et al. 2015). This can be done by engaging relevant stakeholders in methods to identify items for addressing barriers and facilitators (Nagelkerk, Reick et al. 2006, Kaasalainen, Brazil et al. 2010, Wensing, Bosch et al. 2010) as well as assessing their views and response to the strategy to determine its suitability. One way in which stakeholders can do this is by identifying the causal relationships that contribute to a determinant acting as a barrier or a facilitator. For example, organisation and availability of the GPs' time was found to be a barrier to their participation in CPSs, which was further exacerbated by the presence of complex system-level administrative processes (e.g. tedious paperwork) associated with the delivery of CPSs (Dhillon, Hattingh et al. 2015). Barriers and facilitators therefore cannot be considered as a separate entity, rather the complex influential relationships between determinants must be investigated to suitably inform the development of implementation strategies that are targeted to address the causes of these determinants (Garcia-Cardenas, Perez-Escamilla et al. 2017). In the above example, a proposed implementation strategy can be focused on simplifying the GPs' administrative tasks for participating in the CPS, rather than implementing measures to increase their time allocated for CPSs.

When the relevant causes for a determinant have been identified, stakeholders should continue to be engaged to identify approaches to address determinants and their corresponding causes. Stakeholders can provide valuable knowledge about the changes that are required for implementation (Harvey, Fitzgerald et al. 2011). In the supplementary results of the qualitative study (Chapter 4, Table 5), stakeholders described some suggestions to overcome barriers and enhance the implementation of CPSs in the Western Sydney PHN setting. For instance, the participants mentioned that some pharmacies were

not committed to providing CPSs (i.e., MedsCheck) as reforms to the provision of these services, such as a cap on the total number of services that can be provided within a time period (i.e., 10 MedsCheck or Diabetes MedsCheck provided by each pharmacy per quarter) were a disincentive for CPS provision. The participants suggested introducing policy to change this cap on provision from 10 per pharmacy to 10 per pharmacist, to encourage pharmacies to commit to providing these CPSs. If an evidence-based, theory-based and context-based approach is used to develop implementation strategies, these strategies are likely to be tailored to the specific circumstances and situations in which implementation is going to take place. An implementation program to design and pilot a strategy to address key determinants identified in the qualitative study is currently underway.

Methodological reflections and limitations

The studies in this thesis were restricted to the Australian context. This was an intentional decision to gain relevant information about this context, in which the results will be immediately applied. In the systematic review (Chapter 2), including studies conducted in other contexts or healthcare systems (e.g., United Kingdom, United States, etc.), may have brought irrelevant information to this context analysis, as barriers and facilitators in these other contexts may be different, which would hinder a comprehensive understanding of the context of interest. Keeping the systematic review restricted to the Australian setting also laid the foundation for the qualitative study. As Australia has extensive experience and has conducted significant research in CPS implementation, the comprehensive list of determinants of practice identified in this context can be used as a good starting point for investigating barriers and/or facilitators to CPS implementation in contexts with less experience. Pharmacy service planners can use this list to confirm the determinants that are present in their own context, assess whether these determinants are acting as a barrier and/or facilitator in their own context, as well as identify any new ones.

Qualitative meta-synthesis was chosen to review and synthesise the current qualitative literature on CPS implementation (Chapter 2). Qualitative meta-syntheses provide a new, more comprehensive interpretation of the findings that goes beyond the depth and breadth of the original studies (Walsh and Downe 2005, Mohammed, Moles et al. 2016). This broadens the range of concepts identified and therefore was an appropriate method to suitably achieve the aim of this systematic review. It is possible that the quantitative literature may also have provided some information on barriers and/or facilitators to CPS implementation. However, during analysis, it seemed that conceptual saturation may have been reached (i.e., no new determinants were identified after a certain point) which

indicates robustness of the results in the systematic review.

