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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 nurses[23] 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 Australia[23] 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 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 pharmacy[24] 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.

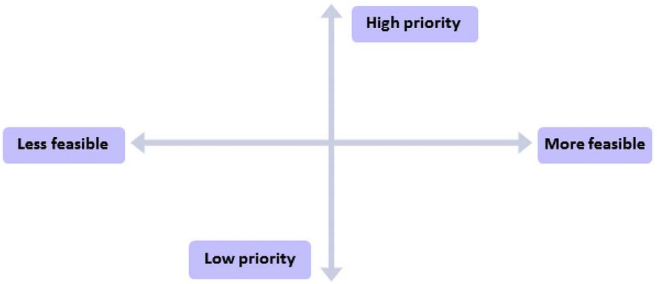

Fig. 1. Example of one determinant presented to the workshop participants.

Fig. 2. Four quadrant priority matrix utilised in the workshop (Green and Kreuter 2005[27]).

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 ≥ 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 lead 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	F: 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	
Community pharmacists	
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)
Willingness and interest to provide CPS	F: Pharmacists are willing to provide CPS (Pt, GP)
General Practitioner (GP)	
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)
Existence of suitable and appropriate feedback processes from the pharmacist to the GP following CPS provision	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) F: The pharmacist notifies the patient that feedback to the GP has occurred (Pt)
Pharmacists having access to adequate level of patient information to provide CPS	F: Pharmacists have access to adequate level of patient information to provide CPS (PHN)
Communication between the GP and the patient	F: Presence of communication between the GP and the patient regarding the CPS (GP)
Relationship between the GP and the pharmacist	F: Presence of a good relationship between the GP and the pharmacist (CP) 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)
Other costs of the organization	B: Presence of other competing costs in the pharmacy (CP)
Balance between the work environment with regards to competing demands	B: Presence of other work demands/competing tasks in the pharmacy (CP)
Structural characteristics of the pharmacy setting	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)
Presence of teamwork in the pharmacy	F: Presence of teamwork in the pharmacy enables the pharmacist to devote time to the CPS (CP)
Promotion of the pharmacy and of the CPS	F: Promotion of the CPS to create awareness amongst patient groups (Pt) F: Promotion of the pharmacy as a healthcare destination (CP)
Commitment from the organizational leaders with regards to CPS	F: Presence of commitment from the organizational leaders with regards to the CPS (CP)
Presence of support provided by the organizational group or head office	F: Presence of support provided by the organizational group or head office (e.g., presence of multilingual staff) (CP)
Implementation climate i.e. the shared receptivity of the involved individuals to a CPS	F: Support and commitment from pharmacy staff with regards to CPS provision (CP)
Accessibility of the pharmacy setting and its location	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)
The community pharmacy service level	
Privacy of the CPS consultation	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)
Evidence supporting the belief that the CPS will have the desired outcome	F: Presence of research and data to confirm that the CPS has a positive health outcome (CP)
CPS being provided in an alternative setting	F: CPS can be provided by the pharmacist in the general practice setting (GP, PM)
Provision of the CPS as a group session	F: Integration of others (e.g. family and friends) in the CPS as group sessions (Pt)
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)	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)
Cost of the CPS for the patient	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)
Cost of CPS implementation	B: Cost of employing extra staff (CP) B: Other costs of implementation e.g. private consultation room (CP)
Difficulty implementing the CPS reflected by length of time required to implement	F: CPSs that require less time to complete are easier to implement (CP)
Difficulty implementing the CPS reflected by number of steps involved or processes involved	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)
Relative advantage of the CPS provision to the patient	F: Patient benefits such as improved health, quality of life, adherence, knowledge, confidence, support etc. (Pt, GP, CP, PM)
Relative advantage of CPS provision to the healthcare provider	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)
Relative advantage of CPS provision to the pharmacy organization	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)
Relative advantage of CPS provision to the healthcare system	F: Benefits to the healthcare system such as reduced re-admissions to hospital, reduced healthcare costs
Systems to assess quality of the service's implementation and provision	F: Availability of a system to assess the outcomes of CPS provision to improve the quality of the CPS provision (CP)
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)
Other stakeholders in the healthcare system and their acceptance of the service, identifying opportunities for CPS, demand or interest in the CPS	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)

(*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	F: Promotion of the CPS through media such as television or internet (Pt)
Support from professional organizations	F: Lobbying by Pharmacy professional bodies for financial remuneration of CPSs (GP)
Complexity of the system-level processes for CPS	B: Claiming, paperwork and complying with system level requirements make CPS provision challenging (CP) F: Ease of claiming and paperwork submission for CPSs (CP)
Laws, policies and regulations (governmental or other central entity), external mandates, recommendations, guidelines	B: System level rules and requirements that restrict CPS provision (CP)
The degree to which the profession is networked with other healthcare professionals and their organization	F: Coordination of the healthcare system to prompt collaboration between pharmacists and other healthcare professionals (CP)
Availability and allocation of funding	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 "GPs' 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

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Table 3 (*continued*)

Selected quotes from the interviews with ground-level stakeholders	
Selected quotes from the key stakeholder workshop	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 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 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 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

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.

Individual patient level
- 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
Individual healthcare providers
- GP perceptions of pharmacists and understanding of the service
- GPs' willingness and interest to have pharmacists as part of their team
Relationships (interactions) between individuals
- 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
The community pharmacy setting
- 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
The community pharmacy service
- 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
The community & healthcare system
- 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 care[36] 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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