In the qualitative study (Chapter 4), qualitative methods were used, and a multi-level stakeholder approach was adopted, to confirm the determinants that were identified in the systematic review, detect any new ones, and then select key determinants that should be primarily addressed to enhance implementation. Considering the view of a single stakeholder group is insufficient to comprehensively analyse the complexity of a particular implementation context. These limited analyses can lead to the development of inadequate implementation strategies and interventions. When interpreting the results of this research it is important to consider that a large number of the ground-level stakeholders (i.e., patients, pharmacists, GPs and practice manager) who participated in the qualitative study had previous experience with CPSs which may have influenced the findings. As a first step, it is necessary to work with stakeholders with previous experience to identify the determinants that are relevant. Further works that aim to obtain the views of stakeholders with less experience may be beneficial.

Following the recommendations of IM which emphasise the testing of the components of a program in a specific context or settings before full implementation and dissemination, the qualitative study was further restricted to one to one particular region (i.e., City of Parramatta Council) in a PHN in Western Sydney. As mentioned previously, this was a necessary restriction which is vital for the successful implementation of CPSs in this region. As the City of Parramatta Council is a large region in The Western Sydney PHN, and all PHNs are similar in their structure, organisation and objectives, it is expected that the list of determinants identified in this region may be extrapolated to other regions in this PHN and to other PHNs in Australia.

It is important to note that in the qualitative study, the interviews were conducted by two researchers. The interviews were not evenly split, however to reduce bias, each interviewer analysed the transcript of their own interviews as well as at least one interview conducted by the other researcher. Furthermore, the researchers met regularly to discuss and clarify the data. Microsoft Excel was used for data analysis as it is a simple way to create matrices for framework analysis methodology. It also allowed for the addition of any new themes and determinants. NVivo is also useful for creating matrices for framework analysis methodology, however at the time of this research, in NVivo 10, themes needed to be pre-specified and an additional step would be required to add or remove themes. As the qualitative study was still an exploratory phase, and new themes could be added to the framework of determinants, Excel was seen as preferential for ease of use.

Qualitative methodology was used for the prioritisation exercise. To the best of our knowledge, this was the first study that aimed to prioritise determinants that influence the implementation of CPSs in Australia. For this reason, this thesis adopted an inductive approach to obtain a better understanding of the context in which CPSs are implemented. While quantitative methods may also be used to prioritise determinants and achieve consensus, qualitative methods were preferred in this study as they can provide a detailed understanding of how and why participants prioritise issues as well as local issues that should be considered (Rashidian, Shakibazadeh et al. 2013). For example, in the qualitative study not only did participants identify key determinants, they also provided suggestions to address determinants and enhance implementation of current CPSs (Chapter 4, Table 5). These are useful insights of current pharmacy practice and will guide future implementation research.

One major learning from the qualitative study was that the process of engaging and

working with stakeholders is timely, and future research should be aware of and allow sufficient time for this type of research. As a large group of stakeholders participated in the study, the research team experienced some administrative difficulties (i.e., managing individual agendas, competing priorities and differential time commitments by the participants). These challenges have previously been reported when working with stakeholders (Hinchcliff, Greenfield et al. 2014). As a result, only one patient, two pharmacists and zero GPs from the initial phase were able to participate in the workshop. However, two participants in the workshop had a dual role of GP/PHN stakeholders. These participants were asked to consider their practice as a GP, as well as a PHN stakeholder, when making input in the workshop discussions and exercises.

The researchers sent supplementary information regarding CPSs to the participants prior to the workshop. Regardless, during the workshop it was found that more than the allocated time was required for explanation of CPSs, preliminary research presentation, and discussion and clarification of determinants, which required modifying the workshop time schedule, and key determinant exercise, on the day. Adequate presentation of preliminary results and project information has also been reported to be an enabling factor in engaging stakeholders and encouraging proactive contribution (Hinchcliff, Greenfield et al. 2014). Thus, future studies should allocate sufficient time to recruitment as well as to a presentation of program background, objectives and of preliminary results.

Recommendations for future research

This thesis provides a foundation for identifying determinants of practice that influence the implementation of CPSs in Australia through the creation of a framework of determinants based on the perspectives of key stakeholders. Further recommendations for research to advance and refine this framework could investigate the perspectives of other stakeholders who can influence, control and/or have an interest in the CPSs, such as carers, patient representative groups or other allied healthcare professionals (Franco-Trigo, Hossain et al. 2017), such as primary care nurses, for additional insight into determinants that influence CPS implementation.

The systematic review revealed some relationships and interactions that exist between determinants at different levels (Chapter 3). However, as this information was reported unsystematically in the studies included in the review, a limited network analysis was obtained. Understanding the relationships between determinants is crucial in the implementation of CPSs, as one barrier may in fact be influenced by a set of other interacting determinants (Garcia-Cardenas, Perez-Escamilla et al. 2017). A recommendation for future research would be to identify, analyse and map the interactions between determinants of practice that influence CPS implementation. This information is valuable when designing implementation strategies, as strategies that are targeted to address the causes of a barrier or facilitator are more likely to be successful in practice than strategies that do not consider or address these influential relationships (Garcia-Cardenas, Perez-Escamilla et al. 2017).

The stakeholders in the qualitative study provided some suggestions to address and overcome some of the identified barriers to CPS implementation (Chapter 4), and this

information can be used to shape implementation strategies. Some strategies that have been used in pharmacy practice to enhance the implementation of CPSs have been listed and described in the literature (Moullin, Sabater-Hernandez et al. 2016, Pestka, Frail et al. 2016, MacKeigan, Ijaz et al. 2017). These studies provide some description as to how these strategies are linked to the stages of implementation (Pestka, Frail et al. 2016) and two studies (Moullin, Sabater-Hernandez et al. 2016, MacKeigan, Ijaz et al. 2017) also cross-referenced the identified strategies with Powell & colleagues refined complication of discrete implementation strategies (i.e., the ERIC project) (Powell, Waltz et al. 2015). Further work beyond describing strategies, to creating a tool that links strategies to frameworks of determinants of implementation, such as that created in this thesis, would be beneficial. Currently, the CFIR is being mapped to the discrete implementation strategies in the ERIC project, and so can guide pharmacy service planners in this regard (CFIR research team 2014). In order to create such an instrument, it would be useful to first conduct a comprehensive review of strategies used in pharmacy practice.

Future research should explore and document an evidence-based, theory-based and context-based approach to designing implementation strategies, targeted at the key three determinants identified in the qualitative study (Chapter 4) as a first approach. An implementation strategy targeted to addressing these key determinants to enhance CPS implementation in the Western Sydney PHN is currently being designed and piloted in this region. An important recommendation for future research is to provide accurate descriptions of the methods used to develop the strategy as it can provide valuable insight into why certain strategies work and others do not (Bosch, van der Weijden et al. 2007, Proctor, Powell et al. 2013). It also enables researchers to adequately operationalise them in practice and build on the research findings in the future (Hoffmann, Glasziou et al. 2014,

Patwardhan, Amin et al. 2014). Proctor et al provide prerequisites for naming, defining and specifying implementation strategies, which can guide pharmacy service planners in outlining the fundamentals of a strategy. Critical information to specify include: the name of the strategy, defining the strategy, justification of the strategy and identifying *who*, *when* and *how* the strategy will be enacted (Proctor, Powell et al. 2013).

Chapter 6

Conclusions

Conclusions

Key stakeholders such as patients, nurses and general practitioners identified a large number of determinants of practice at different levels of the healthcare system that can influence the implementation of CPSs (Chapter 3). This complemented the pharmacy-centred literature and laid the foundation for the qualitative study.

An overarching framework of determinants of practice specific to the implementation of CPSs was created (Chapter 4, Appendix 3). This framework can guide a comprehensive assessment of barriers and facilitators to CPS implementation in other settings.

A collaborative stakeholder approach was adopted in the qualitative study, in which stakeholders identified twenty-two key determinants of high priority and feasibility to be addressed. Of these three determinants were mutually agreed upon to be initially addressed (Chapter 4). First efforts to enhance implementation should be based on developing strategies that address these three key determinants. This thesis provides some direction as to how this process can be undertaken. Future research must continue to engage stakeholders across different levels of the healthcare system in the development, implementation and evaluation of such implementation strategies. This thesis outlines an approach to developing tailored implementation strategies which can guide pharmacy service planners in this regard.

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